NEW MEXICO OIL CONSERVATION DIVISION

STATE LAND OFFICE BUILDING

STATE OF NEW MEXICO

CASE NO. 10521

IN THE MATTER OF:

The Application of Union Oil Company of California, d/b/a UNOCAL, for termination of gas prorationing in the South Blanco-Pictured Cliffs Pool, Rio Arriba, Sandoval, and San Juan Counties, New Mexico.

BEFORE:

MICHAEL E. STOGNER

Hearing Examiner

State Land Office Building

August 6, 1992

REPORTED BY:

DEBBIE VESTAL
Certified Shorthand Reporter
for the State of New Mexico

ORIGINAL

A P P E A R A N C E S

FOR THE APPLICANT:

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BY: **H. WARD CAMP, ESQ.**

I N D E X

E X H I B I T S

EXAMINER STOGNER: I'll call the next case, No. 10521, which is the application of Union Oil Company of California, doing business as Unocal, for termination of gas prorationing in the South Blanco-Pictured Cliffs Pool, Rio Arriba, Sandoval, and San Juan Counties, New Mexico.

Before I call for any appearances, there was an advertisement glitch in the Observer -- I think that's the Espanola Observer -- and readvertisement will be required for August 20, 1992. However, I understand that all parties concerned are ready to put on their testimony today, and we're ready to receive it.

I call for appearances at this time.

MR. CARR: May it please the Examiner, my name is William F. Carr with the Santa Fe law firm, Campbell, Carr, Berge & Sheridan. We represent UNOCAL. And we have one witness.

MR. CAMP: Mr. Examiner, I'm Ward Camp of Keleher & McLeod of Albuquerque. I represent Gas Company of New Mexico. And we have one witness.

EXAMINER STOGNER: Are there any other appearances in this matter?

Will the witnesses, please, stand to be sworn at this time.

[The witnesses were duly sworn.]

EXAMINER STOGNER: Any need for opening statements?

MR. CARR: I don't intend to.

MR. CAMP: No, sir.

EXAMINER STOGNER: Mr. Carr.

MR. CARR: At this time we call Mr. Engler.

THOMAS W. ENGLER

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

EXAMINATION

BY MR. CARR:

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

A. Thomas Engler.

Q. How do you spell your last name?

A. E-n-g-l-e-r.

Q. Where do you reside?

A. In Socorro, New Mexico.

Q. Mr. Engler, by whom are you employed and in what capacity?

A. I'm employed by UNOCAL as a petroleum

engineer.

Q. Have you previously testified before the New Mexico Oil Conservation Division?

A. Not recently.

Q. Could you review your educational background for Mr. Stogner, please?

A. In 1980 I received a BS in geology from New Mexico Tech. In 1982 I received a petroleum engineering degree from New Mexico Tech. And just this year, May of 92, I received my master's in petroleum engineering from New Mexico Tech.

Q. Could you review your work experience?

A. Between 82 and 89, for a period of seven years, I worked for Marathon Oil in the capacity of both a reservoir engineer and production engineer.

Q. And then you left Marathon to go back to school?

A. To go back to school, that's correct.

Q. Are you familiar with the application filed in this case on behalf of UNOCAL?

A. Yes, I am.

Q. Are you familiar with the South Blanco-Pictured Cliffs Pool?

A. Yes, sir.

Q. Have you made an engineering study of this pool?

A. Yes.

Q. Are you prepared to make recommendations today to the Division based on your study concerning the continuation of prorationing in the South Blanco-Pictured Cliffs Gas Pool?

A. Yes, I am.

MR. CARR: We would tender Mr. Engler as an expert witness in petroleum engineering.

EXAMINER STOGNER: Are there any objections, Mr. Camp?

MR. CAMP: No objections.

EXAMINER STOGNER: Mr. Engler is so qualified.

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

A. We are seeking an order to deprorate the South Blanco-Pictured Cliffs Pool. We think we have evidence to show that it is in the advanced state of depletion and that it is a low productivity pool.

Q. Have you prepared certain exhibits for presentation here today?

A. I sure did.

Q. Are those exhibits in the booklet that collectively has been marked UNOCAL Exhibit No. 12 in this case?

A. Yes.

Q. Could you refer to what has been marked Exhibit 1 and is behind the tab that says "Exhibit 1" in this book and identify and review this for the Examiner?

A. Exhibit 1 is an outline of the entire San Juan Basin. Highlighted on this exhibit is the major Pictured Cliffs pools, as you can see in the various colors.

Specifically you'll notice there's the Blanco Pool, that's to the north, it's in green. It has never been prorated. The South Blanco and the Tapacito pools, which are in red and dark blue, they are the only prorated PC pools today.

