STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING)
CALLED BY THE OIL CONSERVATION)
DIVISION FOR THE PURPOSE OF)
CONSIDERING:) CASE NO. 10036
CASE NO. 10111

CASE NO. 10036 AND CASE NO. 10111
BEING REOPENED

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: Michael E. Stogner, Hearing Examiner
Jim Morrow, Hearing Examiner

February 17, 1994

Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Division on February 17, 1994, at Morgan Hall, State Land Office Building, 310 Old Santa Fe Trail, Santa Fe, New Mexico, before Deborah O'Bine, RPR, Certified Court Reporter No. 63, for the State of New Mexico.

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CUMBRE COURT REPORTING
P.O. Box 9262
Santa Fe, New Mexico 85704-9262
(505) 984-2244 FAX: 984-2092

I N D E X

February 17, 1994
Examiner Hearing
CASE NO. 10036
CASE NO. 10111

E X H I B I T S

A P P E A R A N C E S

FOR TEXACO, CHEVRON, ARCO:	CAMPBELL, CARR, BERGE & SHERIDAN, P.A. P.O. Box 2208 Santa Fe, New Mexico 87504 BY: WILLIAM F. CARR, ESQ.
FOR CONOCO, INC.:	KELLAHIN AND KELLAHIN 117 N. Guadalupe Santa Fe, New Mexico BY: W. THOMAS KELLAHIN, ESQ.
FOR DOYLE HARTMAN:	GALLEGOS LAW FIRM 141 E. Palace Avenue Santa Fe, New Mexico 87501 BY: J.E. GALLEGOS, ESQ.

EXAMINER STOGNER: At this time, I'll reopen Case No. 10036, which is being reopened pursuant to the provisions of Order No. R-8170-G, which promulgated special rules and regulations for the Eumont Gas Pool and established minimum gas allowable for that pool.

At this time I'll call for appearances.

MR. CARR: May it please the examiner, my name is William F. Carr with the Santa Fe law firm Campbell, Carr, Berge & Sheridan. I'd like to enter our appearance for Texaco Exploration & Production, Inc., Chevron USA Production Company, and Arco Permian. I have three witnesses.

EXAMINER STOGNER: Any other appearances?

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of the Santa Fe law firm of Kellahin and Kellahin, appearing in this case on behalf of Conoco, Inc. I have one witness to be sworn.

EXAMINER STOGNER: Other appearances?

MR. GALLEGOS: Mr. Examiner, I'm Gene Gallegos, Santa Fe, New Mexico, in behalf of Doyle Hartman. We would like to ask that Case 10036 be heard on a consolidated record with 10111; that is, the Eumont and Jalmat Pool minimum allowable cases be heard together.

As grounds for that, we would point out that the minimum allowables were set for these two pools contemporaneously in January of 1991, and that the pools are essentially geologically the same pools, there's almost a complete overlap of operators in the pools, and the evidence that we'll present for Doyle Hartman in behalf of the Jalmat allowables will also contain evidence in support of the continuation of the minimum allowables for the Eumont Pool.

EXAMINER STOGNER: Are there any objections from either parties in reopened Case 10036? Mr. Carr, or do you want to take five minutes?

MR. CARR: I won't need five minutes. The evidence that we're going to present is really specific to the Eumont Pool. I can tell you, however, that as Mr. Gallegos indicated as to his evidence, that the conclusions and all that we will reach about the Eumont I believe would be also applicable to the Jalmat. Our presentation is organized to do just the Eumont. It's your pleasure.

EXAMINER STOGNER: Mr. Kellahin?

MR. KELLAHIN: Mr. Examiner, our presentation is specific to the Eumont as a pool. The Division heard these matters separately. If I

recall, they were on the same docket, but they were treated as separate matters in terms of gathering the evidence. I have no presentation to make in the Jalmat. It's certainly up to your discretion. We have prepared ours in terms of going forward as a single presentation on a separate case.

EXAMINER STOGNER: Are there any other appearances in either case before I make the decision whether to consolidate or not? Were you all going to enter appearances, Mr. Carr --

MR. CARR: I'm going to be appearing in the Jalmat case, yes.

EXAMINER STOGNER: Mr. Kellahin, I take you are not going to be appearing in the Jalmat case?

MR. KELLAHIN: That's right, I'm not.

EXAMINER STOGNER: Were you going to be objecting to the Jalmat case in any way?

MR. CARR: No. I'm supporting the presentation to be made by Mr. Hartman.

EXAMINER STOGNER: For the purposes of testimony, then, I will go ahead and consolidate both these reopened cases.

At this time, I'll call Case No. 10111 which is being reopened pursuant to the provisions of

Division Order No. R-8170-J, which order established minimum gas allowables in the Jalmat Gas Pool in Lea County.

Are there any other appearances at this time? If not, I tell you what, I would like for you gentlemen to decide how best to go on with this case. How many witnesses do you have, Mr. Gallegos?

MR. GALLEGOS: Mr. Examiner, we'll have two witnesses.

EXAMINER STOGNER: You have three, Mr. Carr?

MR. CARR: I have three, yes, sir.

EXAMINER STOGNER: You have two?

MR. KELLAHIN: One, sir.

EXAMINER STOGNER: And you have two. Or do you have a preference? Do we need to go off the record and let you guys decide this?

MR. KELLAHIN: I think we can move right ahead. Mr. Carr was the applicant with his client in the Eumont case. If he's prepared to go ahead, I'm happy to let him do that.

MR. GALLEGOS: Sure, and that's fine with us, too. I think that's logical.

EXAMINER STOGNER: Mr. Carr, I'm going to allow you to go first and Mr. Kellahin with his

witness and then Mr. Gallegos.

MR. CARR: At this time we will call Dorothy Brelih.

EXAMINER STOGNER: I tell you what, before we get started, let me have all the witnesses stand at this time.

(Witnesses sworn.)

EXAMINER STOGNER: Mr. Carr.

DOROTHY BRELIH,

the witness herein, after having been first duly sworn upon her oath, was examined and testified as follows:

EXAMINATION

BY CARR:

Q. Will you state your name for the record, please.

A. Dorothy Brelih.

Q. Where do you reside?

A. Hobbs, New Mexico.

Q. By whom are you employed, and in what capacity?

A. I'm employed by Texaco as a production engineer.

Q. Have you previously testified before this Division?

A. No, sir.

Q. Could you summarize your educational background for Mr. Stogner and then review your work experience?

A. Yes. I received a B.S. in chemical engineering from California State Polytechnic University, Pomona, in 1981. I received an MBA from California State University, Bakersfield, in 1987, and I'm a registered engineer in both California and New Mexico. I've worked 13 years for Texaco. The first 12 of those were in Bakersfield as reservoir, facilities, production, and drilling engineer, and I've been in Hobbs almost one year.

Q. Does the geographic area of your responsibility with Texaco include the portion of southeast New Mexico involved in this case?

A. Yes, it does -- only the Eumont.

Q. Have you studied the production history for the Eumont Pool?

A. Yes, I have.

Q. And your area of responsibility does not include Jalmat?

A. No, it does not.

Q. Are you familiar with the allowables for the Eumont Gas Pool and recent changes in these

allowables?

A. Yes, I am.

MR. CARR: Mr. Stogner, at this time we would tender Dorothy Brelih as an expert witness in petroleum engineering.

EXAMINER STOGNER: Are there any questions or any oppositions? Miss Brelih is so qualified then.

Q. (BY MR. CARR) Would you briefly state what Texaco seeks with this application?

A. We seek permanent pool rules establishing a 600 Mcf per day minimum allowable for the Eumont Gas Pool.

Q. When was this pool originally created?

A. In February 1974.

Q. Could you refer to Texaco Exhibit No. 1, identify this, and review it for the examiner.

A. Yes, sir. This is a map that shows the Eumont Gas Pool boundaries. All the shaded sections are those that are included in the pool.

Q. Where is the Jalmat Pool in respect to the Eumont boundaries that you've indicated on this exhibit?

A. It adjoins this pool immediately to the south.

Q. Are they contiguous pools, or do they abut?

A. They do abut, yes.

Q. Generally speaking, where is the Eumont Pool located?

A. Between Hobbs and Eunice in southeastern Lea County.

Q. How large a pool are we talking about when we talk about the Eumont?

A. Approximately 179 square miles, just over 405 acreage factors.

Q. And the vertical limits of this pool are defined in what way?

A. From the top of the Yates to the bottom of the Queen.

Q. Let's go to Exhibit No. 2, the graph of production versus allowable. And I would ask you to review this for the examiner, explain what the purpose of this exhibit actually is.

A. Okay. This is a plot of field allowable and production from 1980 to present. The red line is production. The green line is the allowable.

The important things to note here are the high production levels that we had in the early '80's; then the rapid decline in '82. This is when

the gas market deteriorated both due to price and demand considerations. The operators began producing erratically, opening wellbores in the winter when the price was high and producing the allowables, shutting in in the summer months. There is a definite winter cycle here.

What this did was keep production low, which kept the allowables low, which kept the production low, and it began a vicious cycle. We essentially ratcheted down and dug ourselves into a hole that we could not get back out of.

It was this decline in allowables in the 1980's that caused Texaco to study ways to resolve the problem. And note that the administrative adjustments and the subsequent establishment of the minimum allowables have resulted in steadily increasing production since early 1991.

Q. Prior to the establishment of minimum allowables, when did Texaco actually drill in this pool?

A. 1980 is the best answer I can give to that.

Q. Let's go now to Exhibit No. 3, the graph of the nonmarginal factors. Would you identify and review the information on this exhibit for Mr.

Stogner?

A. This is a graph of total acreage factors, the red line at the top, and nonmarginal acreage factors again since 1980. The nonmarginal is the green line.

What we saw was a dramatic increase in nonmarginal acreage factors in the mid-1980's as the allowables were decreased. There's a decline in the nonmarginal acreage factors in mid-1988 as a result of administrative adjustments, but most recently the establishment of the minimum allowable has dramatically dropped that number and kept it very low.

Since the total acreage factors has not changed appreciably, we know that the number of marginal acreage factors then has increased as the number of nonmarginals has decreased.

Q. What you've shown here is that the recent decrease in the nonmarginal factors has resulted in higher allowable. Is that what this is showing?

A. No, I think it's just the opposite. The higher allowables significantly impact the relative ratio of marginal proration units to nonmarginal proration units. This is because when the allowable goes up, the nonmarginal acreage factors come down as

they're reclassified, and your production goes up accordingly because the allowable is now being assigned to those proration units that can produce it.

Q. Let's go to Texaco Exhibit No. 4. This is entitled Normalized Nonmarginal Production and Allowable. I think first we ought to explain what Texaco means by normalized.

A. Normalized means we tried to take out the effects of how many acreage factors there were at any given time. I took the total nonmarginal production and the total nonmarginal allowable in each month and divided it by the number of nonmarginal acreage factors in that month.

What that does is it doesn't allow the number of acreage factors to influence the character of the graph. So you're looking at a representative nonmarginal acreage factor for any given month.

Q. What does this show?

A. Again, this shows the fluctuations in the mid-80's that were caused by the gas market and operators were losing confidence, or productions stayed very low because no one was doing any development. The establishment of the minimum allowables increased production, which is

demonstrated again from 1991 on.

