STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION FOR THE PURPOSE OF CONSIDERING:	)	CASE NO. 12,347
PROPOSED APRIL, 2000 - SEPTEMBER, 2000, GAS ALLOWABLES FOR THE PRORATED GAS POOLS IN NEW MEXICO	)	ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

COMMISSION HEARING

BEFORE: LORI WROTENBERY, CHAIRMAN
JAMI BAILEY, COMMISSIONER
ROBERT LEE, COMMISSIONER

February 25th, 2000

Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Commission, LORI WROTENBERY, Chairman, on Friday, February 25th, 2000, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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Commission Hearing
CASE NO. 12,347

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* * *

WHEREUPON, the following proceedings were had at 10:45 a.m.:

CHAIRMAN WROTENBERY: Okay, we'll go back on the record. We have several items left on the agenda.

The next one is Case 12,347. This is the hearing called by the Oil Conservation Division to consider proposed gas allowables for the prorated gas pools in New Mexico for the period April, 2000, to September, 2000.

OCD distributed allowable assignment factors by memorandum dated February 4th, 2000, as has been done for at least the last couple of years, since I arrived here two years ago anyway. The allowable factors that were recommended by the Division for the next proration period were the allowables used in the previous allocation period.

We have received one request to make an appearance in this particular matter. Mr. Gallegos, would you like to -- ?

MR. GALLEGOS: Yes, Madame Chairman, my name is Gene Gallegos, and I'm here with Michael Condon from my office, and we're appearing on behalf of Doyle Hartman who is a prominent operator in the Jalmat-Eumont Gas Pools of southeast New Mexico. We're prepared to present some evidence and other information to the Commission concerning those two pools.

CHAIRMAN WROTENBERY: Okay, would you like to go

ahead and make your comments.

MR. CARR: May it please the Commission, I'd also like to enter an appearance in this case. My name is William F. Carr with the Santa Fe law firm Campbell, Carr, Berge and Sheridan, and we would enter our appearance in this case for Raptor Resources, Inc. We do not intend to call a witness or make a presentation.

CHAIRMAN WROTENBERY: Thank you.

Anybody else, I'm sorry?

MR. KELLAHIN: Members of the Commission, I'm Tom Kellahin of the Santa Fe law firm of Kellahin and Kellahin, appearing on behalf of SDX Resources.

Prior to the hearing today, there was a prehearing statement filed by Mr. Hartman, and then there were responses filed by Mr. Carr on behalf of Raptor, and I filed a response on behalf of SDX.

Before we start presenting witnesses and testimony, I'd request that the Commission take action on those items so that you can clarify for us what will be the content of the process this morning.

MR. GALLEGOS: And Madame Chairman, maybe before you that, if that's in the nature of sort of a motion or something, we can address that and be on that, then we would have a couple of witnesses.

CHAIRMAN WROTENBERY: Okay. I guess, Mr.

Gallegos, if you could just summarize for us --

MR. GALLEGOS: All right. Well, let me do this --

CHAIRMAN WROTENBERY: -- the request you would like to make today.

MR. GALLEGOS: Well, let me do this, by way of sort of a statement.

We are here to achieve some streamlining for the Commission, seems to be the current byword. We will demonstrate that the Commission and this agency should do away with unnecessary, and legally unauthorized, regulation of two southeast New Mexico gas pools, the Eumont Pool and the Jalmat Pool.

First of all, we would point out to the Commission what the law is on the subject of setting so-called allowables for production of hydrocarbons from a pool, and particularly gas production.

By way of background, very briefly, prorationing and the setting of limits on the production of oil and gas is essentially an artifact of the early part of the 20th Century and extending in New Mexico through the 1930s into the 1980s.

And the principle was, and statutory authority was given to regulatory agencies, because there was a period in our history when the market demand for oil or the

market demand for gas was less than our states were able to produce. In other words, there was a glut. We've all probably read and heard about east Texas and oil prices going to five dollars a barrel and so forth.

So this scheme came in so that there would be a leveling out. And so market demand would sort of dictate what the production level would be, and the market wouldn't be ruling and the industry ruling.

So the statutory authority for any kind of setting of allowables in New Mexico is under 70-2-16, and for gas it's under Section C, and it gives the authority to the Division to set an allowable "...in an amount..." I have it, for the record, in front of the Commission on display here, an excerpt from that statute. "...in an amount less than that which the pool could produce if no restrictions were imposed..." That is the limit of legal authority that the Legislature has given to the Commission.

Now, in fact, there were many years historically -- and we'll have a witness to show that -- when, in fact, production permitting, New Mexico gas pools, most New Mexico gas pools, did exceed market demand, and the interstate pipelines made nominations, and it was less than what could be produced.

Well, what's happened is, the industry has changed, the interstate pipelines are no longer the

purchaser, the spot market has evolved, the demand for gas has grown. And now what has happened is, there's this anomaly of the setting of these allowables which are referred to as default allowables, this automatic allowable which now -- and this exhibit demonstrates the situation in the Jalmat Pool, 1996 forward.

The blue bar column for 1996 shows the amount that could be produced by the Jalmat Pool under this, quote, allowable system, and the amount of production that the pool actually produces. In other words, there's a totally illogical circumstance and one that has no bearing on the authority given to the Commission by the law in the setting of these allowables.

The same thing is happening in the Eumont Pool, there's a drastic difference.

So the setting of allowables means nothing, because it is not setting a restriction on the amount of gas that can be produced.

Now, why is this a concern, and why do we care? As a producer in those pools, Mr. Hartman can produce, everybody can produce all the gas that the pool is capable of.

The practical concern is this, and the backdrop and the context of this situation is that two operators have come into the -- in particular the Jalmat Pool, who

are represented by Mr. Kellahin and Mr. Carr, and they have begun to densely infill drill this pool, in particular the Jalmat Pool, and what we say is ignoring the spacing requirements of that pool, with the interpretation being that we can drill on any acreage we want to, whether it's 40 acres or 80 acres or 10 acres, I suppose, because these pools are prorated.

In other words, this is the flag they drape themselves in and say, Proration, Proration, the mantra, forget about spacing, forget about whether a well can really drain 160 acres rather than 40 acres, because the pool is prorated. So this becomes the crutch or the excuse for being able to ignore density and spacing requirements. And evidently there's some agreement among staff of the Division to that interpretation.

So it's time that this whole anomaly of proration is looked at. And when you look at it, instead of this just being an automatic thing that's called up here every six months and nobody asks, What are we really doing and what are these allowables really meaning?, this default allocation for 160 acres has just been rolled over. And it's time to do away with that and streamline it.

At the risk of going on too long here, I think particularly it might be illuminating for Commissioner Lee, who has been on the Commission for a shorter period of

time, and somewhat, maybe, for Madame Chair, for a little bit of the history, to go back, what's happened in this process.

In 1996 -- In fact, I think the Chair turned to Ms. Davidson and asked, How long have we been doing this? And I can answer that, because I think that began in 1996 with the so-called default allowable where there was no longer a schedule. There is no proration schedule. There no longer is a gas proration schedule for what they used to call the Hobbs District, well by well, where somebody could look at it and say, This is my allowable, I'm exceeding it or not. There's no policing, there are no more nonmarginal wells, there's nobody whose production is restricted. So why is this being done?

Back in February of 1996, when this same kind of hearing came up, I think at that time the Chair was Mr. LeMay, who was the former Director. Mr. Carr entered an appearance. By the way, there was evidence and testimony taken at that time. Mr. Carr entered an appearance with clients, Mr. Kellahin, Jim Bruce for certain clients. And the Commission itself had a witness to address the question of proration and what will we do from now on?

Mr. Chairman LeMay made some remarks as the hearing opened, and one of the things he said that's interesting, he says, I quote from page 6 of that

transcript:

They're pretty much the same allowables we've had for some time, and I know both my Commissioners have told me more than once that we -- it's kind of silly to come here and listen to the same thing over and over again when we have agreement out there what it should be.

And then he goes on to say:

And if for any reason you're disagreeing with these -- either they're not high enough or they're too high -- then we'll take testimony on it.