And the other four pools, Aztec, Ballard Fulcher-Kutz, and West Kutz, were deprorated in 1974.

Q. All right. Let's move to UNOCAL Exhibit No. 2. Could you identify and review that?

A. Exhibit 2 is similar to Exhibit 1. It

is outlining the entire San Juan Basin with the highlighted Pictured Cliffs pools. Added to this exhibit is the top of the Huerfanito bentonite marker. And this marker reflects the structure of the Pictured Cliffs Reservoir.

Q. How far off the Pictured Cliffs is the Huerfanito bentonite marker?

A. It's a couple hundred feet below.

Q. Is this a commonly recognizable marker across the basin?

A. Yes. This is what geologists use as a marker bed, that's right.

Q. And when you use this, does it actually reflect also the characteristics of the structure in the Pictured Cliffs Formation?

A. Yes, sir, it does.

Q. When you get into your testimony later concerning reservoir pressures, will you need to refer back to this exhibit to relate pressure to depth?

A. Yes. We will use this and refer back to it in a little bit, yeah.

Q. Let's go to Exhibit 3. And would you just identify for the Examiner the two pages in Exhibit 3?

A. Exhibit 3-A is a list of the current operators in South Blanco Pool. And this was taken from the most recent proration schedule. Exhibit 3-A, as you see, this is in alphabetical order. Exhibit 3-B, again from the same source, same operators, only now it is sorted by the percentage of wells that they operate.

Q. And again this is from the -- what is the source of this information?

A. This is from the latest proration schedule.

Q. Has UNOCAL contacted these operators to seek their support for your proposed application or your application in which you propose the deprorating of this field?

A. Yes. We sent a questionnaire to every operator. And the -- no operators who responded back opposed our plan. And of those operators who support it, 70 percent -- they comprise 70 percent of the wells operating within the field.

We've also verbally discussed and had no objections from another 15 percent of the pool. So a total 85 percent have signified that they approve our deproration plans.

Q. You have no operator in the pool who

has indicated that they oppose this application?

A. No one opposed the application.

Q. And you have contacted all of them?

A. We have contacted all of them, that's right.

Q. Let's go initially and provide the Examiner with some history on this pool. Could you start by just reviewing when the pool was created and the major regulatory events that have occurred in the life of this pool?

A. The pool was created by Order R-156 in 1952. By December of 1954 by Order R-565, the South Blanco, Fulcher-Kutz, and Aztec pools were all prorated. One year later, March 1955, West Kutz was prorated. And a year after that, in July 1956, Ballard was prorated.

Q. Now, Mr. Engler, in the front of what has been marked Exhibit 12 is a summary of your presentation; is that correct?

A. That's right.

Q. It's behind the tab marked "Text"?

A. That's right.

Q. And the relevant orders affecting the history of this pool are identified in the text; is that correct?

A. That's right. It is all in the text.

Q. How many of these Pictured Cliffs pools are still prorated?

A. Today only two.

Q. And what happened to the other pools that were prorated earlier in their life?

A. Effective April 1974 and R-1670-R, which is Exhibit 4 in the booklet, the Aztec, Ballard, Fulcher-Kutz, and West Kutz were all deprorated. This was -- OCD formed a Pictured Cliffs proration committee to study deprorationing in the Pictured Cliffs pools.

This committee then recommended deprorationing of these four before-mentioned pools as to be deprorated.

Q. Now, what rates were the wells in these pools producing in 1974 at the time the Division deprorated them?

A. They were -- production had declined to less than 100 Mcf per day per well. Over the majority of the wells in the pool averaged less than 3000 Mcf per month. These criteria -- this low productivity criteria was what the OCD found as a reason to deprorate those pools and that they thought it would not create waste or impair

correlative rights.

Q. Now, did this Pictured Cliffs proration committee also evaluate South Blanco?

A. Yes, they did.

Q. And what did they conclude in regard to this pool?

A. In the transcript, which is Case 5154, they said that due to variances in pipeline pressure that they would not deprorate the South Blanco or the Tapacito pools.

Q. Now, put that situation, that is variances in the pipeline pressures, could that situation exist in this pool today?

A. I think not. Today the reservoir pressure of Pictured Cliffs is very low. The only way to produce these wells is in the low pressure gathering systems that are in place. These low pressure systems average about 150 pounds line pressure.

So in a sense the reservoir is what's limiting control of production, and it's not the pipelines today or the gathering systems today.