You'll note that in the last six months, we've seen the highest production we've had in years.

Q. Let's move now to Exhibit No. 5, the graph of the nonmarginal and marginal production. Identify and review this, please.

A. Again, nonmarginal production is shown in the red line. The marginal production is shown in green. The historical trend in the early '80's was where the marginal production definitely exceeded the nonmarginal production. This flips in the 1980's.

Normally this would indicate that your producing capacity had increased, and more and more wells were making more and more production, and therefore they were becoming nonmarginal. Unfortunately, it wasn't a fact of the production coming up to meet the allowable. It was more the allowable coming down to meet the production. And these units were merely being reclassified.

We got back to a system with the establishment of the minimum allowable in 1991 that now is accurately assigning allowables to those acreage factors that are capable of producing it. And now the lion's share of production is coming from marginal production units, which is the intent of the

entire system, as I understand it.

Q. Let's now go to Texaco Exhibit No. 6. Would you identify and review this exhibit?

A. This is just a plot expressing allowables in terms of 600 Mcf a day. We keep talking about 600 Mcf, but all my graphs show a billion cubic feet or a million cubic feet per month. So I wanted to put this on a relative basis to show that we wanted a minimum of 600. We've actually been able to support allowables much higher than that every since to where we're at 952 today.

Q. Allowables in the range of 900 Mcf per day at the present time?

A. Yes.

Q. Does that tell you anything about whether or not 600 Mcf per day is a reasonable minimum figure?

A. Yes. I think that shows it's quite reasonable and very appropriate. It continues to give the appropriate economic incentive, and the wells are definitely capable of producing it.

Q. And it works simply as a floor under the allowable system?

A. Yes, it does.

Q. In 1990, Texaco presented testimony in

support of these minimum allowables. At that time Texaco witnesses testified that higher allowables would improve economics and encourage development. Has that occurred?

A. Definitely. At the time, the economics presented used average numbers that were taken from an operators' survey as to drilling costs, operating costs, workover costs and risks. And it merely illustrated the fact that 600 Mcf a day was an allowable that provided adequate economic incentive to drill and/or rework wells that were making substantially less than that. Without a reliable consistent minimum, the risks were considered too high.

I believe that it definitely -- development has definitely proceeded in the Eumont both for Texaco and for other operators, and the evidence of this is the dramatic increase in total gas production from 1991 to present.

Q. Have there been additional workover operations conducted by Texaco as a result of the minimum allowable?

A. Yes. We've done about 30 workovers as a result.

Q. Has there been the installation of

additional equipment because of the minimum allowable?

A. Yes, sir. Every workover we do, we have put pumping equipment and a separator on the well. Our Eunice gas plant, due to the increased production, saw increased pressures; so they took steps to reduce that by putting in larger lines and compression. They've also installed a sulfur plant to handle this increased Eumont production.

Q. All of these require substantial investments. Did you see that kind of investment prior to the establishment of minimum allowables prior to 1990?

A. No, sir, there was no reason to do so.

Q. With a 600 Mcf per day minimum allowable, are some wells still being allowable restricted in this pool?

A. Yes, 32 of the 419 wells in the October schedule.

Q. What is the top producer in the pool, what level does it produce?

A. I believe it's 1.9 million.

Q. Could you just generally then summarize what you believe the results of the 600 Mcf per day minimum allowable have been on production from the

Eumont Pool?

A. I think we've definitely seen an increased comfort level for all the operators in the pool. We have better, consistent economics for workovers and drilling. We've seen new investments for the development of the pool, and we've seen increased production.

Q. Can Texaco market all the gas it produces from the pool?

A. Yes.

Q. Have you experienced problems marketing gas from the Eumont Pool in the past?

A. None whatsoever. In fact, we're able -- we've maintained our market, and as I understand the testimony from 1990, we're competing with the surrounding states' gas.

Q. Would any other producer that you're aware of be facing curtailment or any restriction in its ability to market production from the pool?

A. I don't believe so, and Texaco would be willing to take their production.

Q. In fact, you would have the ability to market for others?

A. Yes.

Q. Does Texaco recommend that the 600 Mcf a

day allowable for the Eumont Pool be adopted on a permanent basis?

A. Yes, sir.

Q. Do you believe that approval of this minimum allowable on a permanent basis would be in the best interests of conservation, the prevention of waste, and the protection of correlative rights?

A. Yes, sir.

Q. Will adoption of this minimum allowable result in the production of hydrocarbons that otherwise will not be produced?

A. Yes, sir.

Q. Were Exhibits 1 through 6 either prepared by you or compiled under your direction?

A. Yes.

MR. CARR: At this time, Mr. Stogner, I move the admission of Texaco Exhibits 1 through 6.

EXAMINER STOGNER: Exhibits 1 through 6 will be admitted into evidence.

MR. CARR: That concludes my direct examination of this witness.

EXAMINER STOGNER: Thank you, Mr. Carr. Mr. Kellahin, do you have any questions?

MR. KELLAHIN: No, sir.

EXAMINER STOGNER: Mr. Gallegos, any

questions?

MR. GALLEGOS: No questions.

EXAMINER STOGNER: Mr. Morrow?

EXAMINATION

BY EXAMINER MORROW:

Q. I wanted to ask you to explain again Exhibit No. 4, the normalized nonmarginal production allowable. I didn't pick up on your explanation the first time through.

A. What that is is total nonmarginal production and total nonmarginal allowables divided by the number of nonmarginal acreage factors in that given month.

Q. Oh, just an average?

A. Yes, just to dampen out the effect of the wild swings we had in the number of nonmarginal acreage factors.

Q. Thirty-two wells are still prorated. Some of these, I guess, are two wells per gas proration unit probably because I think there's only about 24, 25, GPU's that still show up that's prorated?

A. They may be. I'm really not sure.

Q. Do you know how many wells are capable of producing in excess of the 600 per day?

A. That's the 32.

Q. Well, I think the allowable is considerably higher than 600 now so --

A. Yes. There are only nine wells that are capable of producing over the 952 that we currently have. There are 32 wells that are capable of producing over 600.

EXAMINER MORROW: Okay. That's all I have.

EXAMINER STOGNER: Thank you, sir. Any other questions? You may be excused. Mr. Carr?

MR. CARR: At this time, for Chevron, I would call Mr. Al Bohling.

ALLEN W. BOHLING,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. CARR:

Q. Will you state your name for the record, please.

A. My name is Allen W. Bohling.

Q. Where do you reside?

A. I reside in Midland, Texas.

Q. By whom are you employed and in what capacity?

A. I'm employed by Chevron USA Production Company as a petroleum engineer.

Q. Have you previously testified before this Division and had your credentials as a petroleum engineer accepted and made a matter of record?

A. Yes, sir, I have.

Q. Are you familiar with the allowables for the Eumont Pool and Chevron's recent development activity in this pool?

A. Yes, I am.

MR. CARR: Are the witness's qualifications acceptable?

EXAMINER STOGNER: If there are no objections, Mr. Bohling is so qualified.

Q. (BY MR. CARR) Mr. Bohling, could you briefly state the purpose of Chevron's testimony in this case?

A. The purpose of Chevron's testimony is to provide support for the continuation on a permanent basis of the minimum gas allowable of 600 Mcf per day for an acreage factor of 1 in the Eumont Gas Pool.

The principal intent in establishing a minimum gas allowable of 600 a day in the Eumont Gas Pool in December 1990 was to provide a system or a basis which operators could have confidence in and

which would allow them to plan development programs, make budget commitments, and execute those programs to achieve results within this pool. Chevron believes that the minimum allowable of 600 Mcf per day is doing exactly that now and will attempt to show this in our presentation here today.

Q. Mr. Bohling, the allowable is actually one of the variance factors or variables that an operator must take into consideration when deciding whether or not to commit development funds to this pool; is that right?

A. That is correct.

Q. By setting a minimum allowable, in fact what the Division is doing is providing a certain degree of stabilization for that particular factor?

A. Yes, sir.

Q. Let's go to what has been marked Chevron Exhibit No. 1. Would you identify this exhibit and review it for Mr. Stogner?

A. Yes, sir. Exhibit No. 1 is a production graph which shows several items. The line in red is the Eumont Gas Pool's production performance for the period January '91 through October of '93, a three-year period.

The dashed line represents the pool's

total allowable over that same period of time.

I've bracketed in arrows the proration periods and tried to show what the top allowable for a nonmarginal proration unit would be for an acreage factor of 1 during those proration periods.

The blue line at the bottom of the graph illustrates Chevron's production performance during this same period of time.

From this graph, it is evident that the minimum allowable of 600 Mcf per day has been a key factor in bolstering the production during downward market conditions, and in effect has leveled out the erratic swings of the 1980's and has actually promoted an increase of production in the Eumont Gas Pool over these three years.

It is also evident that due to the minimum allowable, Chevron has been able to continue its in-place drilling and workover programs, essentially increasing our production from a rate of around 14 million per day in January of '91 to a little over 22 million per day in October of '93. Currently, or as of December of 1993, Chevron's daily production is over 25 million a day. That represents approximately 25 percent of the Eumont Pool's daily production.

Q. When I look at this exhibit, the line that

represents the actual pool allowable represents the marginal allowable plus the nonmarginal allowables for the pool for that particular time; is that what you're showing with that line?

A. That is correct, yes, sir.

Q. Let's move to what has been marked as Exhibit No. 2. Using this exhibit, would you review for the examiner the recent work undertaken by Chevron to develop this pool?

A. Exhibit No. 2 is a summary of Chevron's workover and drilling programs during the three-year period of 1991 through 1993 as a result of the 600 a day minimum allowable.

I'd like to mention first that Chevron's activity during 1990 consisted of only six workovers and two new drills, performed primarily in response to the Commission's administrative setting of an allowable at 600 Mcf per day during four months of that year. Chevron essentially had no plans or activity except for maintenance in the Eumont Pool during 1989. However, as shown on this exhibit, in 1991, the minimum allowable provided the catalyst for Chevron to redirect its focus to the Eumont Pool and drill nine new wells and perform 16 workovers at a cost of a little over $4 million in 1991.

The 25 wells had initial production of a little over $11 million a day. And currently as of 12/93, those same wells are producing at 8.6 million per day.

In 1992, we performed ten more workovers and three new drills at a cost of $1.5 million. The initial production of those 13 wells was 5.3 million a day, and currently as of 12/93 they're producing 3.4 million a day.

The 1993 workover and drilling program consisted of eight more workovers and three new drills at a cost of $1.5 million again. The initial production from those wells is a little over 6 million a day, and as of 12/93 they are currently producing 5.9 million.

Almost 18 million a day out of Chevron's current 25 million a day production from the Eumont Gas Pool is a direct result of having set the minimum allowable of 600 Mcf per day in the Eumont Pool in December of 1990.

Chevron plans to continue its high level of activity in 1994 with the drilling of two new wells and performing eight more workovers. We believe that the continuance of this minimum allowable on a permanent basis will provide the

stability factor needed for producers to maintain a high degree of focus and commitment to development of the Eumont Gas Pool.

Q. Mr. Bohling, will Chevron also call a witness to discuss marketing issues related to recent Eumont production?

A. Yes, sir, they will.

Q. Were Exhibits 1 and 2 prepared by you?

A. Yes, sir, they were.

MR. CARR: At this time, Mr. Stogner, I move the admission of Chevron Exhibits 1 and 2.