So then Mr. Carroll, who was the counsel, puts on Jim Morrow, a consultant for the Commission, and he testified, and here's an excerpt from his testimony. This is 1996:

We're proposing that we take the allowable allocation factors that have been used in recent proration periods and adopt those for the next period, the April-through-September period, and then continue to use those same factors on a continuing basis, so

long as they are appropriate.

If we see, here at OCD, or someone in industry has a need to change one of those -- and there may, certainly from all indications, be some changes here this morning that will be recommended in certain pools, but we believe those will be confined to maybe one or two pools each time so that we can speed up the process and skip some of the testimony that usually goes on at these hearings by saying that we will use these factors more or less as default allowable allocation factors, unless someone shows us that we should change.

And then he goes on to say, "And you can see [from these factors] proration is not really affecting production to any large extent, either in the southeast or the northwest."

That's the Commission's own witness back at the time, basically we came into this default system.

And then Commissioner Weiss commented after that had been heard. He said -- former Commissioner Weiss -- "Haven't we tried to deregulate or deprorate some of these, a couple fields?"

And Chairman LeMay [*sic*] asks, "Yes...we did drop several of them. Several have been dropped from here which

don't even appear on here."

Commissioner Weiss asks, "What's been the effect of that?"

ANSWER: "None that I know of."

At that hearing too, Mr. Kellahin brought up that -- in fact, on behalf of Marathon, and this is pertinent to this argument being made by counsel that for some reason when you hold an allowable hearing, you're not supposed to hear evidence of whether there should be an allowable or not. His client, Marathon, was interested in what was happening in the Indian Basin-Morrow Pool.

And Mr. Kellahin said, after saying what their position was -- I quote him from page 36 of the transcript -- "So rather than presenting to you a lengthy testimony today on increasing Indian Basin-Morrow, we're choosing another option, but we wanted to let you know that that was in the works."

In other words, the Indian Basin-Morrow question of let's increase the allowables could have been presented at that time, but he chose some other procedure to do that.

A year -- Two years later, actually, two years later, now, I think --

MR. CONDON: If the Commission wants, we have copies of the transcripts of the hearings that we're referring to, and we would like to introduce these so that

they become part of the record in the event there's review of this proceeding.

MR. GALLEGOS: Yeah, we --

CHAIRMAN WROTENBERY: Are you interested in getting a copy right now?

COMMISSIONER LEE: Yes.

MR. GALLEGOS: Yeah, I plan to mark those and offer those exhibits.

Now, in February, 1998, Chair Wrotenbery is in charge, and I think -- I gather from what is said here that this may have been the first occasion Madame Chairman had to preside over this kind of proceeding. So you called the case, and it was numbered 11,931 at that time, and I'm reading from page 3. And you said, Madame Chairman, and I quote:

> This is the hearing called on the motion of the Oil Conservation Division to consider gas allowables for the prorated gas pools in New Mexico for the period April, 1998, to September, 1998.

You went on to say:

> I don't believe that we've received any requests for changes to the factor listed in that docket, but

we are today to take any comments or testimony on those proposed factors.

At this point I guess it's appropriate to ask if there are any appearances in this particular case.

Rand Carroll, the Commission attorney, entered an appearance.

And then, because being new to the Commission, Wrotenbery asked Mr. LeMay, who was the old man, about -- She said:

Bill or Jami, I was going to ask you if you had any comments that you might like to make based on your experience with the proration system in New Mexico. I'd be interested in hearing any comments you'd have.

Mr. LeMay then went into a fairly long dialogue to elucidate, Madame Chairman, and at page 5 he says:

Of course, way back when the pipelines controlled the markets, nominations for gas were an important factor to the production of gas from certain fields, because they were dedicated to defined markets.

Now, with the evolution of the present system where the pipelines are only transporters of that gas

and that producers make their own markets, the concept of having proration as a tool to allocate gas to the market -- I feel, anyways -- is really not a valid issue. It's not sound judgment.

And he goes on to describe the history of it.

And then on page 7 he says:

But now I think it's become just a -- basically a rubber stamp of the previous allowables unless there was some people who wanted increases. And occasionally you'll get some workovers or some elements that would require the Commission to increase the allowable in the field. But they bring that evidence before us and we consider it, and generally we've increased without objection, we've increased the allowable.

So it's become a rather cut and dried matter. We used to spend a lot of time with it, and now it goes pretty smooth. Don't you think, Jami?

The other transcripts will basically, and without taking the time to read them, will just show that as these hearings have been called before and noticed as they are today, the Commission has heard from people, and typically

the only thing that has been presented is somebody who wanted to have more allowable, and automatically that's been granted.

But we're here today to say -- and I think we have the right under the statute, of course, Section 70-2-23, anytime the Commission makes an order it must hold a public hearing and allow interested parties to be heard -- we're here today to say simply, there is some reason to address the allowables being set for these pools, the Eumont and Jalmat Pool. We're not speaking to any others, we don't have data on any others.

But clearly what's happened here is, the allowable has become a meaningless exercise. And moreover, to set an allowable for these pools, as has been said, which calls for production in excess of what the pool can produce is an act in violation of the authority of the statute, the Oil and Gas Act, which gives this Commission authority to act. And so simply it is time to set no allowable for the Eumont and the Jalmat Pool.

Thank you.

CHAIRMAN WROTENBERY: Thank you.

Mr. Carr?

MR. CARR: May it please the Commission, if I could just briefly respond.

As Mr. Gallegos has pointed out, there is a

dispute between Mr. Hartman and Raptor and SDX about the current development in the Jalmat Pool, and there are specific hearings set in March to address those issues.

Today, however, it was our understanding that we were here to consider, as is advertised -- and this is set forth in the docket -- the assignment of allowables for April through September of this year.

Now, as you know, we're talking about the Jalmat-Eumont Gas Pools, and these are prorated pools. And they're prorated pools because they're operated under the general rules for the prorated pools in New Mexico and under special pool rules for each of those pools which provide for prorationing.

What we believe is happening here today is, there's an attempt to, in effect, change the pool rules, to abolish prorationing. Now, certainly Mr. Hartman has the right to advocate that. But there are procedures to be followed, if that's what an operator wants to do: File an application, you provide notice to all operators in the pool, and it is set to come to a hearing. That has not been done here.

And it isn't a surprise to Mr. Hartman or anyone else. He did that ten years ago, filed a case to set minimum allowables in these pools, and was successful in doing just that. But that hasn't been done here. And we

think that if, in fact, what you're going to do is abolish the allowables, I think it's inappropriate the way the case is before you.

Now, you may certainly take whatever testimony you want, and I think that under the call of your case it's appropriate to let people come in here and present to you whatever they need to say about the allowable system and about prorationing.

But if the order that results goes forward and is an abolishment of prorationing in these pools, I submit you've stepped outside your rules, outside established procedure, you're in violation of the due process rights of the operators in the pool, and your order will be challenged.

CHAIRMAN WROTENBERY: Mr. Kellahin?

MR. KELLAHIN: Madame Chairman, I concur with Mr. Carr's position with regards to the case that's advertised for hearing. The scope is very narrow in this Commission process that you have docketed today. It is to consider setting the allowables in the various prorated gas pools.

What Mr. Hartman is choosing in this forum is a far more complicated, complex, detailed, convoluted problem that currently is pending resolution before Examiners on dockets later this month.

So we can sit here and start the process before

you within the framework of an allowable hearing, at the conclusion of which we'll have to ask for a continuance for time, we'll come back in and bring our experts in here on the issues that Hartman is really seeking to have you address. And within the context of this forum, he's seeking to ask you to terminate prorationing in the Jalmat Pool, suspend it in some fashion, or change the historic practice of the Division, which is to allow multiple wells on gas proration units and not control well density, because we're in a prorated gas pool.

So of the multitude of things that Mr. Hartman is seeking to do, none of them are appropriate within the context of what we've been asked to do today, and we would ask that you simply advise Mr. Hartman that the process he's engaged in, or about to, is inappropriate in this forum, and we'll defer it back to the Examiner process where that is now beginning and where we will have a full and complete hearing on each of those issues.

CHAIRMAN WROTENBERY: Thank you.