Q. So the concern that the Division raised in Order R-1670-R no longer exists?

A. That's right.

Q. Has the Division considered in the past drainage between Pictured Cliffs pools in the San Juan Basin?

A. Yes, it did. In July 1982 in Order R-7029, there was an attempt to combine the Blanco Pool to the north with the South Blanco Pool. This attempt was -- the OCD denied as a matter of record. And they showed that the engineering data demonstrated that no drainage occurred between these pools. And they also showed no evidence of waste or impairment of correlative rights between these pools.

EXAMINER STOGNER: What was that order number again? I'm sorry.

THE WITNESS: 7029.

EXAMINER STOGNER: Thank you.

Q. (BY MR. CARR) Now, generally, as a result of your engineering study of the reservoir, what conclusions have you reached?

A. I believe that this pool is a low productivity pool. I also believe that it is in an advanced state of depletion.

Q. How did you determine low productivity?

A. We used the source was the New Mexico Annual Reports, and for low productivity compiled

annual gas production versus time for these seven major Pictured Cliffs pools. And you can see these in Exhibit 5 or 5-A through 5-G, which is in this text.

Q. Let's go to 5-A and explain to the Examiner what this actually shows.

A. These series of plots on the Y axis, that's your annual gas production numbers on the left side, versus time. And on the right side we also have plotted your active well count for the pool, for this -- first for Exhibit 5-A this is for the Aztec pool. And the diamonds are the active well numbers.

Also shown on these plots, like for Aztec, is the beginning of deprorationing in 1974. You'll notice in all these plots that after deprorationing there was no increase in production. In fact, the majority of them continued their normal decline after deprorating.

Q. Basically what these show is just production profiles for these Pictured Cliffs pools over the last 30 or 40 years?

A. Over, yeah, 40 years.

Q. Is the data that you have plotted also contained in Exhibit No. 12?

A. Yeah.

Q. Is that located in what has been marked Appendix A?

A. Yes, that's right. The tabulated data for all this is in the back in Appendix A, that's right.

Q. If we look at these, there's been a relatively constant decline in each pool since they peaked, oh, in the late 1950s?

A. I think what one can see from each one of these plots is that these pools are old pools; they've been producing for 40 years. Your production has declined and is continuing to decline. And, in fact, even if you look in each one of these pools in 1983 and really hitting in 1986, you'll see a dramatic decline in production.

Basically we think that's due to its decline in price. And it was also a decline in takes when El Paso was going through their GLA lawsuits.

Q. Let's go to Exhibit No. 6. Could you identify and review. Actually, before we do that, you've got a plot for each of the Pictured Cliffs pools behind the plot you reviewed for

Aztec-Pictured Cliffs?

A. That's right.

Q. Is there anything in particular that you need to point out where any of these pools differ from the general trends set by the Aztec plot?

A. You can see where each one is -- where the prorationing occurred, they all declined to some extent.

Q. Let's go then to Exhibit No. 6. Could you identify and review this?

A. Exhibit 6, again, it's the same type plot; only now what we're doing is we have South Blanco production versus the sum of the deprorated pools' production. There's a -- South Blanco is of these PC pools the largest pool by number of wells and largest in cum'd production. But if you compare this productivity versus what was deprorated in 74, you'll notice that it is actually less production. It is a lower productivity pool than the total of the pools that were deprorated.

Also another way of looking at the low productivity was by comparing the production of South Blanco or of all these pools on a per well

basis. And this leads into Exhibit 7-A through 7-F.

Q. So Exhibit 6 basically just shows that, although South Blanco is the largest pool, what the Division did deprorating certain Pictured Cliffs pools back in the 70s was as, in terms of production, was as major an undertaking as addressing Blanco would be?

A. Yes, that's right.

Q. South Blanco.

A. Yeah.

Q. Let's go to Exhibit 7. Identify and review those.

A. Exhibit 7 is a series of graphs for the pools. Only this time now the production is in Mcf per day per well versus time. And what I have here, I have South Blanco production plotted as the solid line on each one of these plots versus one of the other pools, like in the first exhibit, it's Aztec versus South Blanco.

You'll notice on this one that the two pools, the production decline per well almost exactly matches. And in subsequent plots here you'll notice that South Blanco, in several of these, the decline matches and is less than or

sometimes equal or less than the others.

The production in 1974 for South Blanco is 69 Mcf per day per well. Production today, or actually the production in 1991, is now 24 Mcf per day per well.

Q. So behind this initial plat you have plats again that compare South Blanco to other Pictured Cliffs pools in the basin?

A. Yes.

Q. If we go to the last page behind tab 7, that's 7-G, could you identify and review that for Mr. Stogner?

A. 7-G now is a summary of the rate data for all these pools in 1973 and 1991. And you can see highlighted within the area of South Blanco, which is the numbers I just referred to, the 69 and the 24, it meets the low productivity criteria that was set in 1974 as a reason to deprorate.