EXAMINER STOGNER: Exhibits 1 and 2 will be admitted into evidence at this time.

MR. CARR: That concludes my direct examination of Mr. Bohling.

EXAMINER STOGNER: Thank you. Mr. Kellahin?

MR. KELLAHIN: No questions.

EXAMINER STOGNER: Mr. Gallegos?

MR. GALLEGOS: No questions.

EXAMINER STOGNER: I have no questions.

MR. CARR: At this time we would call Robert E. Green.

ROBERT E. GREEN,

the witness herein, after having been first duly

sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. CARR:

Q. State your full name and place of residence.

A. Robert E. Green from Midland, Texas.

Q. By whom are you employed and in what capacity?

A. I work for Chevron USA Production Company as a natural gas coordinator for the State of New Mexico.

Q. What does a natural gas coordinator do?

A. As a natural gas coordinator, I supervise the process of forecasting the gas available for sale, nominating and confirming the gas, and delivering the gas into the first transporter. The coordinator negotiates the sale of certain other natural gases to spot markets and to longer term gathering and processing agreements.

Q. Have you previously testified about the market for natural gas from southeastern New Mexico at Oil Conservation Division and Commission allowable hearings?

A. Yes, I have.

Q. At the time of that prior testimony, were your credentials as an expert in natural gas marketing issues accepted by this Division and made a matter of record?

A. Yes, they were.

Q. Are you familiar with the current demand for natural gas from the Eumont Gas Pool and Chevron's efforts to market natural gas produced from this pool?

A. Yes, I am.

MR. CARR: Are the witness's qualifications acceptable?

EXAMINER STOGNER: If there are no objections, Mr. Green is so qualified.

Q. (BY MR. CARR) Before we get into your testimony, Mr. Green, you're going to be making certain statements that relate to production from the Eumont Gas Pool?

A. That's correct.

Q. Would the statements that you make and the conclusions that you reach be equally applicable to production from the Jalmat Gas Pool?

A. Yes, they are. In Chevron, the production, marketing side of it, we don't differentiate between Jalmat and Eumont.

Q. Let's go to what has been marked Chevron Exhibit No. 3. Would you identify this and review it for the examiner?

A. Chevron Exhibit 3 is a spot gas price history to El Paso Natural Gas at the Waha from the Permian Basin. It starts in January '91 and runs through the current prices.

We've prepared that to show the fluctuation and the movement in the natural gas spot prices over the last few years, but also to point out that the natural gas prices over that time have also had a tendency to strengthen and become stronger in the area.

Q. If you take this exhibit and compare it back to Exhibit No. 1, what does this tell you about the general trend for gas production back in, say, 1992?

A. One of the things that I would like to point out in comparing this back to Exhibit No. 1 from Chevron, if you would, in February of 1992, the natural gas market had a price collapse, if I can use that term. And prices fell to almost $1 per MMBtu on the market, and then throughout the summer had a steady climb back into that. If you compare that with the production from the Eumont Pool in 1992, you

see that the production followed that demand for gas in the area.

You'll also notice, though, that the production from the Eumont Pool did not recover commensurate with the prices as the prices began to recover through the summer but stayed fairly flat at that time.

We believe that that occurrence is due to the prorated allowable in the pool at the time, but we also see that as the success of the 600 a day minimum allowable. The 600 a day minimum allowable was in effect at that time, and it was also the prorated allowable. And so we felt that if the allowable had been smaller, as it probably would have been, using the past period for adjustment, the production from the full pool would have fallen much lower than it did at that time.

Q. Let's to go Chevron Exhibit No. 4. Identify this, please.

A. Chevron Exhibit No. 4 is a map of Southeast New Mexico on which I have drawn the outline of the Eumont Pool. Additionally, this map depicts the Chevron Warren Petroleum Company's plants and gathering systems in the area.

Q. Mr. Green, since NGPA price controls

terminated back in 1988, what changes have occurred within this pool which affect Chevron's ability to market natural gas from the pool?

A. Chevron's NGPA price controls were terminated at that time, and prior to that, we were dedicated to the Northern Natural Gas Company. Northern Natural Gas controls the production from the field in order to meet the needs of their supplies. They would bring the wells on in the wintertime, cut them back and shut them in in the summertime.

After being released from Northern Natural Gas, Chevron began looking around for more than a single market for its gas. At that time we started developing multiple markets, and that increased the demand we had from the field.

Pairing that up with the 600 Mcf a day minimum allowable that came into it gave us some opportunities. One of the opportunities we saw was in the field gathering system. Prior to that time on the Northern Natural Gas system, we had 60 to 70 pounds gathering pressure in the field. By working through Northern Natural and by having the opportunities afforded by the 600 Mcf a day, drilling new wells, recompleting wells, increasing the production into their system, we had the financial

incentive and they had the financial incentive to go out and to make changes in the system by adding additional compression, horsepower, and looping lines where necessary. Today their current gathering pressures are in the 16 to 28 pound categories.

Q. That's down from 60 to 70 pounds?

A. Yes, sir, down from 60 to 70.

Q. Does that benefit just the nonmarginal production?

A. No, sir. This benefit affected all wells connected to the gathering system, whether it was marginal or nonmarginal. So as a result of the 600 Mcf a day minimum allowable, we also got to enjoy, as everyone on the system, increased production from the marginal wells out there also because of the lower line pressure they had to flow the gas.

Q. Have you also changed gathering companies?

A. Yes. Most recently, we've changed our market focus some, and Chevron has changed gathering companies. We're in the process of connecting those now. We're connecting them to our own Warren Petroleum Company.

As you can see from Exhibit 4, Warren almost completely covers the entire Eumont field there with their gathering systems. And we see a

number of benefits from this. Warren is a wellhead purchaser so the gas is purchased at the wellhead, and you move back to a traditional type of gas sales agreement, eliminating a lot of business burden for the operator or for the producer.

Additionally, Warren is interested in hooking up any producer or operator in the Eumont field into their gathering system.

We see an additional advantage in that Warren is more reliable because they have multiple plants connected and looped together in the Eumont field, as well as southeast New Mexico; so if one plant goes down for some reason or another, either scheduled or unscheduled, we don't lose our opportunity to produce in from the field. It's shifted over to their other plants, and they pick up that load.

In addition to that, we have some increased market flexibility at the tailgate of these plants. Prior to that, we were marketing through the Northern Natural Gas system, which was principally a single market. Today at the tailgates of these plants located directly in the field, we have connections to Northern Natural Gas, El Paso Natural Gas, Gas Company of New Mexico, and we can backhaul

to Waha to go in any direction we want to. At this point in time, we're capable of going north, south, east, or west from the Eumont field.

Q. Could you just briefly summarize the impact that minimum allowables in the Eumont Pool have had on Chevron's ability to market natural gas?

A. Briefly, because of the minimum allowables, we've been able to go forward with our planning and execute those plans and achieve results in the marketing business. We've seen reduced gathering pressures for the entire field, for all producers in the field. We've seen increased flexibility for marketing of that gas, and we've seen a more stable market for that.

Q. In your opinion, is there a market for all natural gas produced from the Eumont Pool?

A. Yes, there is. We see that for our gas, as well as others in the field. By moving into a plant such as the Warren Petroleum plants, we put together large packages of gas at the plant tailgate, giving us a better marketing power. These consolidated packages of gas make them easier to market and to meet customer needs in the natural gas industry.

Q. What does Chevron recommend be done with

the minimum allowables in this pool?

A. We recommend they be established on a permanent basis.

Q. Will establishment of these minimum allowables on a permanent basis in your opinion be in the best interest of the conservation, the prevention of waste, and the protection of correlative rights?

A. Yes, I believe that they would be.

Q. Were Exhibits 3 and 4 prepared by you or compiled under your direction?

A. Yes, that's correct.

MR. CARR: At this time, Mr. Stogner, we move the admission of Chevron Exhibits 3 and 4.

EXAMINER STOGNER: Exhibits 3 and 4 will be admitted into evidence.

MR. CARR: That concludes my direct examination of Mr. Green.

EXAMINER STOGNER: Thank you, Mr. Carr. Mr. Kellahin?

MR. KELLAHIN: No questions, Mr. Examiner.

EXAMINER STOGNER: Mr. Gallegos?

MR. GALLEGOS: I have no questions.

EXAMINER STOGNER: Mr. Morrow?

EXAMINATION

BY EXAMINER MORROW:

Q. From a marketing standpoint, would there be a market for more than 600, minimum of 600 a day? I believe I understood you to say there probably would be, all the gas you can produce?

A. Yes, sir, that's correct. We're talking, we're trying to balance two things here. We have and can develop markets for what we can get from the Eumont field. We're talking about the benefits that the minimum allowable has allowed operators and producers to eliminate one of those variables, and that is what's the proration going to be when developing plans.

So if you have a 900 a day allowable for a proration unit, then that just enhances the economics of production development or marketing, compression, and things like that.

EXAMINER MORROW: That's all I have.

EXAMINER STOGNER: Thank you, Mr. Morrow. Any other questions?

MR. CARR: That concludes Chevron's presentation in this case.

EXAMINER STOGNER: You may be excused.

Mr. Kellahin, how long is your testimony for your witness?

MR. KELLAHIN: Twenty minutes.

EXAMINER STOGNER: Let's take a ten-minute recess at this time.

(Recess.)

EXAMINER STOGNER: This hearing will come to order. Mr. Kellahin, your witness, I believe.

MR. KELLAHIN: Thank you, Mr. Examiner.

Mr. Examiner, I'm presenting Mark McClelland. Mr. McClelland is a petroleum engineer. We're appearing in support of the continuation of the minimum gas allowable in the Eumont Pool.

MARK McCLELLAND,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. KELLAHIN:

Q. Mr. McClelland, for the record, would you please state your name and occupation.

A. My name is Mark McClelland. I'm a petroleum engineer.

Q. On prior occasions, have you qualified as an expert petroleum engineer before the Division?

A. Yes, I have.

Q. With regards to the production in the Eumont Gas Pool, is that production with which you

have some familiarity?

A. Yes, it is.

Q. Does your company operate wells in the Eumont Gas Pool?

A. Yes.

Q. Are you responsible to some extent for some of that production?

A. Yes, I am.

Q. As a result of your personal knowledge and effort, do you have certain conclusions and opinions about the minimum gas allowable the Division has in place for that pool?

A. Yes, I do.

MR. KELLAHIN: We tender Mr. McClelland as an expert petroleum engineer.

EXAMINER STOGNER: If there are no objections, Mr. McClelland is so qualified.

Q. (BY MR. KELLAHIN) You've indicated your company is an operator in the Eumont Pool? How many wells does your company operate?

A. We operate approximately 55 wells.

Q. Of the total gas volume of gas produced from the pool, do you know where your company ranks in terms of that production?

A. Conoco produces approximately 10 to 12

percent of the total fieldwide production.

Q. On an acreage position, do you have an approximate percentage or a ranking among the pool operators as to what your acreage position is?

A. Yes. We rank No. 2 in acreage with Chevron being No. 1. We have approximately 9,000 acres involved in proration units.