MR. GALLEGOS: Madame Chairman, may I just address very briefly, your docket notice went out, as usual, to everybody concerned, setting this matter for hearing. But moreover, on February 4th, 2000, you issued a notice to all producers, purchasers and transporters of gas for all prorated gas pools in New Mexico, the broadest

notice you could possibly give to anybody has gone out, to anybody who had any interest in what was going to be going on at these allowable hearings.

And you finished that memorandum by saying, "The enclosed allocation factors, being the previous 6 month allowable factors, will be used for allowable purposes for the period April, 2000 through September, 2000 unless there is evidence received at the February 25, 2000 Commission hearing indicating that these factors should be modified."

Absolutely abundant notice has been given, the arguments of counsel, who have practiced before this Commission and Division so much that they sort of are the rules unto themselves, or they seem to be -- the arguments of counsel that are made here today totally bypass the question of law, law, Madame Chairman, which we brought before you, which is what you have to abide by.

They totally bypass the fact that this hearing was noticed to consider if there's any evidence whether those allowable factors should not be introduced. And they totally bypassed the merits, that it's ridiculous to have allowables for this pool and just say, Oh, we should do this another way, there has to be some other procedure because, you know, we practice here all the time, and that's the way we think it's done, and historically you do it a different way.

Well, the important thing is that you follow the law, the important thing is that you don't go on with a facade of setting allowables which are meaningless, have no restriction on the pool production but are being used, as I say, as a cover for somebody who has other motives concerning the density of their well drilling.

So I think we should be permitted to present the evidence to the Commission, and if we do I think we'll persuade you that there should be no allowables set this six months for the Eumont and Jalmat Gas Pools.

CHAIRMAN WROTENBERY: Thank you, Mr. Gallegos.

MR. CARR: I would just like to make it clear, I'm not here saying Mr. Hartman shouldn't be allowed to present testimony. I am saying that once you docket the case that says you're going to sign an allowable, going to zero would be one thing, but abolishing the system is another.

CHAIRMAN WROTENBERY: Thank you. Commissioners, let me just tell you what I'm thinking on this particular case at this point.

What we're trying to do today is to consider what allowables should be set for the prorated gas pools in New Mexico, and we currently have a list of prorated gas pools that include the Jalmat and the Eumont. It seems to me our order of business today, given that those pools are

currently prorated, is to determine what will be the allowable for this next six-month production period that starts April 1.

Now, Mr. Hartman has raised a question about whether the pool should continue to be prorated, and he's raised some interesting issues that need to be considered in making any kind of decision ultimately about whether the pool should continue to be prorated.

There are some other factors that come into play. This is one of the statutory provisions that governs the Commission's approach to prorationing. There are other statutory provisions that give the Commission broad authority to do what is necessary in its rules and its orders to prevent waste and protect correlative rights, and some of those other provisions come into play here as well.

I know in the tutorial that Mr. LeMay gave me on my first Commission meeting on the prorationing system, he did mention, in addition to the comments he made about the allocation of gas to the market and how perhaps that's not frequently much of a factor anymore in our prorationing decisions, he did also mention that protecting correlative rights is an issue in a number of pools. And I believe, Commissioner Bailey, you noted that as well in your response to my question on that issue. You had noted at that very same proceeding that its current purpose is

mainly for correlative-rights protection.

I don't know all of the ins and outs on the Jalmat Pool or the Eumont Pool at this point. I do know there are some special circumstances, at least in the Jalmat. We've got a checkerboarding pattern of units in that area, we've got a large number of nonstandard units that are smaller than the regular units, and so there may well be some issues about correlative rights that need to be considered before we would eliminate prorationing in the Jalmat or the Eumont Pool.

I do believe that the appropriate course of action at this point would be for Mr. Hartman to file an application to change the rules for the Jalmat and Eumont Pool and to propose that the Division terminate prorationing and justify that particular action in its application. That matter would then be set for hearing before a Division Hearing Examiner, and an order would be issued by the Division which could then be appealed to the Commission for further consideration if any of the parties objected to any portion of that decision.

I think what we should do here today is to start with our current provisions in our rules, and both the Jalmat and the Eumont Pool are currently prorated gas pools, and we need to make a decision about what the factors will be, the production from those pools for April

through September.

MR. GALLEGOS: May I inquire, Madame Chair, so the ruling is, you won't take our evidence?

CHAIRMAN WROTENBERY: I will say that if you've got some -- These particular hearings tend to be somewhat informal. If you've got some evidence that you think we should consider here today in setting the allocation factors for the Jalmat and Eumont Pools, yes, we'll be happy to listen to you and make our determination after we hear your evidence about whether anything that you tell us today might affect the allocation factor that we set for these pools.

MR. CONDON: Can I just briefly, Madame Chairman, address you, because I want to make sure for the record that we're clear that we've explained to you what our position is on this --

CHAIRMAN WROTENBERY: Okay.

MR. CONDON: -- and that is, regardless of what comes out of this process today, the Commission is going to adopt a rule or order or regulation that applies to these two prorated gas pools, and it's going to either set an allocation factor or decide that it cannot set an allocation factor. And whatever decision the Commission makes, I submit, needs to be supported by evidence.

What the Commission has done for years is just

kind of follow this default proceeding of adopting the allocation factors for the prior period and extend them on into the future without any consideration of a change in factors, change in circumstance. And while we have questions about the propriety of that procedure under the statutory scheme, we're not raising the general issue here today.

But we are submitting that when an operator comes before you and says, We have evidence to show that there is no substantial basis for the proposed allocation factors, that the Commission is duty bound to hear that evidence and, in making a decision on the allocation factor that it's going to adopt for the next period, that it do so on the basis of evidence. Because I would submit that any other decision is, by definition, the definition of arbitrary and capricious administrative action.

MR. GALLEGOS: Okay, we'd like to call Craig Van Kirk.

CHAIRMAN WROTENBERY: Mr. Van Kirk, would you please stand and be sworn?

(Thereupon, the witness was sworn.)

MR. GALLEGOS: Members of the Commission, I'm going to be starting with what is marked as Exhibit 10 in the packet. I handed you the Exhibits 1 through 17, and the first one we'll talk about is actually Number 10.

CRAIG VAN KIRK,

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

DIRECT EXAMINATION

BY MR. GALLEGOS:

Q. Would you state your name, please?

A. Craig Van Kirk.

Q. What is your business or profession?

A. I'm a petroleum engineer, professor at Colorado School of Mines.

Q. Okay. Would you briefly give the Commission some idea of your professional history, beginning with your education? Post-secondary education, we don't want to go back to high school.

A. I have received three degrees in petroleum engineering, the bachelor's, master's and PhD's. I worked in private industry starting in the late 1960s for Humble Oil Company, which today is known as Exxon, 1969 to 1974; worked for Shell Oil Company in the Rocky Mountain states, 1978, worked in the consulting mode internationally and domestically from 1974 to 1978. In 1978 I went to Colorado School of Mines to be a professor, in 1980 became head of the petroleum engineering department, and I continue in that capacity today.

Q. And have you done various private consulting

assignments through the years, Dr. Van Kirk?

A. Yes.

Q. And without taking the time to go through that, let me ask you, what has your experience been in that capacity in regard to the Eumont and Jalmat Gas Pools of Lea County, New Mexico?

A. Approximately 1987 I began doing work with Hartman Oil in the Eumont-Jalmat fields in southeast New Mexico, and through the years since 1987, off and on, periodically, frequently, but not every month.

Q. Okay. So approximately off and on for 13 years --

A. Yes.

Q. -- maybe 12 years?

A. Yes.

Q. Would you give the Commission just a sort of a general overview of the nature of that pool and sort of the history of the development of that pool -- of those pools, I should say?

A. Those pools, the Eumont and Jalmat Pools, are known as giant gas fields. They cover very large areas, approximately 60,000 acres each, more or less, each.

Wells in the late 1920s discovered production of hydrocarbons from the formations of interest in the Eumont-Jalmat area, and production began extensively in the 1930s.