It also shows since 1973 we've had subsequent decline in production annually for all the pools and for South Blanco even more so. And what results from this is basically a South Blanco well is typically one of the lowest producers in the San Juan Basin.

Q. Okay. Mr. Engler, you've now talked about low productivity in this field. How did you measure the status of reservoir depletion in the South Blanco-Pictured Cliffs Pool?

A. For depletion I used again the New Mexico Annual Reports, and I extracted from them the shut-in wellhead pressures from the deliverability tests. And from those you could plot a shut-in wellhead pressure versus cum'd production plot.

Using shut-in wellhead pressure, it is an approximation, but since this pool is low pressure, since it is shallow, it is a fairly reasonable approximation. But the best reasoning for the deliverability, using deliverability data, is I needed a large database. You want to try to find average pressure within the whole pool. The only really large database is your deliverability data that you had in the past.

Q. And what was the source of this data?

A. This was New Mexico Annual Reports.

Q. Now, are these plots what have been marked as UNOCAL Exhibits 8-A through 8-G?

A. That's correct.

Q. Could you go to those now and review them for the Examiner?

A. Again, for each of these pools, you'll see the shut-in wellhead pressure versus cum'd gas production taken from this data. The only points, the only data shown are years when the percent of tested wells versus the active wells was greater than 50 percent. This I thought gave a better average for the total pool.

Again this is a standard practice of measuring depletion. This is a standard practice of finding gas in place is the pressure versus "cum." And you can see the first one is Aztec, and we can go through every pool again.

Q. Again each of these shows that the pools have reached an advanced state of reservoir depletion?

A. Yes. And -- that's correct.

Q. Let's go to what has been marked as UNOCAL Exhibit, what would be 8-H. That's the next-to-the-last page behind this tab, I believe?

A. It's the second one.

Q. It's third-to-the-last page. At the top it's identified as "Depletion Analysis." Could you go to that page, please, in this

exhibit booklet and review that for Mr. Stogner?

A. Yes. Again this will summarize all this pressure data, all these plots into one page. The top table, each column you have your initial gas in place estimate. Production is 73, your percent recovery at 73, your production through 91, and your percent recovery in 91.

The top table is sorted by the recovery by 1973. The bottom table was sorted by the recovery in 1991. You can see from these where the South Blanco falls within this depletion within this table that it is comparable to these other Pictured Cliffs pools; it's comparable to these other deprorated Pictured Cliffs pools.

And you can also notice by the numbers, especially in 1991, that it is in the later stages of its depletion. It's down on its depletion curve.

Q. Let's go to the next page in the exhibit booklet. Could you identify and review that?

A. The next two plots, Exhibit 8-H -- 8-I, I'm sorry, and 8-J, this is taking all the data and compressing into one plot of the shut-in wellhead pressure versus "cum" gas production or,

if you like, the next page is recovery of gas in place, depending on which way you like to see it.

You'll notice several things. There is a band which is labeled -- this is a reservoir pressure range at the time of deprorationing in those four pools, Aztec, Ballard, Fulcher, and West Kutz.

You can see from the asterisks that today South Blanco reservoir pressure is estimated to be at the lower limit of that band. So the reservoir pressure is low.

The other interesting thing about this plot -- maybe you can see it better in the last page where it's versus recovery of gas in place. If you notice, the trend of the pools, and go back and look at the structure map, you'll notice that the deeper you go in the basin, the higher pressure that you have in the reservoir.

And again if we refer back to Exhibit 2, what you'll see is where West Kutz is the shallowest, it has the lowest pressure, where Tapacito is the deepest pool, it is at the highest pressure. And this is to be expected. This is due to the gas pressure gradient within

the pools.

Q. Basically what does this exhibit tell you about the Pictured Cliffs Formation in the area?

A. We think from looking at this data that several of these pools are one common reservoir. And maybe to substantiate that even further is if you look again, this goes back to Exhibit 7, which was your rate data, rate of Mcf per day per well, if you'll notice that certain of these pools, your Aztec and South Blanco, Blanco and South Blanco, their declines match uniformly. So one could say that between the pressure data and the rate data that several of these pools are the same.

Q. Now, Mr. Engler, what impact would approval of this application have on the correlative rights of interest owners in this pool?

A. Well, the Division, back in its own R-1670-R, previously recognized that there would be no impact on correlative rights. I think the pool is low permeability. This has been shown by tight gas sand applications in some areas. I think I shown that it's low reservoir pressure,

so that those two would not have correlative rights problems.