Q. The microphone won't amplify your voice; so you have to speak up for us.

A. Okay.

Q. A couple of topics which have not been discussed in detail yet. One is whether or not you have undertaken any engineering studies to determine whether or not the minimum gas allowable has been an economic incentive to your company. Has it?

A. Yes, it has.

Q. Do you have an opinion, sir, as to whether or not that minimum gas allowable has resulted in the recovery of gas from the pool that might not otherwise have been recovered?

A. Yes, I do.

Q. What is that opinion?

A. My opinion is that the minimum allowable has caused both increased rate but also increased recovery from the Eumont Gas Pool.

Q. Do you have an opinion, sir, as to whether or not the 600 Mcf a day minimum gas allowable is an appropriate benchmark or level of production at which to place the minimum gas allowable?

A. Yes. I feel it's a very reasonable base to have the allowable at.

Q. Let's turn to the topic of increasing ultimate gas recovery out of spacing units. Do you have an illustration to share with the examiner to show a spacing unit where you have utilized the incentive?

A. Yes. Today Exhibit 1 demonstrates that.

Q. Describe for us where we are when we look at Exhibit 1.

A. We are looking at Section 20 in Township 21 South, Range 36 East. This is approximately 8 to 10 miles west of the town of Eunice.

Q. The incentive minimum allowable was established in December of '90?

A. December 1, 1990.

Q. Prior to that, was there a minimum allowable?

A. It was 300 Mcf per day minimum.

Q. The situation in Section 20 then prior to the minimum allowable that we currently have, what

was the status of the spacing unit?

A. Prior to 1990, Section 20 was being produced by three wells.

Q. Which three?

A. The first well that produced this section was No. 5, located in Unit M, the southwest corner. That well was completed in 1947. In 1953, well #1 in Unit G. And in 1975, well #6 was added to Unit C. So these three wells were produced in this pool prior to this allowable increase in 1990.

Q. Did the minimum gas allowable provide an incentive for additional work within the section?

A. Yes, it did.

Q. What was the work?

A. Conoco recompleted well #7 in Unit K in 1993. More recently, last month, we recompleted well #8 in Unit E. In addition, prior to Conoco's work, Citation, which operates the half section to the east, the east half of Section 20, Citation recompleted wells #2 and 3, Units B and A, in 1990.

Q. Has that work resulted in increasing the rate of gas withdrawals from the section?

A. Yes, it has.

Q. In addition, has it resulted in increasing ultimate gas recovery from the section?

A. Based on production decline, although it's fairly early yet, since these wells have been recompleted, we feel like it will increase ultimate recovery on lease. That's based not only on the recent work but also the work that was done in 1975.

Q. Do you have an illustration by which we might see you've reached your conclusion about increasing gas recoveries from the section?

A. If I can direct your attention to the next exhibit, Exhibit 2, this exhibit is the total gas rate from Section 20, all the wells added together over the life of the lease. On the left is daily gas rate, from 10 Mcf per day up to 10 million per day. On the bottom axis is the X axis, we have cumulative gas production ranging from 4 Bcf out to 36 Bcf.

The intent of this exhibit is to demonstrate that additional reserves are being recovered through infill development.

Q. Show us how to read this display and understand how you to reached that your conclusion.

A. You'll see three straight lines that I've drawn on this production graph. The first line has 320-acre spacing. This is an estimate of the recovery that would have occurred with only the first two wells producing, wells #1 and 5. Under that

estimate we are looking at approximately 21, 22 Bcf ultimate over by projecting out those two wells' decline.

You'll notice production increased in 1975. That was the addition of well #6. And you can see the corresponding decline.

With three wells off production, if you divide three into 640, you get 213-acre spacing. You'll see how it's forecasting out at approximately 31 Bcf recovery.

Since 1990, since the allowable increase, there's been three more additional wells added. The fourth one I spoke of in January of this year is not yet shown on this plot. But the three additional wells have resulted in an additional 4 Bcf ultimate recovery we're forecasting; that is, from 31 to 35 Bcf.

So I feel that this exhibit demonstrates that not only does infill development cause additional rate, but also it's causing additional recovery in the Eumont Gas Pool.

Q. When you look at the line that's identified by the 1993 arrow, and you've extrapolated a forecast of ultimate recovery from that decline curve, it has a number 7 in parentheses. What does

that mean?

A. That production increase is associated with well #7. Well #7 was recompleted, and that production came on line. That's why your production jumps up in those two months.

Q. The incremental difference between the 3.1 Bcf and going up to the 3.5 Bcf, is that an adjustment attributed only to the recompletion of the No. 7?

A. Actually, it's from 31 Bcf to 35 Bcf, but that additional incremental is associated with production from wells #2, 3 and 7. So you could say there was additional 4 Bcf recovered due to 3 recompletions.

Q. Do you have another example in the pool?

A. I've included with this package two additional examples. Exhibit No. 3 is Section 34, Township 21 South, Range 36 East.

In this section, 34, the Eumont encompasses three-fourths of the section, the Jalmat makes up the lower, the southwest quarter. If we just concentrate on the Eumont in this example, Chevron operates this 480-acre unit. It's the W.A. Ramsey NCTA lease. Again, what we have here, which is fairly typical of Eumont development, was one or

two wells initially produced the proration unit.

In this example well #14 in Unit F was the original well completed in 1954. This well has since cum'd 11.7 Bcf. You will note since 1990, Chevron has recompleted four additional wells, 27, 48, 24, and 28. Those wells were all completed in 1990 through 1993. Underneath that completion date, I've shown a cumulative gas production associated with each well, for example, well #27, .3 Bcf since 1991. And if the well is fairly recent, I've shown the rate. So well #48 is producing 570 Mcf per day. It was recompleted in 1993.

Q. Have you examined the data in this section to determine whether or not you have an engineering opinion about the additional production being attributable to increasing ultimate gas recovery or simply being a rate acceleration?

A. Yes, I have an opinion on that, and I'll refer you to the next exhibit.

Q. All right, sir. What is your opinion?

A. Exhibit No. 4. Again, this is similar to the previous exhibit I showed where the increase in rate is demonstrating also an increase in recovery from the reservoir. It's not strictly acceleration in the Eumont Gas Pool.

Q. How do you support that conclusion?

A. If it was strictly acceleration, you would expect your ultimate recovery not to change when you infill space, when you downspace your acreage size. But we are, as we've shown in Section 20 and also here, we're actually increasing recovery above and beyond what the original projection was.

Q. Do you have another example?

A. Exhibit 5.

Q. All right, sir.

A. Again, a Chevron example, Section 35. This is a 640-acre proration unit. This one is not quite as clean as the previous two. The original well was well #20 in Unit E completed in 1956. In this example, there were several wells brought on line in the 1970's, one well in early 1980, and one recently in 1991, but, again, if I refer you to Exhibit 6, which is the production decline curve for this total lease, you see a series of incremental production increases associated with the infill development. The most recent since the allowable increase has resulted in an additional 2.4 Bcf, 2.4 Bcf additional recovery.

Q. Do you have an opinion as to whether 600 Mcf a day as the minimum gas allowable is an

appropriate rate for this reservoir?

A. Yes, I feel it is appropriate.

Q. As an incentive to do additional work and thereby recover additional gas?

A. That is correct.

Q. What is your opinion?

A. I feel that the 600 minimum gives a base to work your economics off of, to look at your projects, and if you have the economic incentive to do them, then you go ahead and proceed with that, but also the 600 Mcf a day does not allow for overdevelopment. It does apply some brakes to development. You can't go out and drill a 40-acre proration unit and expect a one-year payout on it. You'll have to suffer the three- or four-year payout to do that.

Q. Have you gone back and examined the past work to see if the 600 Mcf a day was in fact an incentive for the work?

A. Yes, I have.

Q. What conclusion did you reach?

A. In the previous examples I've shown you, we saw an increase in development activity in all three sections that occurred at or beyond the 600 Mcf a day allowable increase. And also in Conoco's case,

I have three samples to show you, exhibits, where the 600 Mcf a day has supplied sufficient economic incentive to do work that otherwise would not have been done.

Q. We've seen an increase in ultimate recovery. Let's examine now whether it is economic for you to increase that ultimate recovery. If you'll look at Exhibit 7, describe for us what you're showing.

A. Exhibit 7 is just a summary slide that shows economic parameters that I looked at in evaluating a remedial opportunity on the State C-16 No. 1.

Q. This is a well for which the work has already been done?

A. That's correct.

Q. Describe for us the cost of the work and what the work was.

A. This was a simple stimulation of an existing producer in the Eumont Gas Pool. We went in and CO_2 sand frac'd the Queen completion.

Q. What was the cost of doing that work?

A. $90,000.

Q. Before we had the incentive of minimum allowable of 600 Mcf a day and you were using the

base allowable of 300, would that project have been economic?

A. No, it would not. Under the prior base allowable, the third paragraph down in this data set, you'll see a project payout of over nine years. There was not sufficient economic incentive to stimulate this well under the prior base allowable.

Q. The payout was too long?

A. Correct.

Q. Under the incentive allowable, the 600 Mcf a day minimum, what is the economic analysis?

A. As I've shown there, the payout is 1.5 years.

Q. Was that sufficient to cause the work to be done?

A. Yes. We did this work in November 1993.

Q. Do you have any other examples?

A. I've got two more examples. The next example, Exhibit No. 8, is a recompletion evaluation, again, same type of demonstration. Under the prior base allowable, there was no economic incentive to do this work. This is the recompletion of the State C-20 No. 7, which we showed you in the first slide, back in Exhibit 1. This is the State C-20 lease.

Q. The recompletion on this well involves

doing what?

A. On this well, it was temporarily abandoned, having produced a depleted deeper oil zone. All we did was perforate and sand frac the Eumont in two stages.

Q. The cost of that project?

A. $167,000.

Q. Would that have been economic at 300 Mcf a day?

A. No. We had no economic incentive to do that work under the base allowable because current production was actually above the base allowable of 300 Mcf a day.

Q. So you could have done the work and not had enough allowable left over to allow the well to produce?

A. Well, if we would have done the work, we would have shut the well in. There would have been no reason for us to produce it. We would have been overproduced, that's correct.

Q. So with a 600 minimum allowable, what is the economics?

A. It's a half-year payout, .5 year payout.

Q. And that matched Conoco's economics?

A. Yes.

Q. And you did the work?

A. That's correct.

Q. Any other examples?

A. One final example, Exhibit No. 9. This is a drilling economic analysis. Again, a simple payout calculation on the Meyer B-8 lease. That is a 160-acre proration unit. Under the prior base allowable, the payout on this project would have been 2.67 years. Under the current base allowable, 600 Mcf a day, the payout was one year, 1.0 years, and we did the work. December 30, 1993, this well was hooked up to sales, producing approximately 700 Mcf per day.

Q. Are these unusual examples in the Eumont?

A. No. These are fairly typical.

Q. Let's turn now and have you review for us the level of activity that your company has undertaken for '93 and what you have planned for '94 if the Division continues or makes permanent the minimum gas allowable incentive?

A. In Exhibit 10 I've summarized the work that we did in 1993. Conoco undertook 16 recompletion remedials, 4 drilling wells, resulting in production increase of 8.4 million cubic feet per day and an additional -- we're estimating additional recovery of

some 15 Bcf for this work.