1953 and 1954, those two pools were created, the Eumont and Jalmat, out of combinations and consolidations of other producing gas pools in the area. Both of the pools produced from just about the same formation, the Yates being productive -- permitted to be produced in both of those pools, the Tansil, Yates and a portion of the Seven Rivers being the formations to produce, and the Jalmat, the Yates, Seven Rivers and Queen, part of the Queen, being formations produced in the Eumont.

In 1954 those pools were organized, 1953 and 1954, and prorated. And prorationing continued through the years. And there are some years, 1970s and 1980s, when the prorationing appeared to be a significant activity in the pools, but not during the 1990s.

Initial production rates from wells back in the 1930s and 1940s and 1950s was several million cubic feet per day, per well. Big wells, very powerful wells.

Early spacing, initial spacing, standard proration unit, 640 acres per well.

Initial pressures in these reservoirs, a little over 1000 p.s.i. at a depth of 3000 feet, 1100, 1200, 1300 p.s.i., depending on where you are in the field and in the reservoirs.

The rock quality is quite good for gas reservoirs, never classified as a tight gas sand or tight

gas reservoir. Good communication within the field. Through the decades of production, plenty of evidence to show well interference, some of the interference demonstrated on 640s, wells a mile apart. In more modern times wells have been drilled on 160-acre gas proration units and for years of production, pressure data, lots of interference among wells, lots of common pressures among wells.

Initial pressures being slightly over 1000 p.s.i., today's pressures, wellhead pressures, 25 p.s.i., 50 p.s.i. These fields are nearing the end of their lives. They've done a fine job and they've got some more years to go, but they're in the range of 95 percent, perhaps 96 percent, of their pressure exhaustion, and therefore the recovery of gas that can be expected.

Today, typical rates are 50 to 100 MCF per day per well, and there are certainly some wells that produce at rates somewhat higher than that, and many wells that produce at rates lower than that.

Q. Okay. Would you take Exhibit 10 before you? It's entitled -- Oh, you don't have it?

A. I don't have numbered -- I have copies, but they're not numbered.

Q. Okay, I'll give you the heading on it. It's the "Total Jalmat Gas Pool Production".

A. Okay, that's Number 10? Mr. Gallegos, is that Number 10?

MR. GALLEGOS: That's Number 10.

Madame Chairman, are Dr. Van Kirk's credentials accepted for him to give expert opinion and testimony?

CHAIRMAN WROTENBERY: Yes, they certainly are.

Q. (By Mr. Gallegos) Would you explain what is shown by that exhibit?

A. Yes. Exhibit Number 10, titled "Total Jalmat Gas Pool Production" --

COMMISSIONER LEE: I think that's Exhibit 11 to us.

CHAIRMAN WROTENBERY: Exhibit 10 is --

MR. GALLEGOS: I stand corrected, I was wrong. It's Exhibit 11.

THE WITNESS: Okay. Shall I proceed?

CHAIRMAN WROTENBERY: Yes.

THE WITNESS: So Exhibit 11 is titled "Total Jalmat Gas Pool Production". And this particular chart only goes back to 1976. This exhibit does not go back to the 1930s. But this does show production -- If you'll look back at 1976, the scale that is used in the left-hand margin, that is MCF per month. So the very top left-hand corner scale is -- that's 10 million MCF per month. That's 10 BCF per month.

The middle value, halfway down the left-hand margin -- I'm sorry, that's a million MCF per month. That would be a billion MCF per month.

So the production rate back in 19- --

Q. (By Mr. Gallegos) A billion cubic feet?

A. Yeah, I'm sorry, a billion cubic feet -

Q. Right.

A. -- per month.

Now, the production rate, then, back in 1976, you can see, then, if you read this logarithmic scale, it's approximately 2.8 BCF per month. And that would be a rate a little less than 100 million cubic feet per day for the total Jalmat Gas Pool.

And then you'll notice production rate declining throughout the 1970s. And notice in the 1980s the wild, wild fluctuations in production. There's peaks and valleys, spikes, north and south. And this is in the period of fluctuating allowables and production rates, gas pipelines not wanting to take all the gas that was available from this pool.

And then approximately 1990, you'll notice the production from the pool increases significantly, and let's say a modern peak, a modern peak, about 1991.

And after 1991, throughout the 1990s, a fairly consistent decline in production rate and no longer wild

fluctuations, no longer high peaks and low valleys. This is a period of relatively unrestricted production.

The most current production rate shown here on this chart during late 1999, that production amount for the month is approximately 750 million cubic feet per month, which is approximately 25 million cubic feet per day. On a per-well basis, that's in the neighborhood of about 70 MCF per day per well, or per acreage factor, if you like.

Q. And the acreage factor, when you use that term in these pools, is that related to 160 acres?

A. Yes, it is, that's for a 160-acre gas proration unit.

Q. So-called acreage factor of 1, or an F1?

A. For 160 acres, the acreage factor is 1.0.

Q. Okay, and you're saying the average production for one of those acreage factors now is about 70 --

A. It's in the neighborhood of 70 MCF per day.

Q. Per day. Are you aware that the so-called minimum allowable is 600 MCF a day for --

A. Yes, I am.

Q. -- the acreage factor?

A. The minimum allowable here is 600 MCF per day, which is not quite 10 times 70, but real close. The current average production rate here is pretty close to 10 percent of the minimum allowable.

Q. Would you turn now to Exhibit Number 12, which is entitled "Jalmat Gas Pool Acreage and Acreage Factors, from 1976 to Present", and explain what it shows?

A. This is Number 12?

Q. That's Number 12.

A. Exhibit Number 12 is titled "Jalmat Gas Pool Acreage and Acreage Factors", again going back to 1976.

COMMISSIONER LEE: No, that's the --

THE WITNESS: Excuse me, if I could. I'd like to make one clarification back on Exhibit Number 11.

MR. GALLEGOS: Pardon?

COMMISSIONER LEE: The "Gas Pool Acreage and Acreage Factors", that's Number 10. You said 12.

MR. GALLEGOS: I thought it was 12.

MR. CONDON: Gene, look at these. That's 10.

MR. GALLEGOS: Oh, that's what happened, I guess, between 10 and 11. They got turned around. Thank you. Fortunately Dr. Lee is setting me straight on this.

Okay, so in making these packets up, I guess it got reversed. So "Jalmat Gas Pool Acreage and Acreage Factors" is Exhibit Number 10.

THE WITNESS: Okay. And fortunately I have my eraser with me today.

May I go back to Exhibit Number 11 just for a moment to clarify the source of the data?

In the upper left-hand corner, Exhibit Number 11 states that the source of the production data here is *Dwight's*. Well, *Dwight's* data is used from 1991 forward, from March of 1991 forward to 1999.

Prior to March of 1991, the source of the data is the NMOCD Southeast Gas Proration Schedule. But from March of 1991, we no longer have that information.

So there's two different sources of production amounts on Exhibit 11.

Shall I proceed with Exhibit Number 10?

Q. (By Mr. Gallegos) Please do, Dr. Van Kirk.

A. For clarity, let me restate, Exhibit Number 10's title is "Jalmat Gas Pool Acreage and Acreage Factors", going back to 1976 to present.

The left-hand legend, acreage factors, would be the number of acreage factors in the Jalmat Gas Pool from 1976 forward.

Q. And for clarification, would you say again, what does that mean? What are acreage factors?

A. Those are gas proration units, whole numbers. And for example, if you look back in 1976, the total acreage factors, the number of acreage factors, is approximately 365, as you see on the graph here. It means there are approximately 365 gas proration units of 160 acres in the Jalmat pool at that time.

And if you notice, then, through the years the total acreage factors are approximately 360. Notice about 1984, the total is down to just a little over 350, but then fluctuating back up to -- around 350 to 360, until about 1994.

And in 1994, this graph shows the number taking a big jump up to almost 450, and we believe that is erroneous data. I have -- On my particular copy, I have just put a big X through the data from 1984 [*sic*] to 1997 or 1996. That big jump from 350 to 450, we believe that's wrong information.

Q. I think you said 1984, and I think you meant 1994?

A. Yes, I'm sorry, that's 1994 to 1996.

Q. There are --

A. That's when we marked it erroneous data.

Q. Excuse me, there are terms used, "marginal" and "nonmarginal". What does that mean in the vernacular of the allowable system?