And I guess we would like to tender --

Q. Have you looked at or done any volumetrics work to determine areas of drainage, made any drainage calculations on the reservoir?

A. Yes. The most recent thing we did was some drainage calculations.

Q. Let me hand you what has been marked as UNOCAL Exhibit 15, and I'd ask you to refer to that and first identify and then review it for Mr. Stogner.

A. Okay. Exhibit 15 is two methods that we use for drainage calculations in the UNOCAL operated Rincon Unit, which is in the UNOCAL South Blanco-Pictured Cliffs Pool. The summaries in this table, which --

Q. The third page.

A. -- is the third page of all this handout. And the rest of pages is all the supporting data to show you the buildups and plots and so forth. But back to the summary --

Q. Okay. But what we have on the third page, Mr. Engler, is we have certain input factors set forth in two tables, do we not, that

you have utilized in trying to estimate drainage areas for these wells?

A. That's right.

Q. And then in the middle of the page, you have some volumetric equations; is that right?

A. Yeah, the material balance and volumetric equations. That's right.

Q. Then behind this page you have the supporting information that justifies the factors that are set forth in each of these tables?

A. That's right.

Q. Okay. Let's review this for Mr. Stogner.

A. The first table we used, it was a combination of material balance-volumetric methold. And you can see -- I'll show the balance and volumetric equations. Using material balance, I can come up with a gas in place number. With that value you can go into your volumetric equation and estimate drainage area. This is what's shown in the first table.

The gas in place is from your P over Z, your production at assumed abandonment, recovery factor. But, more importantly, your drainage area is calculated through that volumetric

system. And you can see it ranges anywhere from 92 to 140 acres for these four wells.

Now, the second method that we used was a type curve method. It's called the Fetkovich type curve method. To refine the type curve matching, we had to have some other outside information. What we used was buildup analysis. And this is why these four wells -- these are the wells that we currently have buildup pressures on.

So what you can see in the bottom half is the buildup analysis, porosity, permeability, the best type curve match I could get for porosity and permeability, and then from that match I came up with a drainage area by the type curve, in this case, this range is 60 to 100.

So in both cases what data I have here shows that we're not draining over 160 acres, 160-acre spacing.

Q. Now, you have selected certain wells from the Rincon Unit. Why did you select these particular wells?

A. Well, it's a good -- within the Rincon Unit, these wells make a good cross-section of the types of wells and the area. They're

scattered within the Rincon Unit.

Q. Are any of these comparable to, say, the best well in this pool?

A. The 18 -- this 18-R is one of the better wells. It makes 120 Mcf a day.

Q. What does the best well in this pool make at this time?

A. The last numbers I had it showed about 150 Mcf a day.

Q. Now, did you have the -- what well is that? Can you identify that?

A. That's the Navajo Indian C No. 1.

Q. Where is that well?

A. I don't know. It's in South Blanco.

Q. Do you know who operates it?

A. It's -- I don't know.

Q. You did not have information to do volumetric calculations on this well?

A. No, I didn't have the information to do their stuff.

Q. When you compared the volumetric work you've done on wells in the Rincon Unit where you have the data you need to do your volumetric calculations and you take the best well that you've analyzed, that being I think you

indicated, the 18 --

A. R, yeah.

Q. -- R, is that a multiple well unit, or is that a single wel?

A. That's a single well. 18 is abandoned.

Q. And you take the daily production rate from that, and you said 106 Mcf per day?

A. One hundred and twenty.

Q. And you've calculated that it is draining how many acres?

A. Eighty to 106.

Q. Now, you can't just take these calculations and just looking at its producing right make a calculation as to what this better well would be draining; is that a fair statement? You cannot do that?

A. No. You have to know what data on that well.

Q. Based, though, on your study of this reservoir, as an expert witness in petroleum engineering, do you have an opinion as to whether or not any well in the South Blanco-Pictured Cliffs Pool right now at these producing rates can drain in excess of 160 acres?

A. In my opinion I don't see how the best

well can produce over 160 acres, that's right.

Q. If that's the case, are you aware of any circumstance where deprorating would result in a well being able to drain the property of -- or a neighboring property?

A. No.

Q. Now, let's go to the question of waste. In your opinion would approval of this application cause waste?

A. No. In fact, I think the contrary may be more -- may result. And the reason I say that is deprorationing may actually stimulate further activity. Further activity, more so as in additional compression in this low-pressure, low-productivity reservoir.

Additional compression can enhance production from Pictured Cliffs wells. But currently compression is discouraged by, one, the proration system and, two, by the unfavorable deliverability testing procedures.