In 1994, we're actually increasing the pace of development. We have some 15 to 20 recompletion remedials planned, 6 drilling wells, and, again, I've shown the investment and associated additional recovery for this work.

Q. Is the '93 work work that would have been done in the absence of an incentive?

A. Some of that work would have been done, yes, but not all of it.

Q. And the planned work for '94, is that a direct result of having the expectation that this incentive continues?

A. That's correct.

Q. Are you experiencing any gathering line problems, any capacity problems within the pool in order to take the additional gas out of the reservoir?

A. No, we are not.

Q. Are you aware of any kind of marketing difficulties for your company to take this additional gas and take it to market?

A. No. The gas pipeline, the gathering pipelines have become very competitive in the area, and we have no problem selling our gas.

Q. Do you have a recommendation to the examiner concerning this issue of the continuation of the 600 Mcf a day minimum gas allowable incentive?

A. Conoco supports permanent adoption of the 600 Mcf per day minimum allowable.

Q. Why do you urge the Division to adopt this on a permanent basis?

A. As you can see, the results have been favorable. We see no reason why the results would not be favorable from here on out for this pool.

Q. Does the making permanent of the minimum allowable provide any type of regulatory stability so that you can count on a certain volume of gas being available, that if the wells will produce that, you can in fact take it to market?

A. Yes, it does.

Q. So if the minimum allowable continues, you don't have to worry about what that allowable is going to be in order to have some incentive to do the work?

A. That's correct. And, again, it supplies a base economic evaluation platform to look at our work, to evaluate and plan our work.

MR. KELLAHIN: That concludes my examination of Mr. McClelland. We move the

introduction of his Exhibits 1 through 10.

EXAMINER STOGNER: Are there any objections? Exhibits 1 through 10 will be admitted into evidence. Thank you, Mr. Kellahin.

Mr. Carr, your witness?

MR. CARR: No questions.

EXAMINER STOGNER: Mr. Gallegos?

MR. GALLEGOS: No questions.

EXAMINER STOGNER: Mr. Morrow?

EXAMINATION

BY EXAMINER MORROW:

Q. I wanted to ask you about the decline curve that you constructed. Did you take into consideration the effect that gas proration might have had on those declines? Did you look and see if the decline might have been affected, be lower than you really wanted prorationed?

A. No, I did not. I did look at the individual well declines on each lease, though.

Q. You felt like the well was actually declining in capacity instead of just declining in ability to produce because of proration?

A. That's correct. The wells had a fairly stable decline to them. I didn't feel like it was market restricted.

Q. Or proration?

A. Proration restricted.

Q. Does that indicate to you that one well to 160 probably wouldn't properly drain the acreage that you looked at here; is that correct?

A. That is what we're finding in our leases. We're really targeting some 80-acre development currently, and we're having a lot of success drilling 80-acre diagonal offsets to wells that have been producing since 1955.

I think a combination -- there is another factor, and that's completion efficiency. I think our completions today are more efficient. They result in lower producing bottomhole pressures. And we're getting better drains on our new wells than we are in our older completions.

Q. More compression, I guess? I believe you feel like 600 would hit it just right with 600? Is that your feeling?

A. That is my feeling.

Q. I believe you indicated that you didn't think it ought to be more than that, the minimum, because it would cause too dense a development?

A. That's correct.

Q. There was one of the workovers where you

said I believe it was shut in, No. 8 -- No. 7 was shut in before the workover. Was that --

A. That's correct.

Q. And I guess you wouldn't have done that? You would have let the other wells produce it? Would that have been your decision if we had not had the 600?

A. That's correct.

EXAMINATION

BY EXAMINER STOGNER:

Q. With that line of questioning, referring to your Exhibit No. 10, in 1993, you had 16 recompletions and remedials. Of the recompletions, were those wells currently producing from the lower zone, or were they shut in or plugged and abandoned?

A. Some of those wells were T & A'd. The majority of those wells were T & A'd wells that we came into. A lot of these wells had produced at Grayburg, a deeper Grayburg zone, and watered out.

Q. So they were existing wellbores that had no production?

A. That's correct.

EXAMINER MORROW: Did you say what your production is now compared to what it was in December of '91?

THE WITNESS: In December '91, our production was approximately 14 million cubic feet per day. Right now, we are just now starting to show a production incline, and we're about back up to around 14 million per day. We declined from 1990 all the way down through mid-1993. We reached a low of about 9.3 million cubic feet a day. So since we're starting to turn that back around and start inclining production.

Q. (BY EXAMINER STOGNER) Under example for Exhibit No. 1 -- the reason I choose that one because that's about the only you show that Conoco had -- you had four wells on a 320-acre proration unit with the first one, No. 5, being in 1947, and then the second one, the No. 6 in 1975, and you had '93 and a '94 completion with Nos. 7 and 8, were those recompletions, or were those new drills?

A. Those were both recompletions. Both wellbores were T & A'd at the time.

Q. On your new drill program, what would the factors be to drill a new well, other than the obvious, that there's not a present T & A'd well out there at that particular location?

A. The factors that I look at are, number one, how the current well in that proration unit is

doing; what it will recover; how it was stimulated or completed; what the offset activity is; what the shut-in wellhead pressure is on the current well in that proration unit. Those are some of the factors I'd look at in making an evaluation.

You have to make a decision whether or not it's worth trying to stimulate your existing wellbore or your money, you had to go ahead and drill yourself a new wellbore. With a new wellbore, you can do larger stimulations and get a little better completion on the new wellbore than you can an older wellbore.

Q. On Exhibit No. 10 again, you showed the 1994 work plan with 15 to 20 recompletions or remedials, and then 6 to 10 new wells. Is this pretty much the program that Conoco plans to follow at this present time?

A. Yes. Currently, we have a six-well package that we expect to spud on March 1st. In addition, we have 12 workovers; that is, remedial recompletion-type projects that are either being AFE'd or out to partners for approvals.

EXAMINER STOGNER: Any other questions of this witness? He may be excused.

Mr. Kellahin, do you have anything

further?

MR. KELLAHIN: No, sir.

EXAMINER STOGNER: Mr. Gallegos?

MR. GALLEGOS: Mr. Examiner, at the outset we would like to request that the Examiner take administrative notice of the testimony and exhibits that were presented in this case on, I believe it was November 14, 1990, and be made part of the record here.

EXAMINER STOGNER: That was the hearing which resulted in Order No. R-8170-J?

MR. GALLEGOS: That's correct.

EXAMINER MORROW: I thought there were two different hearings, Mr. Gallegos. That's my memory of the Jalmat and Eumont.

MR. GALLEGOS: What I referred to would be the hearing that was in Case 10111, which was the Jalmat case.

EXAMINER STOGNER: Just the Jalmat portion; is that correct?

MR. GALLEGOS: Yes, that's correct.

EXAMINER STOGNER: I'll take administrative notice of the record and the order issued in that case.

MR. GALLEGOS: Doyle Hartman would call

two witnesses, Dr. Craig Van Kirk and Mark Perry. Could we have them sworn at this time?

EXAMINER STOGNER: I believe they were sworn earlier, were you not?

MR. GALLEGOS: Okay. We call Dr. Van Kirk.

CRAIG Van KIRK,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. GALLEGOS:

Q. State your name, please.

A. My name is Craig Van Kirk.

Q. Where do you live?

A. Near Denver, Colorado.

Q. Could you tell the Commission about your education, please.

A. Yes. I've got three degrees in petroleum engineering, bachelor's, master's, and Ph.D.

Q. What is your present occupation, Dr. Van Kirk?

A. I'm a professor at Colorado School of Mines in the Petroleum Engineering Department. I'm also department head, and I'm a consultant also.

Q. You have not previously testified before

the New Mexico Oil Conservation Division, have you?

A. No.

Q. Just briefly, would you give your experience in the industry.

A. I began my full-time employment in the late '60's with Humble Oil and Refining Company, which is now known as Exxon, in California. In 1969, I moved to Denver, Colorado, and worked for Shell Oil Company as a reservoir engineer for five years. And in 1974, left Shell and worked in the consulting mode with a large consulting firm internationally as a reservoir engineer. And in 1978, I left industry to go to Colorado School of Mines to be a professor.

Q. And have you been accepted as an expert witness to give your testimony before regulatory agencies or commissions in other states?

A. Yes.

Q. Are you familiar with the production history of the Jalmat and Eumont Pools?

A. Yes, sir.

Q. Are you familiar with the processing plants, gathering and other production area facilities for those pools?

A. Yes.

Q. Are you familiar with this application

here that seeks continuation of the Special Rule 8 for the Eumont and Jalmat Pools?

A. Yes, I am.

Q. Are you employed by Doyle Hartman to appear as an expert witness to give testimony in behalf of those applications?

A. Yes.

Q. Is Doyle Hartman an operator of wells in both those pools?

A. Yes, he is.

Q. Can you tell the Commission approximately how many wells he operates, combined, in those two pools?

A. I would estimate approximately 35.

MR. GALLEGOS: We tender Dr. Van Kirk as an expert.

EXAMINER STOGNER: Dr. Van Kirk is so qualified.

Q. (BY MR. GALLEGOS) Dr. Van Kirk, would you take before you Exhibit No. 1? What does that show?

A. This is a cartoon, and I don't mean that to be a comedy, but it's a schematic cross-sectional view of the Jalmat Gas Pool on the south and the Eumont Gas Pool on the north to show in cross-sectional view the geological formations that

are productive in the areas.

The Jalmat Gas Pool produces from the Tansill, Yates, and Upper 7-Rivers formations, and the Eumont Gas Pool, not the Tansill, but the Yates, Upper and Lower 7-Rivers, and also the Queen. So there's a lot of overlap in the formations that they produce gas from.

Q. Any other significance to this proceeding demonstrated by that exhibit?

A. Not so terribly significant. You will notice that the Langlie-Mattix Oil Pool underlying Jalmat and the Eunice Monument Oil Pool underlying the Eumont Gas Pool are oil reservoirs naturally occurring underneath the gas caps.

Q. Are you familiar with what was believed to be the initial recoverable reserves from these pools?

A. Yes. This area has been estimated to contain reserves approximating 10 trillion cubic feet of gas.

Q. What is calculated to be the present reserves for the pool?

A. The remaining reserves can be estimated by different people at different amounts but approaching another Tcf, perhaps 700 Bcf.

EXAMINER MORROW: Is that both pools or

just the one?

THE WITNESS: That would be both of them together.

EXAMINER MORROW: Thank you.

Q. (BY MR. GALLEGOS) Would you take side by side and address jointly Exhibits 2 and 3, first describing to the examiner what those exhibits show.

A. The Exhibit 2 is a depiction of the Jalmat Gas Pool and its recent pressure history from 1970 up through 1992. And the pressures are plotted on the left-hand vertical axis, and you'll notice these are shut-in wellhead pressures plotted versus cumulative production from 1970. And after 1992, the most recent information we have plotted on this graph, we have extrapolated what we estimate to be a reasonable trend of pressure versus cum production for the future for the Jalmat Gas Pool.

The cumulative production from the Jalmat at the end of 1992 was almost 2 Tcf. The remaining reserves, you can see according to Exhibit 2, is estimated at approximately 400 billion cubic feet of gas, .44 Tcf.