A. The nonmarginal wells or the nonmarginal acreage factors, which are graphed on the bottom of this particular chart, those are wells that could produce in excess of the allowable. The marginal wells, which are plotted with the dashes, the middle of the three curves, marginal wells, are those wells that either cannot or have not produced up to

the allowable.

Q. Go ahead and explain, then, what is demonstrated by the data on this graph, excluding these total acreage factors after 1994?

A. Okay. If you'll look at the bottom of the chart, the solid black data, starting in 1976 and a value of approximately 50 acreage factors, that would be the nonmarginal acreage factors or wells that were capable of or had produced in excess of the allowable amount.

And you can see from 1976 the number decreases into the 1980s, but then a very rapid increase in that number and maximum value reached in 1988 at a value of approximately of 150. In 1988, approximately 150 of the total of approximately 350 acreage factors in the Jalmat Pool were classified as nonmarginal or capable of producing in excess of the allowable at that time.

Q. So that would be read that over 150 of these 160-acre gas proration units at that time were capable of producing over whatever the allowable was as it's set at that time?

A. That's correct. And notice the mirror image. The dashed curve in the middle of the chart, the marginal acreage factors, those wells that -- number of acreage factors that would produce less than the allowable amount reaches a minimum value, naturally, at the same time, 1988,

of approximately 200.

Q. What was going on in the natural gas industry and the gas market in that 1986-1999 period?

A. Did you say 1999 or 1989?

Q. I meant to say 1986 to 1990 period.

A. Okay. Well, as I explained when we were referring to the first chart, Exhibit Number 11, during the mid- to late 1980s, the transporters, the gas companies, the purchasers, did not need nor want to take all the gas from the Jalmat pool, and there was a significant turndown during that time.

So these -- In fact, Exhibits 11 and 10 can be viewed together. The time scales are the same, and you can see a relationship between a lot of significant events.

Q. Was that error the error of so-called FERC Order 636 and the emergence of the spot market replacing what had been the long-term --

A. Yes.

Q. -- wellhead purchase --

A. Yes.

Q. -- type of market?

A. Now, since then -- Notice, then, since 1988 the rapid decline on Exhibit Number 10, rapid decline in the nonmarginal acreage factors, and by 1992, 1993, 1994, the number of acreage factors approaching zero. And in fact,

the last reported acreage factors in 1996 were approximately 0.5 or 0.75, the number being less than 1 in this pool of approximately 350 acreage factors or approximately 350 wells.

So the last reported values we have to review are 1996. We don't have data in 1997, 1998 and 1999 as to how many nonmarginal acreage factors exist in the Jalmat Gas Pool.

Q. The next exhibit is entitled "Jalmat Gas Pool Non-Marginal Acreage Allocation Factor", and I believe that's Exhibit Number 12. Hope I got it right this time.

A. Is it Number 12?

CHAIRMAN WROTENBERY: Yes.

Q. (By Mr. Gallegos) What does that exhibit demonstrate, Dr. Van Kirk?

A. This Exhibit demonstrates two things, and both of them refer to the legend on the left-hand margin. Those units are MCF per month, per acreage factor.

For example, if you look at the middle of the left-hand margin, the value of 10,000 -- that would be 10,000 MCF per month, per acreage factor. And if you look at the solid black line, then, that would be, as labeled here, the nonmarginal acreage allocation factor, MCF per month per acreage factor. And then look from 1991 or 1992 to the present, 1999, a value of 18,300 MCF per month,

continuously, except for a period in 1993, where it was increased above 20,000 for a period of time. But 18,300 has been used consistently for many, many years from 1991 to today.

Q. If the same graph were made for the Eumont Pool, would it show essentially the same?

A. Yes, it would, except for the Eumont Pool the value is 38,000 rather than 18,300.

Q. 38,000 MCF per month --

A. MCF per month.

Q. -- per acreage factor?

A. Yes. If you look at the curve on the bottom of the page, the lighter of the two solid curves, the lower left-hand part of the graph is labeled "Average Gas Production" MCF per acreage factor. And this is actual production.

And notice from 1991 the peak, again correlating with Exhibit 11, showing the total Jalmat Gas Pool peak gas production in 1991, the actual average gas production per acreage factor, a modern peak in 1991, and then declining pretty consistently, relatively unrestricted, very few marginal acreage factors. And in most recent information, the fall of 1999, just a few months ago, the average per acreage factor being approximately 70 MCF per day, per acreage factor, far below the nonmarginal acreage

allocation factor of 18,300 shown at the top of the graph. And you notice the large divergence. We've got this labeled "Divergence".

Not only is there a big difference between the two, but they're also diverging. The difference is getting larger and larger. And today's average actual production rate per acreage factor of approximately 70 MCF per day, as compared to the nonmarginal acreage allocation factor of 18,300 MCF per month, which is about 600 -- which is 600 MCF per day. Today's average production is almost as low as 10 percent of the acreage allocation factor.

Q. Exhibit 13 is a bar graph for four years of the Jalmat Pool, comparing the allocation factor allowable to pool production, and we have a blow-up of that here. Would you basically just show or just explain what information is shown by that exhibit?

A. Okay. Let me put the large exhibit back up on the stand.

Q. 13 is the Jalmat Pool, the first one.

A. Exhibit 13 is for the Jalmat Pool. We have a similar one prepared for the Eumont Pool.

The green values shown here and labeled on this exhibit, "Pool Production", this is actual pool production for the entire year 1996 and 1997 and 1998. But in 1999 we only have the first nine months of 1999 measured and

recorded from January to September, so 1999 is asterisked; it's only three-quarters of the year 1999.

COMMISSIONER LEE: What's the units of your allocation factor?

THE WITNESS: These values here?

COMMISSIONER LEE: No, the previous page, the units?

THE WITNESS: Exhibit 12?

CHAIRMAN WROTENBERY: Yes, on Exhibit 12.

THE WITNESS: Back on Exhibit 12? The acreage allocation factors, those units are MCF per month.

COMMISSIONER LEE: What does the F1 stand for?

THE WITNESS: That's factor one. You could have -- In these pools there's only one factor, and that's acreage. In some other pools there's a couple of factors. It could be -- Acreage could be factor one, and factor two could be deliverability, or some other measure.

Q. (By Mr. Gallegos) So factor one is the allowable; is that correct? It's the allowable assigned to 160 acres?

A. That's correct.

Q. The so-called F1 or factor one?

A. Yes. Shall I proceed with this chart?

COMMISSIONER LEE: Yes.

THE WITNESS: So the green values here show the

actual production during the last several years. And these units are -- Here's 80 million MCF. Well, you can also say this is 80 BCF. This is 80 BCF per year. And I'm pointing, when I say "this", for the record I'm pointing to the upper left-hand part of the chart here.

COMMISSIONER LEE: What's the correlation between this chart and the previous chart?

THE WITNESS: The previous chart, Exhibit 12, shows the nonmarginal acreage allocation factors for each gas proration unit of 160 acres, or per acreage factor. And what I've explained so far on Exhibit 13 is simply the measured actual production.

I'm about to explain the large blue bar here, which is --

COMMISSIONER LEE: I'm interested in why the blue bar is going down.

THE WITNESS: Well, the only reason the blue bar is going down is that in 1999 we're reporting only here nine months of information. I'm sure that actually, based on the way the allowable system has worked and the values used in Jalmat for many years, the 18,300 MCF per month, I'm sure that this blue bar for 1999 really would be up here, equal to the prior three years and no reduction in the allowable for the total.

Now, what these blue bars demonstrate are, if all

the wells or all the GPUs in Jalmat were nonmarginal and produced at the nonmarginal acreage allocation factor of 18,300 per month, there are approximately 350 of them, and 350 of them producing at 18,300 per month, would be this amount.

So that if the Jalmat Pool really were capable of producing in excess of, let's say, some market demand, and the pool were to be prorated to restrict its production, then these 350 acreage factors would be producing at this rate. But as a matter of fact --

Q. (By Mr. Gallegos) Which rate?

A. I'm sorry, the rate up here of almost 80 BCF per year, I'm pointing to, for the record.

But in fact, the pool producing near capacity or at capacity in modern years and in 1996 producing approximately 10 percent or 12 percent of the 78 BCF per year --

COMMISSIONER LEE: Is this allocation factor widely used by this Division?