Q. What do you mean when you say that compression is being discouraged by unfavorable deliverability testing procedures?

A. Well, if I could refer you to Exhibit 9-A, this is -- this plot is developed from the

deliverability equation that is in the OCD's gas well testing manual back in 1987. What you see here is on the Y axis you have flowing wellhead pressure versus shut-in wellhead pressure. That's your Pt/Pc ratio.

On the X axis you'll have your deliverability, D, versus your tested flow rate, Q. What will happen is, if you add compression, you will lower your flowing wellhead pressure. Therefore, you will come down the curve towards the steeper section of the curve towards zero.

If you do that, with adding compression, what you then will do is decrease your D/Q ratio. What this will in effect do is the incremental production will be decreased by the sum factors, sum of decrease factor here, versus the flow rate. And that's what your deliverability equation is doing.

And this graph is showing all three of your major prorated pools. The South Blanco-PC is the small squares in the center, but also Mesaverde and Dakota is shown. This is based on the "N" exponent of the OCD. This is based on the designated deliverability pressures of the OCD.

Q. So basically what you're saying is when you combine the effect of prorationing with the deliverability testing procedures that are required, what in effect you have is a decrease in producing capability or --

A. A decrease in -- a percentage decrease in the production.

Q. And when you have that, what impact will this ultimately have on the wells in this pool?

A. Well, this is a discouragement to compression. Compression at this stage of the life of this pool may alleviate any kind of premature abandonment of wells, which is probably occurring now and may occur here in the future.

Q. So, in fact, compression is something that if employed would increase the ultimate recovery from certain wells in the pool?

A. Increase the reserves, yes.

Q. And if the pool remains prorated there's a disincentive to apply compression?

A. At this time, yes.

Q. And if that occurs, then that will result in a premature abandoment of wells?

A. That's right.

Q. And would that constitute waste in your opinion?

A. That would definitely constitute waste.

Q. Let's move to what is in this exhibit booklet behind tab 9 and go to the second and third pages behind that tab.

A. Exhibits 9-B through 9-E are four of the best wells that I found in the South Blanco-Pictured Cliffs Pool. What we have is the latest deliverability test that's up there on the top. The capability of the well, this is capability if you could add compression to the well, what it can make.

Now, each one -- this table of data, the capability that's column 2, the first year, that's actual production. The second year, the third year, that's the capable production. That's, if you add compression, how much that well could make.

The third column is your allocation. The first year, of course, is the allocation in the past. Your over/underage for the month, then your limit, your status.

What you see in the middle column there is called "Planned Production." This is

production that is planned to meet. And then next to it is over/underage. This is planned production, you know, if these are good wells, if you have over/underage, then you have to balance back to zero. If you have -- and you see that both in this well, this first one, both in the second year and the third year.

And the last column is the most important. This is loss of deliverable gas. This is the difference between the planned production, the current system, and the capable production if you could have compression. And you can see from this one, at the end it's over 90 million cubic feet of loss of deliverable gas for this, what, two, three-year period.

And these are the best wells, and there's four of them here. What this shows is -- another thing this shows is allocation is less than production for your best wells, for your non-marginal overproducing wells. I think this bears this out quite well.

And this also shows the advantage of adding compression. Granted, these are good wells, but you can see that the addition of compression can really give you a lot more gas

down the line.

Q. So basically it shows there is under the current system a loss of deliverable gas because of the prorationing system?

A. That's right.

Q. That again is causing waste of gas in the reservoir?

A. That's right.

Q. Now, this calculation on each of these wells, is this similar to what UNOCAL has to do for each well that operates in the pool to manage production?

A. This is what they do for every well in a prorated pool.

Q. And is this the kind of paperwork that could be avoided on each of these wells if in fact prorationing was terminated in this field?

A. Yes.

Q. What effect in your opinion would deprorationing or deprorating the field have on the market demand for natural gas from this pool or actually in the basin as a whole?

A. Well, the first thing I'd like to point out, if you go back to Exhibits 5-A and G, which are the production plots for each pool, again

when the four PC pools were deprorated, you will see no increase in production. In fact, you'll see decrease in production, normal decline in production. So deprorating of these type pools did not show any kind of increase in production.

I think with the low productivity of the pool, the depletion status of this pool, I believe South Blanco should behave the same way.

Q. Now, Mr. Engler, there is going to be some increase in production when the non-marginal wells are no longer restricted by allowables; isn't that correct?

A. Yeah, from the overproduced non-marginal wells, that is correct.

Q. Let's go to Exhibit No. 10, and I'd ask you to review that for Mr. Stogner.

A. Okay. Exhibit 10-A at the top, this is data again taken from proration schedules except this was taken through peak period, the winter period of 91-92. You'll see the top of this table is the number of overproduced non-marginal wells. That's 239.