Exhibit 3 shows a similar relationship for the Eumont Gas Pool, again, its pressures from 1970 through 1992 plotted versus cum'd production, and its

cumulative production through 1992 of approximately 2 Tcf and remaining reserve there of nearly -- I shouldn't say nearly -- I'd say about 800 Bcf. These are estimates of remaining reserves in these two pools.

Q. Dr. Van Kirk, do you draw any conclusions from the early decline curves to what appears to be a flattening of those curves?

A. Yes. It's a very interesting observation, and it's common on earth in oil- and gas-producing basins to notice as a gas reservoir or a gas field is nearing depletion at low pressures, that it's a common occurrence that the pressure decline does not continue in a straight line.

And you'll notice these two exhibits show that the pressure trends throughout the '70's did not continue through the '80's, and we don't forecast it to continue into the '90's either. The pressures are declining less rapidly as time goes on, and therefore, consequently, the estimated ultimate recovery in remaining reserves that one would estimate today are significantly higher than one might have estimated in the 1970's.

Q. And what significance, in your opinion, does that have as to the issues before this

commission concerning the minimum allowables?

A. These exhibits in themselves demonstrate that there are significant reserves remaining, higher than might have been estimated a few years ago. We'll have to look at other exhibits and discuss other things like allowables and production rates to tie it all together.

Q. Have you had an opportunity to make some observations and studies of the allowables and production trends in these pools prior to 1991, prior to this minimum allowable rule coming into place?

A. Yes.

Q. Just generally, I want to refer you to some of the exhibits we have here, but do you have some general observations as to the effect on that pool and on the production rates as a result of the way the allowables were impacting it prior to the rule in January of 1991?

A. That's correct.

Q. What are your general observations in that regard?

A. Well, I would refer you to Exhibit 4, which is a group of pages stapled together, and also Exhibit 5. In fact, I would first refer to Exhibit 5. This is a depiction of the production, actual

production rate from the Jalmat Pool going back to 1975. And that's shown on the upper curve. And you can see it labeled on the upper left-hand corner of the graph, Total Jalmat Pool Production.

And you'll notice that throughout the middle to late '70's and into the early '80's, there was a fairly predictable production decline trend at that time, but then in the early 1980's, 1982 and throughout the 1980's, wild fluctuations in the actual production in Jalmat.

Now if you'll refer to Exhibit 4, this is a depiction on the first page in the upper half of this page, the nonmarginal allowables from 1980 through the '80's and up to the early part of 1994. And you'll notice that in 1980, '81, and '82, the allowables were fairly constant. And back to Exhibit 5 then you'll see that in those years also the actual production from Jalmat was relatively constant, continuing the decline trend that had been set up in prior years in the 1970's.

The wild fluctuations in the middle of the 1980's shown on Exhibit 5 in a great part were a result of fluctuations on the allowables shown on Exhibit 4 in the middle 1980's. In fact, they fed each other. With decreased production there were

decreased allowables, and then, naturally, with decreased allowables there was decreased production also.

Exhibit 4 also then shows that January 1, 1991, with the minimum allowable having been increased to 600 Mcf per day at Jalmat. If you'll look then on Exhibit 5, you'll see in 1991, 92, and 93, not only higher levels of production from Jalmat, in great part resulting from the increased minimum allowable, but also, again, a fairly steady decline without wild fluctuations.

Q. Besides the mere fact of higher levels, does the stability of these production levels have some bearing on the development that will be undertaken by operators in the pool?

A. I think the stability of the production levels is a reflection of the confidence that operators would have in developing wells and spending money to drill new wells or recomplete old wells or fix up handicapped wells.

The Exhibit 4, showing the constant or fairly constant allowables from 1991, is the support for the increased activity and resulting in higher production rates that you see on Exhibit 5, 1991, 92, and 93.

Q. Is there anything else of significance that you want to point out on the first page of either Exhibit 4 or Exhibit 5?

A. Well, Exhibit 5 also does show in the lower portion of the graph Hartman's production beginning in 1976, and increasing throughout the '70's, and peaking in the mid-1980's. This shows his portion of Jalmat production. And his activity, naturally, was influenced by allowables through the years, and his interest in continuing operations are influenced by allowables, naturally.

Q. And does it show that the Hartman production is tracking since about 1989 pretty much on a parallel with the total pool production?

A. Yes. As a matter of fact, in February of 1989, these particular wells that Hartman had drilled from 1976 through 1985 were sold to Meridian. And this plot, Exhibit 5, shows that those wells continue to produce, but they are now operated by Meridian. They're no longer operated by Hartman.

Q. Would you go now to the second page of Exhibit 5 and of Exhibit 4 and explain what those show?

A. Yes. This is the same type of information on both of the exhibits, but rather than for the

Jalmat Pool, the second pages reflect the same kind of information for the Eumont Pool. And my description of the allowable history for Eumont would be very similar to the description for the allowable history on the Jalmat Pool, which I just gave.

The second page in Exhibit 5 shows the Eumont Gas Pool production from 1975 through 1993. And you'll notice in the last few years, 1991, 92, and 93, in fact the Eumont's production is not declining. It's somewhat increasing, slightly increasing.

Q. Is the rest of Exhibit 4, the third page, simply an averaging of the two pools, showing the same kind of information but averaging the Eumont, Jalmat?

A. Yes. If you'll go to the third page in Exhibit 4, what we've done here is plotted a weighted average of the allowables from both the Eumont and Jalmat Pools together. And those computations are shown on the next several pages of tables. And the conclusion that you reach from the weighted average for the two pools combined is the same conclusion you'd reach from looking at either pools individually.

Q. Are you of the opinion that in order to

address allowables and rates of production, it's reasonable and necessary to consider the pools together in combination?

A. Yes. Geologically, they are the same pool, only because of the way they were developed many decades ago do they have different names and the boundary between them, but in nature and in our production practices, that boundary is not noticed.

Q. Let's turn, if you will, then, Dr. Van Kirk, to Exhibit No. 6. As we look at that exhibit and get into what is shown there, let me ask you this question. Have you attempted to analyze on the issue of a minimum allowable what is an optimum minimum allowable for these pools?

A. Yes, I have addressed that question.

Q. Do you have a conclusion?

A. Yes.

Q. What is that?

A. It appears that 600 Mcf per day minimum allowable is very close to an optimum. It is impossible to mathematically compute an exact optimum allowable, but it appears that 600 is quite close.

Q. Does the economic study illustrated on Exhibit 6 support that conclusion?

A. Yes.

Q. Would you explain the exhibit?

A. Yes. The intention of Exhibit 6 and the several pages attached is to demonstrate the effect of the allowable rate on the economics of wells.

And we're looking at, for example, in this Exhibit 6, a typical well or an average well. And if you look at the left-hand column, the different allowable rates, we've run several different cases. In fact, I think there's six different cases that we've run at different allowable rates, and then estimated the gross reserves per well, the payout undiscounted, the payout in years if you discounted at 9 percent discount factor, the life of such a well in years, and then the return on investment, again, discounted at 9 percent.

These numbers shown here in the first page of Exhibit 6 are a summary of several pages in the back. In fact, if you go to the very back page of this Exhibit 6, in the upper left-hand corner of that page, the very upper left-hand corner, you'll see the 700 Mcf per day. That is the economic cash flow for the scenario where we assumed 700 Mcf per day as the minimum allowable.

And then in putting into this computer program to do an economical calculation on an annual

basis, the estimated production rates, estimated cost to drill and complete, the estimated prices of oil and gas, we compute then the profit, the payout, the return on investment, and the results of this run on the last page of Exhibit 6 are summarized then back on the first page of Exhibit 6 for the case allowable rate of 700 Mcf per day.

So all of the pages in the very back of this exhibit are the detailed computations that result in the table on the first page of Exhibit 6. And I'd like to discuss these results and what they mean by referring to the second page of Exhibit 6 because it shows the table then plotted, and I think it's a little bit easier to see and understand what the computed results mean.

The second page of Exhibit 6, the left axis is payout in years. These are numbers of years it takes for a well to pay out under the different allowable scenarios. The horizontal axis shows the allowable rate, and we've assumed six different cases, 200 Mcf per day being the minimum allowable case, and 300, 400, 500, up to 700 as the maximum case that we ran.

The right-hand vertical axis shows the return on investment discounted at 9 percent.

The payout in years for these different cases is shown in two different ways, either undiscounted or discounted. Now, unfortunately, the labeling that I've got in my copy and probably in your copies is incorrect, and I'll have to show you how to make it correct.

Q. Yes, let's make the correction there.

A. If you'll notice underneath the horizontal axis, we've got a legend down here, solid black square, payout in years, that should be undiscounted. So we need to write "undiscounted" underneath the black squares, payout in years.

And then the next portion of the legend has a black circle, payout in years, it says undiscounted. That's incorrect. You need to scratch out undiscounted and put underneath that discounted at 9 percent. Then we can read the graph, I think, correctly.

If you'll look at the payout in years discounted at 9 percent, the black circles, that would be the top curve on this graph. And it shows that if you had a minimum allowable of 200 Mcf per day, the payout would be a little over six years. That's the black circle. But if you increase the minimum allowable to 300 Mcf per day, the payout

drops to a little less than four years.

And as you increase the minimum allowable from 300 up to 400, 500, 600, and 700 Mcf per day, you can see the payout decreases, and you can see it's approaching 1-1/2 years at 700 Mcf per day minimum allowable.

If you consider undiscounted payout at 200 Mcf per day minimum allowable, you see five years. It's a little faster than if you discount the moneys. Then the black squares, that curve continues somewhat parallel to but converging with the discounted payout curve. And over at 600 and 700 Mcf per day, the two curves are converging and leveling out.

Also then if you look at the return on investment, the black triangles, if the minimum allowable is only 200 Mcf per day, the return on investment is read on the right-hand vertical axis as being something slightly less than 3. And as the minimum allowable increases towards 700, you can see the return on investment increases, becoming asymptotic, to approximately 3.5.

Q. Would it be your observation that once you get into that 500 to 700 range, your economics are beginning to not have that significant a difference?

A. That's correct. And that is why I conclude that 600 Mcf per day, the minimum allowable which has been in effect for the last three years, is a reasonable, optimum value to choose. A number slightly different from that would not make very much difference, whether it be slightly more or slightly less than 600.

Q. Does the third sheet of this exhibit, of Exhibit 6, contain information on well cost and development?

A. Yes. The lower half of the third page lists the prices for gas and oil and the well costs and operating costs that we have included in our economic calculations.

Q. Let me, if I may, draw your attention to Exhibit 7. I think you'll observe that it's the same information, same data sheet, only presented as a separate, freestanding exhibit, is it not?

A. Yes, that's correct.

Q. What is the purpose of Exhibit 7?

A. Exhibit 7, we have separated out, primarily to show you some slight errors that we have incorporated into the exhibits, just in case anyone would want to look carefully, I have found a few more mistakes in some of the numbers that are shown in the

exhibits, but they don't affect the conclusions in any way, and they don't affect significantly the economic computation results or anything else.

Q. What are those corrections?

A. They're in the oil and gas pricing that you see in approximately the center of the page, the lower half of the page. If you look at Item III, gas pricing, in 1994, your Exhibit 7 shows the price of gas used was $2 per Mcf. That's not correct. What we actually used was $1.89 in these calculations.