CHAIRMAN WROTENBERY: The allocation factor?

COMMISSIONER LEE: Uh-huh.

CHAIRMAN WROTENBERY: Yes, this is part of the Division's prorationing system.

COMMISSIONER LEE: Okay.

CHAIRMAN WROTENBERY: I'm sorry, I --

MR. GALLEGOS: No, in southeast New Mexico.

CHAIRMAN WROTENBERY: Yes, in southeast New Mexico the allocation factor is based on acreage. In the northwest it gets a little more complicated, and you consider deliverability --

MR. GALLEGOS: Deliverability --

CHAIRMAN WROTENBERY: -- as well as acreage.

THE WITNESS: Mr. Gallegos --

Q. (By Mr. Gallegos) So --

A. Go ahead.

Q. -- in sum total, the graph shows that the allowables are not set in an amount less than what the pool can produce, but rather set in an amount far greater than what the pool can produce; is that the substance of what's shown?

A. That's basically what this Exhibit 13 shows.

Q. Does Exhibit 14 show the same thing for the Eumont Pool?

A. Is that Exhibit 14?

Q. Yes, sir.

A. I'll mark it on my copy.

Yes, the Eumont Pool and the Jalmat Pool are very similar in many respects, and are governed by nearly identical rules. So Exhibit 14 shows the same type of relationship for the Eumont Pool. And in the Eumont Pool

the actual production amounts shown by the green bars are approximately 15 percent of the maximum allowable shown by the blue bars, whereas in the Jalmat, the actual was about 10 percent of the maximum allowable.

Q. Now, have you examined the wording of Section 70-2-16 of the New Mexico Oil and Gas Act, not from the standpoint of the law but an engineering standpoint of what is called for there in terms of setting allowables by this agency?

A. Yes.

Q. Okay. First of all, is there a difference in what it calls for in setting the pool allowables and setting allowables per well?

A. Well, yes, there's a difference in the description of the responsibility --

Q. Okay.

A. -- and the activities.

Q. Okay, what is specified -- If the statutory methodology were to be applied, what is specified, first of all, for a pool, a gas pool?

A. Well, for the pool -- and I quote here, I've taken some of the verbiage out of the statute. To prevent waste, the Commission fixes allowables less than the pool could produce. Also, the Commission must consider market demand and determine market.

So from the pool standpoint, it appears to me the primary directive is to prevent waste and fix allowables less than what the pool could produce.

But from a well standpoint, then, if the pool is going to be prorated and the production from the pool, if it's going to be restricted below what it could produce, then there's a system needed to allocate the pool's production among wells, and a primary concern then being to protect correlative rights.

And I quote, "...shall prevent drainage between producing tracts insofar as is practicable." And the Division may give equitable consideration to the following types of data: acreage -- acreage being one factor -- pressure, open flow, deliverability, porosity, permeability, and other factors that may pertain.

Now, for many years the Commission and the Division required annual pressure data to be measured and reported on wells in these pools, but that practice, it appears, was stopped in 1993, approximately. And since 1993 there's been no requirement for measuring pressures in these two pools. And that's a dirty shame, because without required pressures to be measured and reported, it's very difficult, it's very, very difficult, then, to determine how to protect correlative rights and prevent drainage between producing tracts insofar as is practicable, to do

the allocation process among the wells.

MR. GALLEGOS: We would ask admission of Exhibits 10, 11, 12, 13, 14, and pass the witness for cross-examination.

CHAIRMAN WROTENBERY: 10, 11, 12, 13 and 14 are admitted into the record.

Mr. Carr, do you have any questions?

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

CHAIRMAN WROTENBERY: Mr. Kellahin?

MR. KELLAHIN: No, ma'am.

CHAIRMAN WROTENBERY: Commissioner Bailey?

COMMISSIONER BAILEY: Was 19 admitted into the record?

CHAIRMAN WROTENBERY: It has not been admitted into the record. Exhibit 19, did you intend to --

MR. GALLEGOS: Yes, I'd like to -- We've got some of these hearing transcripts that Mr. Condon mentioned, that -- Were they passed out?

CHAIRMAN WROTENBERY: Yes, we've got Exhibits 18, 19 --

MR. GALLEGOS: 18 --

CHAIRMAN WROTENBERY: -- 19 --

MR. GALLEGOS: -- 19, 20, 21, are the hearing transcripts.

CHAIRMAN WROTENBERY: Did you identify 20 and 21?

MR. GALLEGOS: 20 is the transcript of the allowable hearing of September 10, 1998, and 21 is the hearing of February 11, 1999, that case being 12,124, and the earlier, 12,040.

CHAIRMAN WROTENBERY: Could I ask for a supplement for Exhibit Number 19 to include the docket for that case, to see how that particular case was advertised?

MR. GALLEGOS: Okay, I don't have that, but I'm sure that can be recovered from the records, if -- Let's see, 19 was --

COMMISSIONER BAILEY: 19 was the February 26th, 1998, the one that you quoted from.

MR. GALLEGOS: 19, Chair Wrotenbery at page 3, I think, is reading the notification, but that's not the docket itself.

COMMISSIONER BAILEY: No, I'd like to see the docket --

MR. GALLEGOS: Okay.

COMMISSIONER BAILEY: -- how that case was advertised.

MR. GALLEGOS: Okay, we'll get a copy of that. That's --

CHAIRMAN WROTENBERY: We can --

MR. GALLEGOS: -- Case Number 11,931.

CHAIRMAN WROTENBERY: We can take official notice

of that particular docket --

MR. GALLEGOS: All right.

CHAIRMAN WROTENBERY: -- make sure that it gets in the record.

MR. GALLEGOS: But we'd be happy to get that and make it an Exhibit 19A for the record.

EXAMINATION

BY COMMISSIONER BAILEY:

Q. Dr. Van Kirk, the proration units are based on the theoretical drainage of the well over its lifetime; is that correct?

A. I don't know that it's necessary to use the word "theoretical". A proration unit is supposed to certainly address and consider and try to approximate, as best as is practicable, an area that can be drained by a well on a proration unit during a natural life in a reasonable amount of time, efficiently and economically.

Q. How would you estimate the drainage of the wells that have been in production since the 1930s? Have they already drained more than their theoretical 160 acres?

A. There aren't so many wells left that were on production in the 1930s. Most of them, if not all of them -- and I'm not sure that the number is zero, but most of them, if not all of them, have been replaced, plugged and abandoned.

But regardless of whether the well was on production from the 1930s of 1950s or 1980s, there are engineering techniques or procedures that we can follow for estimating drainage areas of wells.

And for example, one of the fundamental things that -- or approaches that would be taken would be to estimate the thickness of the producing reservoir at the well location and its porosity and its water saturation, therefore estimating its gas saturation, and the initial pressure in the reservoir, and the physical properties of the gas, to estimate the original gas in place at the well location, and then analyzing similar wells in the area, neighbors, to estimate their thicknesses also, to determine, in fact, is the reservoir relatively constant thickness, similar thicknesses throughout the area, based on many-well information, or does it vary in thickness?

But we have techniques for estimating from this volumetric standpoint the thickness and the porosity, those properties, how much gas was there in the beginning when the well started production?

And then as the years go by and the actual production is measured, you can estimate how big an area must this well be draining to have given this much production out of that much thickness? And frequently -- and it's common, it's natural in our business in petroleum

reservoir exploitation, that the area being drained by one well is estimated and is reasonable. And then you can even forecast -- the way the production rate has been declining, you can forecast how much more it will produce.

And also, it's so helpful to have pressure information, and especially in a gas reservoir. If you have pressure information, for example, estimating the initial pressure, perhaps a little over 1000 p.s.i., keeping track of pressures periodically -- annually is very nice -- to see how the pressure is declining. You have other engineering approaches to review the past pressure-decline trends and predict those into the future, to estimate how much more gas a well would produce.