If you take the total deliverability of those wells and the total allowable of those wells, the difference or the anticipated increase

in deprorationing would be 2.7 million cubic feet a day.

Q. Now, if we then go to the bottom half of this exhibit, could you relate that 2.7 Mmcf per day to the total production from this pool, the basin as a whole, and the other prorated fields in the basin?

A. You can see that the bottom half of that exhibit in comparison with the entire South Blanco Pool, this production increase would only mean 7 percent. If you look at it versus the prorated northwest New Mexico, it's only 3/10 of a percent. If you look at it as the San Juan Basin as a whole, it's only 2/10 of a percent.

Q. Let's go on now to the next page behind tab 10. Could you identify and review that.

A. 10-B is the plot. This is annual gas production versus time on the left scale. What you see here is the total San Juan Basin production plotted at the top. And the diamond is the South Blanco production at the very bottom. And more importantly you'll see on the right-hand scale is the percent, and that's the asterisks plotted. That percent is the percent of the total basin that South Blanco produces.

And you can see over these 30, 34 years a steadily decreasing share of the total basin production of the South Blanco. This is South Blanco production decreasing, San Juan Basin production in the last five years increasing, creating this decline. It was a maximum in 1959, it was 16 percent of the total basin production. Here in 1991 it's now just 2.3 percent of the total basin production.

Q. In your opinion what impact will deprorating South Blanco-Pictured Cliffs Pool have on the supply and market demand for natural gas from the San Juan Basin?

A. I see no impact whatsoever.

Q. Is there a market for the gas that can be produced from this pool?

A. We feel we can market all the gas and produce within the South Blanco Pool, yes.

Q. How do these statements relate to additional pipeline capacity that's become available in the basin in recent months?

A. Today the additional pipeline capacity out of the basin far exceeds the total production numbers that I have and find anywhere. The pipeline capacity today is 3.1 Bcf per day.

Total production out of basin is now, what, 1.9, maybe 2 Bcf per day.

Q. In your opinion is there market demand for the natural gas that can be produced from this pool if prorationing is terminated therein?

A. Yes.

Q. Would you summarize for Mr. Stogner the conclusions you've reached as a result of your engineering study of this pool?

A. I think we showed a wealth of evidence that the South Blanco Pool is a low productivity reservoir. It is at advanced stage of depletion. I think the comparison with the other pools shows that it's identical with the pools that were deprorated in 1974. And, in fact, it might be the exception that it is in a more advanced stage of depletion.

Today there's no problems with disparities in the pressures between the pipelines in the pool, so the 1974 problem no longer exists. The waste will be prevented by deprorationing, and this is by allowing some more efficient production practices to be implemented, such as compression as the example I showed here.

And I think we showed evidence that the correlative rights interest owners in the pool will not be impaired, and therefore there will not be uncompensated drainage between tracts in the pool.

Q. Basically what advantages do you see resulting from termination of prorationing in this pool?

A. I think it would encourage future development and enhancement projects, so we would not have premature abandonment in wells. I believe today unnecessary curtailment of a few good wells could be avoided. This will put market share within South Blanco and be maintained. In other words, it will be in par with these other deprorated PC pools.

And it will eliminate a lot of unnecessary paperwork and time by producers, by pipelines, and by the OCD.

Q. Is UNOCAL Exhibit 12, the exhibit book as a whole, that contains a written summary of your presentation and copies of all the exhibits which you've testified to?

A. Yes.

Q. Is what has been marked Exhibit 13 a

copy of an affidavit confirming that notice of today's hearing has been provided in accordance with Oil Conservation Division rules and regulations?

A. Yes.

Q. To whom was notice given of this application?

A. We notified all operators in the pool, all unleased mineral owners in the pool, all operators of Pictured Cliffs wells within one mile of the boundaries of the pool, and all transporters of gas from the pool.

Q. Could you identify what has been marked as UNOCAL Exhibit No. 14, please?

A. Exhibit 14 is a list of letters of support from the operators in the South Blanco-Pictured Cliffs Pool.

Q. Were Exhibits 1 through 15 and including all their subparts prepared by you or compiled at your direction?

A. Yes, sir.

MR. CARR: At this time, Mr. Stogner, we move UNOCAL -- the admission of UNOCAL Exhibits 1 through 15 and all subparts thereof.

EXAMINER STOGNER: Are there any

objections?

MR. CAMP: No objections.

EXAMINER STOGNER: Exhibits 1 through 15 will be admitted into evidence at this time.

MR. CARR: That concludes my examination of Mr. Engler.