In 1995, your exhibit shows $2.12, and we didn't really use that. We used $2.00 even, $2.00 per Mcf in 1995. In 1996, your exhibit shows $2.25. That is incorrect. It should be $2.12. In 1997 your exhibit shows $2.39. That's incorrect. It should be $2.25. In 1998 your exhibit shows $2.53. That's incorrect. It should be $2.39.

You can see that in fact the error was that in transferring the information from our actual economic runs, the prices were offset by a year by accident.

Q. Did the same thing happen on the oil prices?

A. Yes. They're offset by a year also.

Q. So what should have been the beginning

1994 oil price that was used?

A. Instead of the $15.90 shown on your Exhibit 7, it was $15 even.

Q. And then each one would be moved a space?

A. Yes. If you'll take the $15.90 and simply move it to the right for 1995, that would be the correct value for 1995, and move all of the numbers to the right one year.

Q. In your opinion, does this error just serve to simply make your economic evaluations a bit more conservative?

A. That's right. The difference that it would make in the economic computations, I have done those calculations prior to today's hearing, and it makes a difference of 3 percent in the present value profit, and it would shift all the curves that we've been discussing on Exhibit 6, it would affect those economic results by approximately 3 percent. And that is relatively insignificant, and in fact each of the cases would be affected approximately the same. So the conclusion would be the same. 600 Mcf per day is approximately the optimum minimum allowable.

I apologize for the mistake in the transferring of the numbers.

Q. If you would, Dr. Van Kirk, let me draw

your attention to Exhibit 8 and ask you to explain to the examiner what that shows?

A. Exhibit 8 is a multi-page tabulation of the work that's been done in the Jalmat Pool and Eumont Pool since January 1, 1991. You can see they're listed chronologically, the operator, the lease, well location, and then the pool, whether it be Jalmat or Eumont.

Q. Does this also describe what type of work was done, whether it was a new well, remedial, that kind of thing?

A. Yes. You can see on the right portion of the page, the type of operation is listed here as recompletion or remedial or new well.

Q. Does this serve to demonstrate that since Order R-8170-J was entered in January of 1991, that there has been an increase in activity, new drilling, remediation and that type of thing?

A. Yes. This exhibit itself shows a high level of activity, and if you refer back to the exhibits we talked about a little earlier showing the actual production histories from Jalmat and Eumont, you'll see the production has increased in the last three years because of this higher allowable.

Q. Does the last page of Exhibit 8 have sort

of a total of these activities?

A. Yes. This is a summary of the prior pages in Exhibit 8 that show the total number of wells then that have been either new drills or reworks or remedials. If you look in the lower right-hand corner of the last page, you'll see 327. That is the summation of all of that activity in those three years. And then we've broken it out between Eumont and Jalmat separately. The Eumont activity has been approximately 221 wells, and Jalmat approximately 106.

Q. Have you formed an opinion as to what would be the probable effect on completions if the minimum allowable order were made permanent?

A. Yes. I believe that if the allowable of 600 Mcf per day were continued and made permanent, that this level of activity would continue for some years in the future.

Q. Let me ask you to now take before you your last exhibit, Exhibit 9, Dr. Van Kirk, and tell the examiner what that shows.

A. This one-page exhibit is a summary of Hartman's leases that he has available at this time and is ready to develop in the very near future. And there are ten total on this page. And in Hartman's

past, in normal years of activity for him, he has developed approximately eight to ten wells per year.

Q. These are properties, leases that are ready to go as apart from acquisition programs of Mr. Hartman?

A. That's right. These are inventory, the legal work has been done, and these are ready. And they represent properties in Eumont and Jalmat over approximately a 40-mile stretch, north and south.

Q. Dr. Van Kirk, what is your opinion of the pre-1991 allowable policies on these pools that resulted in decreasing allowable levels and rather dramatic fluctuations in production levels?

A. Well, it's unfortunate, with the fluctuating allowables throughout the mid-'80's up until January 1991 and the fluctuating production from a pool like this, it's unfortunate that a pool like this was limited in what it could show and what it could do. It was not very healthy. It was sick during the 1980's.

Q. Would you compare, with a view toward correlative rights, would you compare that kind of a policy as opposed to having this minimum allowable and what we have seen has been the performance under that minimum allowable for some three years now?

A. I think the three years' performance history, the last three years under the minimum allowable of 600 Mcf per day has demonstrated a very healthy level of development activities, very healthy reservoir again coming back to life.

Q. Do you believe that serves the interests of prevention of waste and protection of correlative rights?

A. Absolutely, not only prevention of waste, and by that we mean more recovery and less gas left in the ground.

Q. Were Exhibits 1 through 9 prepared by you or under your direction and control?

A. Yes, sir.

MR. GALLEGOS: We move Exhibits 1 through 9 in evidence and pass the witness for cross-examination.

EXAMINER STOGNER: Exhibits 1 through 9 will be admitted into evidence at this time.

Mr. Carr, your witness.

MR. CARR: I have no questions of Dr. Van Kirk.

EXAMINER STOGNER: Mr. Kellahin?

MR. KELLAHIN: No questions.

EXAMINER STOGNER: Mr. Morrow?

EXAMINER MORROW: I wanted to ask a couple of questions.

THE WITNESS: Sure.

EXAMINATION

BY EXAMINER MORROW:

Q. On Exhibit 5, the second page, one of the curves is marked oil, and I didn't hear you discuss that. What's the significance of that on this exhibit?

A. You didn't hear me discuss it because I didn't.

Q. No, I didn't. I must have dozed off.

A. You didn't miss anything. I didn't discuss oil.

Q. Okay.

A. I don't know that the significance of the oil curve is exactly the same as the significance of the gas curve, but let's discuss it. Let's consider what it looks like.

Its shape doesn't parallel the gas curve that we described a few minutes ago, but I think its shape is interesting. If you'll notice, in 1986, the oil production dropped off significantly, as did the gas production, and that was a result of allowables and market situations and purchasers' practices

during that time. And the oil production remained quite low and fluctuating quite a bit after 1986, but in 1991, it is up significantly, and in '92 and '93, the levels are higher than they have been. In the last three years, with increased gas allowables, the oil rates are higher than they had been in some years. I think that's also healthy and beneficial for oil production and oil recovery.

Q. I assume the left-hand axis are the numbers for the oil; is that correct?

A. I believe that's correct, yes.

Q. Do you know if this is oil from oil well completions in those two pools, or is it from both the gas wells and the oil wells?

A. I believe, but I'm not positive, but I believe that this curve shows production only from the Eumont Gas Pool, but there would be some wells in there that could be classified as oil wells in those intervals.

Q. I wondered if it included whatever condensate the gas wells produced, I guess?

A. I believe it does, yes.

Q. All liquids then?

A. Liquids from gas wells, oil from oil wells in the Eumont Gas Pool, but it does not include the

deeper oil pools, the deeper geologic formations.

Q. On Exhibit 6, I wanted to ask you to explain how the allowable rate affected the growth reserves.

A. In doing this calculation, we chose not to have the estimated ultimate recovery dependent upon the allowable rate because we were using a hypothetical typical or average well. And in theory, the ultimate recovery from a well shouldn't depend on its allowable rate because it's going to -- whether it produces at 200 Mcf per day for a long time and then declines or 600 Mcf per day for a shorter time and then declines, its ultimate recovery shouldn't depend very much on that allowable practice.

Q. You meant for those to be essentially the same?

A. That's correct, so that the economic calculations would not reflect significant difference in ultimate recovery. It would reflect the time value of money, which is totally a function of the allowable rate.

Q. And 600, you think, too, is an optimum. As a minimum, do you have any feeling about getting the allowables too high, set too high that they would be detrimental to the recovery out there?

A. You mean might there be reservoir damage or --

Q. Well, or overdevelopment?

A. I think that could happen at very high allowables but not at 600.

Q. Not at 600 or 900 or 1,200?

A. I think not at 900 either.

Q. Okay.

A. There's plenty of history of both Jalmat and Eumont wells in the 1930's and '40's and '50's producing at millions of cubic feet per day. Now that in itself doesn't prove that that wasn't wasteful, but these wells are quite capable, they are really quite capable. And down here at 600 Mcf per day, there's no reservoir damage being done.

Q. Did anybody add up an estimated economic impact of the work that was done as shown in Exhibit 8, how much it might have cost, how much was pumped into the economy down there?

A. Exhibit 8?

Q. That was all the workovers that had been done.

A. I have not done that prior to now, but I think we could make an estimate probably within 30 seconds.

Q. Okay. That's quick enough.

A. Three hundred wells. If each well cost -- let's just consider the money spent in the area. If each well would cost $1 million, which they don't, they don't cost $1 million, but if each well cost $1 million, that would be over $300 million into the economy.

Q. Okay. Well, those weren't all drilling wells?

A. That's right, but each well doesn't cost a million, but let's start out with a million because it's an easy estimate. Each well costs several hundred thousand dollars. It depends on the operator and their practices, the size frac job they want to use, and it depends on the type of operation. Is it a new well being drilled which could cost a half a million dollars, or is it a remedial that might only cost $100,000?

So I think you and I right now can estimate a fair, quick, and dirty rough estimate of the average cost, a typical cost of these wells. Let's say a quarter of a million dollars, not a million dollars but a quarter of a million dollars per well. So if there were 300 of them, rather than that having an impact of $300 million on the

community, it would have an impact of about a quarter of that. Would that be 750 or $75 million dollars?

Q. Thank you, sir. Are these proposed wells of Hartman's, are they wells to be drilled, or are some of them workovers?

A. Some of them are new drills, and some of them are workovers or recompletions.

EXAMINER MORROW: Thank you, sir.

THE WITNESS: You're welcome.

EXAMINER STOGNER: Oh, no, not me, I don't have any questions. You asked all the ones I was going to ask. No other questions of Dr. Van Kirk? He may be excused.

Mr. Gallegos?

THE WITNESS: Thank you.

MR. GALLEGOS: We call Mark Perry.

MARK PERRY,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. GALLEGOS:

Q. State your name, please.

A. Mark A. Perry.

Q. Where do you live, Mr. Perry?

A. Tulsa, Oklahoma.

Q. What is your occupation?

A. I am presently president of Windward Energy & Marketing Company located in Tulsa and a co-founder of Energy, Economic, and Environmental Consultants located in Albuquerque, New Mexico.

Q. What is the business of Windward Energy & Marketing Company?

A. Windward Energy & Marketing Company is a natural gas marketer. We've marketed gas on El Paso, Northern Natural, Natural Gas Pipeline to customers in California and intrastate Texas and in the Midwest and Northeast.

Q. Does that include supply areas in the southwestern United States?

A. Yes.

Q. How long has Windward Energy & Marketing Company been in that business?

A. Since 1986.

Q. Prior to that time, did you have experience in the natural gas marketing industry?

A. I co-founded Vesta Energy Company also located in Tulsa, Oklahoma.

Q. In what year?

A. 1983.

Q. What did you do at Vesta?

A. I was at first the director of market development and when I left vice president of marketing.

Q. What is the business of Energy, Economic & Environmental Consulting?

A. It's an analysis of energy and environmental resource market issues.

Q. Do you stay current on a daily basis on gas markets in the United States?

A. Yes, I do.

Q. How do you do that?

A. We take about ten publications in the natural gas industry. We also have access to information by computer to the Department of Energy.