So there's a couple different approaches for estimating recovery amounts from a gas well, or from many gas wells, and having estimated the thickness and porosity and forth, and we can estimate the drainage area. And these computations cannot be done perfectly, they cannot be done exactly, it's not that precise; but it's plenty accurate for us to do our jobs as petroleum engineers in estimating of drainage areas.

There's always some room -- I should say, there's always some uncertainty, naturally, but we can't confuse -- it would be very difficult to confuse a well draining only 40 acres, as compared to a well draining 160 acres or 200

acres or 300 acres. They would not look similar. And we cannot be that uncertain about the thickness and the porosity and those parameters.

But if you don't have pressure data, it makes it more difficult and more uncertain and less comfortable.

Q. Let me try to get to it another way, then. Over what period of time would an average Jalmat or Eumont well drain 160 acres?

A. And I think by "drain", I think you mean sufficiently?

Q. Yes.

A. So that it has done its service to humanity?

Q. In primary production.

A. Well, then, for gas -- for gas here, it would only be primary production. This gas is not going to enjoy any secondary recovery, like water injection or anything like that.

It depends -- For a single well, let's say, to drain efficiently and economically 160 acres, it does depend on how the well was completed. And there are many examples of wells drilled and completed in the 1930s and 1940s and 1950s, and even in modern decades, the wells were not completed very efficiently. The excuses -- The reasons in the 1930s, 1940s and 1950s was because at that time the best understanding, the technology, was being practiced.

But as the decades have gone on, we've got better technology, better techniques. For example, hydraulic frac'ing of wells, developed about 1950. And prior to that, many of the wells in the Jalmat and Eumont area were fractured with nitroglycerine, open-hole completions.

Through the years, the old wells not only completed inefficiently as compared to today's capability, but also the old wells tend to lose their ability to produce. Material can move through the reservoir and plug up the perforations or the wellbore vicinity around the well, or water production can interfere with the ability for gas to flow through the rock into the well, corrosion can eat holes in casing and pipe, cement can be damaged either by the initial nitroglycerine explosion or with corrosion through the years.

So the older wells demonstrated plenty of communication over 160 acres or over 640 acres, plenty of communication. But as the decades went by, the older wells -- not such good drainers of 160 acres.

Now, in more modern decades, 1990s and 1980s and 1970s, improved technology for frac'ing wells with hydraulic frac jobs, a better chance of getting a good completion -- an efficient connection between the well and the reservoir. Good frac jobs, clean out the well.

How long would it take, a good completion, an

efficient, modern completion, to drain 160 acres? I have not done a computation to try to quantify that. But based on reviewing many wells through the years and their performance, more than 10 years, less than 30, a reasonable period of time, in our business, for wells to be drilled and completed and produced and have a normal life.

COMMISSIONER BAILEY: That's all I have.

CHAIRMAN WROTENBERY: Commissioner Lee?

EXAMINATION

BY COMMISSIONER LEE:

Q. What's the average permeability in this reservoir?

A. That's -- I hate to say it's a good question. It's a tough question. I'm not aware of any reservoirwide study that's ever been to try to quantify that for an average value for the reservoir.

As a matter of fact, the Jalmat and the Eumont are so large that the reservoir properties naturally vary geographically, because the fields are so large. And there's a pretty well known fairway or trend down the center that has better rock properties -- for example, permeability -- than some of the outlying areas. But that's pretty well understood by the operators.

The permeabilities that I've seen from core analyses and reports, several millidarcies. Now, some of

the rock -- Certainly, there's some rock that has permeabilities of less than one millidarcy, naturally. But because it's gas, the gas can flow through that tighter rock, whereas oil would have a much more difficult time flowing. I've seen permeabilities of 10 millidarcies and 20 millidarcies also.

I would estimate the average permeabilities between one millidarcy and 10 or 20 millidarcies, somewhere in that range, but it does vary from geographical area to geographical area.

Q. Did you every calculate the drainage area?

A. A drainage area? For many wells, yes.

Q. So do you take adjacent wells into account?

A. Yes.

Q. So you just regionally calculate it?

A. Yes, I've never done it for the whole field, I've not done it for all the wells in the field, but for many wells I have calculated drainage areas.

Q. Is that pretty much the same size?

A. Well, no, but they're large. The calculations always come out for modern --

Q. -- is large?

A. Well, I mean --

Q. These two wells are very close. They've got to be the middle. If your answer is large --

A. Historically, the wells have produced either on 640s or 160s. And in more modern times, with many wells on 160s and more modern information so that we can do these computations with more confidence, the drainage areas are coming out, normally, usually, bigger than 160 acres.

Q. So the two wells have a separate -- Okay, then when you calculate this drainage, what kind of permeability do you use, roughly?

A. Well, to do the calculation from a material balance standpoint, we don't have to identify permeability.

Q. You don't?

A. No, not for material balance. Just the pressure difference, the pressure decline, the rate of pressure decline, the production rate decline, decline curve analysis, combined with P/Z versus cum gas production.

Q. P/Z versus cum, you're already assuming this gas is going to have a certain volume, right? If the well --

A. No.

Q. -- produced -- P/Z, the V is constant.

A. Keeping a record of the pressure versus the cum production from many wells --

Q. The V is not constant in the P/Z?

A. No, not on gas well --

Q. Then how can you have a straight line for P/Z?

A. If -- for example, if you had -- Let's say, for

example, if you had a homogeneous reservoir, if you did have a homogeneous reservoir with uniform spacing, all wells identical, all wells producing the same way, each well would decline in the same way. In fact, each well would produce the same amount of gas.

And the P/Z-versus-cum production analysis would demonstrate each well draining the same -- exactly the same-size area. And the drainage area would be the same for every well, clearly identified, and the drainage volume only determined by the distance to the neighboring identical well.

Now, the fact is, in real reservoirs, you know, it's not homogeneous. No reservoirs are homogeneous, and the Jalmat certainly is not. Some of the wells on 160s are more modern wells, drilled in the 1980s with good completions. Other wells perhaps were drilled in the 1980s, but perhaps not such good completions, or they're older wells, not so efficiently connected to the reservoir.

So in the Jalmat through the decades, it is not difficult to see that some wells have produced far more gas than you could possibly get from 160 acres. In fact, they're draining 300 or 400 acres, and other wells on 160s appear to be only draining a smaller amount.

Q. Okay, basically you're assuming every well, regardless of the production scheme. Then you plot the P/Z

versus cum, extend it, and that will be your drainage area calculation?

A. Well, first you do a drainage area calculation on the actual observed and measured production amounts and pressures and conclude today that, my gosh, the well has already drained 200 acres, and it appears, based on the trends and extrapolating, it's going to drain 250. I mean, that's a common conclusion.

Q. What is the choke usually, right now, that they use on the surface?

A. The choke size?

Q. Yes.

A. I think these wells are as open as they can be open. The line pressure in the area is down to five or six or seven p.s.i.g.

Q. So there's no restriction?

A. They would rather not restrict at all.

Q. In the beginning, do you know, in the beginning of this well, do they choke it back?

A. What did you say? A modern well, drilled in the last 10 or 20 years, or the --

Q. Thirties well, Fifties well?

A. Well, those old wells, Thirties, Forties and Fifties, since the pool was prorated, I would believe that the wells were choked back and restricted, and the line

pressure was higher, because some of those wells' capabilities were millions of cubic feet per day per well, at the initial pressure of more than 1000 p.s.i.

COMMISSIONER LEE: All right, thank you.

CHAIRMAN WROTENBERY: I don't believe I have any questions.

Oh, I'm sorry, Ms. Hebert?

MS. HEBERT: Madame Chair?

EXAMINATION

BY MS. HEBERT:

Q. Mr. Van Kirk, are you recommending that the Oil Conservation Commission modify the allowables that have been proposed?

A. No.

Q. You're not making a recommendation as to the factors for the allowables?

A. No, not as far as the number goes. Shall I make a recommendation or not?

MR. GALLEGOS: What is your recommendation?

THE WITNESS: To do away with the prorationing of this pool.