Q. Are you familiar with market demand for natural gas produced in Permian Basin, New Mexico, in particular being produced in the Jalmat and Eumont gas fields?

A. Yes, I am.

Q. Are you familiar with the production area facilities serving those pools?

A. Yes, I am.

Q. Are you familiar with the mainline facilities serving that area?

A. Yes, I am.

Q. Are you employed by Doyle Hartman to appear to give to this Commission expert testimony on natural gas markets and demands that would exist for gas produced in the Eumont and Jalmat Pools?

A. Yes, sir, I am.

MR. GALLEGOS: We tender Mr. Perry as an expert witness on that subject.

EXAMINER STOGNER: Are there any objections? Mr. Perry is so qualified.

Q. (BY MR. GALLEGOS) Mr. Perry, are you familiar with the January 1991 OCD order allowing the minimum allowable of 600 Mcf a day per acreage factor of 1 for wells in the Eumont Pool and the Jalmat Pool?

A. Yes, sir, I am.

Q. And you understand that this proceeding seeks to require Doyle Hartman to continue those minimums in effect on a permanent basis?

A. Yes.

Q. If you assume that that minimum allowable has increased production of gas from those pools by reason of new wells drilled, recompletions, workovers, do you have an opinion whether there exists a market demand for the gas from the Jalmat

and Eumont Pool?

A. There is a market demand for the gas that far exceeds the well's ability to produce.

Q. Would you describe the basis for that opinion?

A. In the last several years, the gas in the Permian Basin has been redirected from the California market on El Paso to the Midwest and the Gulf Coast areas. Northern Natural Gas is short of gas in the Permian Basin, as is Transwestern and Natural Gas Pipeline.

Q. Would you go so far as to say there is a clear undersupply of southeast New Mexico gas?

A. There is a significant undersupply of southeast New Mexico gas.

Q. Has that been reflected in terms of price behavior of gas in that area?

A. Yes, it has.

Q. Let me ask you if you will take before you what has been marked as Exhibit 11 in this proceeding and tell the examiner what that is.

A. This is a comparison of the Inside FERC prices compiled by McGraw Hill, prices reflecting San Juan Basin gas and Permian Basin gas from January 1991 to the present day.

Q. Do you have some reflections on that price behavior where we see in a period of time Permian prices above San Juan and then they're coming into a convergence and then departing again?

A. Yes. In the January of 1991 era to January of 1992, El Paso Natural Gas was in the process of building or reconstructing its San Juan crossover facilities to accommodate additional coal seam volumes movement from the San Juan Basin east to Plains on their system and off their system into Texas and the Midwest.

At the time that those facilities are completed in May of 1992, Permian Basin prices are below San Juan Basin prices for the first time in several years, reflecting San Juan Basin gas augmenting Permian Basin supplies going east.

And then starting in approximately July of 1993, prices for Permian Basin gas again increase above the San Juan Basin prices and are continuing that in a more strong trend today. In fact --

Q. What accounts for that?

A. El Paso has limited capability, as do the other pipelines in the area, to transmit gas to the East and the Midwest. They're capacity limited.

Q. Is there a particular advantageous

positioning of this southeast New Mexico gas in terms of market?

A. Well, in terms of the previous commitment to California, the Permian Basin is the fulcrum point upon which all gas prices center now. Gas from the Permian Basin goes to meet demand in the Gulf Coast and Midwest first, and because of the lack of ability to bring San Juan Basin gas in toto to the Permian Basin, the Permian Basin gas goes first, and there's not enough ability to produce Permian Basin gas to substitute for San Juan Basin gas.

Q. Is Permian Basin gas also being utilized to satisfy backhauls of San Juan Basin-produced gas?

A. That's what I was just previously referring to. There's approximately 650 million a day of gas that is backhauled by El Paso Natural Gas on behalf of Amoco and Meridian to the Valero Waha and Lonestar Waha facilities. That gas is actually an exchange of Permian Basin gas that goes off at Waha. That San Juan Basin gas actually ends up going up El Paso's facilities in the Permian and into the Anadarko Basin and off at Dumas, Texas.

Q. Is there still a call on demand for southeast New Mexico gas to provide a supply for the south line of El Paso to the west to California?

A. Yes, there is. Currently, I'd estimate this month the demand for gas at the interconnect at Blythe with SoCal Gas is approximately 750 million a day. So El Paso has to have enough gas in its south line to satisfy that demand, as well as all of its other commitments to the east.

Q. Do you agree with the witness, I believe Mr. Green from Chevron, who testified that he thought Permian gas demand was particularly strong because of the flexibility to go north, east, west or south?

A. Definitely.

Q. Mr. Perry, do you have an opinion as to what would occur if the allowables were reduced in southeast New Mexico in terms of that having an adverse impact on production levels in the San Juan Basin?

A. As I previously stated, the San Juan Basin gas currently is being backhauled in the Permian and taken off system. To the extent -- and most of the Permian gas is exchanged offsystem as well. If you reduce the allowables below the 600 Mcf a day significantly, you would actually impact the ability to flow eastward of gas out of the San Juan Basin because of capacity constraints in the El Paso system.

Q. So in your opinion would that have an adverse domino effect? It would not only adversely impact southeast New Mexico, but adversely impact northwest New Mexico?

A. It would reduce flows in both basins.

Q. Does Exhibit No. 10 serve to describe and to give some capacity information on the production area facilities that are available to serve the Jalmat and Eumont production?

A. Yes, it does.

Q. Mr. Perry, at my request, did you take the opportunity to compare the information shown on this Exhibit 10 to another similar exhibit that was introduced in 1990 in this same proceeding to illustrate these production area facilities?

A. Yes, I did.

Q. In making that comparison, what observations did you make?

A. There's 30 million a day of less capacity available in the Permian Basin. That means the production levels are up about 30 million a day over previous production levels.

Q. And did you observe that some of these production area facilities, some of these plants have increased in their capacities since 1990?

A. Yes, they have.

Q. Is there adequate capacity, in your opinion, to serve increase in production from these pools that we've seen in response to the 600 a day minimum allowable?

A. More than adequate.

Q. Would you describe the pipeline facilities that are available to carry gas away from this supply area to markets?

A. Northern Natural Gas, Natural Gas Pipeline, El Paso Natural Gas, and Transwestern.

Q. Is it your observation, do you have an observation whether or not those pipelines have the need for additional supplies of gas from southeast New Mexico beyond what is being provided to them presently?

A. All of them are currently supply short in southeast New Mexico.

Q. Have you observed any actions by other regulatory commissions that would reflect a somewhat similar response to the issues that are being presented to the New Mexico Commission here?

A. Yes. Kansas Corporation Commission recently increased the allowables in the Hugoton field from up to 15 percent. They raised them 15

percent, and they allowed increased density drilling.

Q. Of this demand and lack of sufficient supply that you've described for southeast New Mexico, has it resulted in any unusual steps being taken by interstate pipelines to attempt to stimulate that supply?

A. Yes. El Paso Natural Gas has discounted recently its transportation rates for gas produced in Permian and Anadarko Basins only for redelivery at Topak, Arizona, which is to California customers. And the reason they have done that is because they need to attract gas supplies in the Permian and Anadarko Basins into their systems so they can exchange it for San Juan Basin gas which seeks to go east.

Q. In your opinion, Mr. Perry, would the permanent continuation of Special Rule 8 for the Jalmat and Eumont Pools result in the recovery and sale of gas that would not otherwise be produced?

A. Yes, it would.

Q. Were Exhibits 10 and 11 prepared by you, Mr. Perry, or under your direction and control?

A. Yes, they were.

MR. GALLEGOS: I move the admission of Exhibits 10 and 11 and pass the witness for

cross-examination.

EXAMINER STOGNER: Are there any objections? Exhibits 10 and 11 will be admitted into evidence. Mr. Carr?

MR. CARR: No questions of Mr. Perry.

EXAMINER STOGNER: Mr. Kellahin?

MR. KELLAHIN: No questions.

EXAMINER STOGNER: Mr. Morrow?

EXAMINATION

BY EXAMINER MORROW:

Q. Inside FERC, that's just out of the publication; is that what that means?

A. That's correct.

Q. The Waha interconnect, where is that located?

A. Texas.

Q. In Pecos County or somewhere?

A. Yes, it's in Pecos County.

Q. How does it operate? Do several companies use it or --

A. Well, actually, it's the tailgate of a Mobil processing plant, and it's kind of grown to, I guess, a header system where there are a number of different pipelines which interconnect. American Central Gas Company has bought Odessa Natural

Gasoline from El Paso several years ago and built that into a Waha header system which has connections to Lonestar and several other pipes down there so that more gas can move east than previously did.

It used to be, about six years ago, that intrastate Texas pipelines would dump their gas to go west on El Paso and Transwestern, and Northern would actually backhaul gas from Ventura, Iowa, Canadian gas from Ventura, Iowa, down to Keystone and move it west on El Paso and Transwestern, but that is no longer the case. They're actually supply short, and they're pulling gas from Permian east and to the Midwest, and San Juan Basin gas is being backhauled to the east.

EXAMINER MORROW: That's all.

EXAMINER STOGNER: I have no other questions, or I have no questions of this witness. He may be excused.

Mr. Gallegos?

MR. GALLEGOS: We have nothing further, Mr. Examiner.

EXAMINER STOGNER: With that, does anybody else have anything further in either of these reopened cases?

MR. CARR: Mr. Stogner, Arco Oil & Gas

Company, now Arco Permian, has requested that I read a brief statement into the record, if I may.

EXAMINER STOGNER: You may.

MR. CARR: "Arco Oil & Gas Company is in support of maintaining a minimum gas allowable in the Eumont Gas Pool of 600 Mcf per day. Arco completed 13 workovers or recompletions in the Eumont Gas Pool in 1993 and drilled four Eumont Gas Pool wells in 1993. Arco is planning to work over four wells and drill two wells in 1994 if minimum gas allowable is maintained at 600 Mcf per day.

Although the current pool allowable for October 1993 through March 1994 is above 600 Mcf per day, the 600 Mcf per day minimum allowable is seen as necessary for making a prudent investment in these wells by providing a floor for future allowable. These wells are expected to produce for a number of years."

The statement as to the Jalmat Pool is identical to that for the Eumont with the exception that in the Jalmat Pool, Arco states that in 1993 it completed 21 workovers or recompletions, and in 1994 is planning 14 additional workovers if minimum allowables are maintained.

That's all I have.

EXAMINER STOGNER: Anything further in either of these cases at this time? With that, I will take both reopened Cases 10111 for the Jalmat matter and reopened Case 10036, which is for the Eumont matter, both under advisement at this time.

And with that, hearing adjourned.

CERTIFICATE OF REPORTER

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

I, Deborah O'Bine, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that I caused my notes to be transcribed under my personal supervision, and that the foregoing transcript is a true and accurate record of the proceedings of said hearing.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL, February 28, 1994.

Deborah O'Bine

DEBORAH O'BINE
CCR No. 63

OFFICIAL SEAL
Deborah O'Bine
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: Sept. 19, 1994

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10036 and 10111 (Cont. Reopened) heard by me on 17 February 1994.

, Examiner
Oil Conservation Division