Q. (By Ms. Hebert) So your recommendation is abolishing, as Mr. Carr referenced earlier, as opposed to modifying?

A. That's correct.

MS. HEBERT: Thank you.

THE WITNESS: You're welcome.

MR. GALLEGOS: Or -- Your recommendation to modify the allowable to be no allowable for this six-month period for those two pools?

THE WITNESS: I think that has the same effect as de-prorating it, but this would be for a six-month period --

CHAIRMAN WROTENBERY: No, I don't think you would want to allow no -- zero allowable. Nobody would be --

THE WITNESS: No, I don't mean -- I think we're careful not to say zero.

MR. GALLEGOS: Yeah.

THE WITNESS: I'm not choosing the number zero, simply to have no allowable. It's not zero, it just doesn't exist.

MR. GALLEGOS: Okay, that's what I meant to say.

CHAIRMAN WROTENBERY: Anything else, Mr. Gallegos?

MR. GALLEGOS: We have some other exhibits that were in the packet that we handed out -- they're Exhibits 1 through 9 -- and I'd like to have them admitted. They're basically excerpts of the rules; and then we have the February 4, 2000, memorandum I mentioned; the docket for this case; the May 21, 1987, memorandum for Mr. LeMay,

which is when they started this new method where the old nomination system went out; and then Order R-10,508 is Exhibit 8; and Order R-11,228 is Exhibit 9. Most of those things are just records of the agency itself, but I'd like to ask that they be admitted as exhibits to this hearing.

CHAIRMAN WROTENBERY: That's Exhibits 1 through 9?

MR. GALLEGOS: Yes, ma'am.

CHAIRMAN WROTENBERY: Okay, those will be admitted into the record.

And just to make sure that we've got Exhibits 18, 19, 20 and 21, I just want to note that those are admitted into the record as well. And Mr. Gallegos, you're going to provide an Exhibit 19A for the record, that is the docket?

MR. GALLEGOS: Yes, Madame Chairman, the hearing notice for that case.

CHAIRMAN WROTENBERY: Okay.

MR. GALLEGOS: That completes our presentation we have for Doyle Hartman.

CHAIRMAN WROTENBERY: Thank you, Mr. Gallegos.

Commissioners, what I would propose we do is take this matter under advisement until the next Commission hearing on March 24th. We do have time to consider this matter further, given that we're talking about the allowables for the April -- starting April 1st. So if

that's okay with you, that's what I would propose we do at this point.

COMMISSIONER BAILEY: That's fine with me.

MR. KELLAHIN: Madame Chairman --

CHAIRMAN WROTENBERY: Yes?

MR. KELLAHIN: -- before you take this case under advisement, there's some additional evidence I'd like you to consider in the case. I'd like you to consider taking administrative notice of Case 10,111. It was originally heard by the Division Examiner back in 1990. It was an application by Doyle Hartman to set a minimum allowable in the Jalmat Pool. That minimum allowable is 600 MCF per day, per acreage factor of 1.

That case was reopened, using the same case number, and was heard before Examiner Stogner in 1994. The order numbers to refer to are Order Numbers R-8170-J and 8170-J-1. And if you'll allow me to make a statement, I can tell you why those are relevant.

CHAIRMAN WROTENBERY: Okay, please go ahead.

MR. KELLAHIN: At the last Commission allowable hearing you assigned allowables on a GPU basis in the Jalmat Gas Pool using an acreage factor of 1. The number is 18,300 a month, and if you divide it by 30 it's slightly more than 600 MCF a day.

Mr. Hartman comes before you today complaining,

as best I can tell, that the allowable is substantially higher than pool production, and he quotes you to a particular portion of the statute saying that you cannot do this.

The reason you're doing this is that you've granted Mr. Hartman's request to do this. If there's a problem, he made it. The allowable you've been asked to adopt in this proceeding is consistent with the minimum you've adopted at Mr. Hartman's request.

And that was done in two proceedings in order to encourage infill drilling. I suggest that you might want to look at a map of the Jalmat Gas Pool. There's one downstairs. It will show you that there are few 640-acre standard GPUs. You can look at it, it looks like a patchwork quilt. There are dozens, if not a hundred or more, nonstandard proration units. There are areas where well density is on 40-acre offsets.

And the reason you did that is to encourage infill drilling and to establish a minimum. And when you look at the last order the Division entered, you can go to the ordering paragraph and you say, under Rule 8, Minimum Allowable, Notwithstanding the provisions of Rule Number 3 and 5 of the General Rules and Regulations for Prorated Gas Pools in New Mexico, the Division shall assign a minimum gas allowable of 600 a day per acreage factor of one.

It then goes on and says that should it become evident that correlative rights are being violated or waste is occurring by any actions allowed under this Order, the Division shall retain authority to adjust downward or eliminate said minimum gas allowable within the Jalmat Gas Pool, and such action shall be taken, if necessary, after notice and hearing.

What they're complaining about now is what they have caused in this pool. And this Commission is simply acting consistent with this Division order setting this as the allowable. In fact, they can't go lower, this is the minimum. And now Hartman has an excuse, complains about action that he's taken, the substitute of which is to abandon prorationing in the pool, and we have that in this pool to protect correlative rights.

We would ask that you deny Mr. Hartman's request to abandon prorationing, suspend prorationing or do anything other than is proposed in your advertisement, and that is to set the minimum allowable at 600 a day per 160-acre GPU.

MR. GALLEGOS: Madame Chair, we have no objection to admission in the record of those two orders, the first one entered in January of 1991.

Fortunately, we're not locked in time. Ten years' history is behind us, and these graphs demonstrate

what's happened over the last ten years to show that from a time when they were nonmarginal wells and the allowables actually had an effect on the quantity of production, that has passed, nonmarginal proration units are dinosaurs, they no longer exist, and the need for allowables no longer exists, and they should not be set for these two pools.

But we're not dealing with 1990 or 1991, we're dealing with 2000.

CHAIRMAN WROTENBERY: We will take official notice of those two orders.

Okay, Mr. Kellahin, let me make sure for the record I've got down what you were talking about.

MR. KELLAHIN: There are two case files --

CHAIRMAN WROTENBERY: There are two case files. One is R-8170-J, R-8170-J?

MR. KELLAHIN: That is the order that was issued as a result of the 1990 hearing.

CHAIRMAN WROTENBERY: Okay.

MR. KELLAHIN: J-1 is the supplement order issued in 1994, applying the same case number, but it's coded so it says "Reopened". So there's two separate case files.

CHAIRMAN WROTENBERY: Okay. We'll take official notice of both those case files under the number of Case Number 10,111.

MR. GALLEGOS: And Madame Chair, since the Eumont

is involved here, there is a similar order. I don't have the number. At Texaco's insistence or request back in 1989 or 1990, there was a similar order setting the Eumont Pool that minimum allowable.

CHAIRMAN WROTENBERY: Okay. Yes, Commissioner Lee?

COMMISSIONER LEE: In 1991, the allowable and actual production, what's the relationship? What's the relative -- Allowable is higher than the production?

MR. KELLAHIN: I'm sorry, was that a question for --

COMMISSIONER LEE: 1991 --

MR. KELLAHIN: Yes, sir.

COMMISSIONER LEE: -- when Mr. Hartman pushed for an allowable, minimum allowable, is that allowable higher than the production?

MR. GALLEGOS: Well, Exhibit 10 shows that about that time there were about -- I don't know, something around 40 odd nonmarginal acreage factors. So that would mean -- I'm sure Mr. Kellahin agrees. That means that for those particular GPUs there was an allowable that restricted production.

CHAIRMAN WROTENBERY: Thank you.

Thank you, Mr. Van Kirk, for your testimony.

MR. VAN KIRK: You're welcome.

CHAIRMAN WROTENBERY: Mr. Gallegos, Mr. Kellahin, Mr. Carr, we appreciate your attendance today.

And we will take this case under advisement, pending our meeting on March 24th.

MR. GALLEGOS: 24th, was that?

CHAIRMAN WROTENBERY: March 24th.

(Thereupon, these proceedings were concluded at 12:22 p.m.)

* * *

CERTIFICATE OF REPORTER

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

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Commission was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

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 March 1st, 2000.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 2002