EXAMINER STOGNER: Thank you, Mr. Carr. I want to take a five-minute recess, Mr. Camp, so you can prepare to cross-examine Mr. Engler.

[A recess was taken.]

EXAMINER STOGNER: Mr. Camp, your witness.

MR. CAMP: Thank you, Mr. Examiner. I only have a few questions.

EXAMINATION

BY MR. CAMP:

Q. Mr. Engler, turning to your Exhibit 5, I believe, just so that I understand what I'm looking at, when you have annual gas production, that is the actual takes from these wells?

A. That's actual production from these wells, yes -- from this case, yeah, from the wells in the pool, yeah.

Q. Throughout all of these Exhibit 5 pool

documents, do you have anything that shows actual physical capability of the wells during the same time period?

A. No. Capability as in -- no. All I have is actual production.

Q. Did you undertake any studies to determine the actual physical capability of these wells during the same time period for the pool?

A. Well, the capability of a deprorated pool is what it produces. So what you see here is a deprorated pool, or not prorated pools, is the capability. Right?

Q. That's my question. You said that -- and I'll turn to the Blanco-South Pictured Cliffs Pool graph. You said that there was a down-dip in 1985?

A. That's correct.

Q. Because of lack of takes from El Paso?

A. From the GLA lawsuits from El Paso, that's right.

Q. So they took less than they otherwise would have taken?

A. Across the basin, that's right.

Q. And so during this time period the delivery capacity could have been much greater

than is reflected on your graph; however, the takes, the actual production shows up as less than the physical capability of these wells to produce?

A. Yeah, that's right, because they're shut-in. That's right.

Q. So during this time period we can't really see what the productive capability versus what the demand for the gas was, for example, in 1985?

A. In 1985, no.

Q. Okay. Now, you kept on referring to some deprorationing efforts that occurred in 1974. During that time period, isn't it true that takes from purchasers closely corresponded with the physical capability of the wells to produce?

A. I don't know the takes of the 1974, so I really can't answer you on that one. All I know is the production of what happened in 74.

Q. Now, did you state what the percentage of marginal wells that are in the Blanco, South Blanco-Pictured Cliffs Pool, what that percentage is?

A. The number of non-marginal wells?

Q. No. Marginal.
A. Number of marginal wells in the South Blanco is -- marginal wells is 82 percent.
Q. Okay. Of that 82 percent do you know what percentage have compression on them?
A. It's marginal wells.
Q. Right. Do you know of any that have compression?
A. I don't know. I don't know who has compression out there at this time.
Q. Well, for UNOCAL what percentage of marginal do you have on compression?
A. I don't know that answer either. I don't know what UNOCAL has in compression out there for PC.
Q. Is there anything that prevents you from putting compression on those marginal units?
A. Yeah. I think, from what was stated before, the way the deliverability equation favorably gives you poor deliverability numbers and then that factor, of course, is tied into your prorationing means that to add compression right now is just not economically feasible at these low productions.
Q. I don't understand. If it's a marginal

unit, it's not going to be limited by allowables; is that correct?

A. That's true.

Q. So if it's a marginal unit, compression isn't going to hurt it one way or the other in terms of compression?

A. But once you compress after the period of time, a couple of months, it's going to get bumped to the non-marginal status, and then your allowables is going to kick in. Your deliverability problems will kick in.

So you can add compression to a marginal well, but within a period of time it's going to become non-marginal, and then you're back into the same situation.

Q. Now, is that a certainty that it's going to go into a non-marginal status?

A. Yes. It's a prorated pool. It's marginal, so it will go over its allowable. Then it's going to go into the non-marginal status.

Q. If it goes over the allowable for a period of time, then it becomes a non-marginal well; is that correct?

A. Well, its allowable is what it produces as a marginal well. Once you add compression,

now you're over allowable because you're going to produce more. And then you're going to go into your change of status.

Q. Does UNOCAL have any non-marginal units that are currently underproduced?

A. Non-marginal underproduced? Yes, we have some wells.

Q. Is that because of lack of market demand?

A. I don't think so, no. We think we can sell all the gas that we can make.

Q. Okay. Then why haven't you sold all the gas that you can make right now on those non-marginal units that are underproduced?

A. Because basically it's -- the productivity of those wells is being restricted by the reservoir. This is what the reservoir can make, but it's not being restricted by what the market is asking for.

Q. So deprorationing will not have any effect on those wells because they're not being restricted by the allowable system at this point; they're only being restricted by the --

A. The reservoir itself.

Q. At the very end of your testimony,

you've talked about carry-away capacity in the San Juan Basin being about 3.1 Bcf?

A. That's right, per day.

Q. Per day. And production is about 1.9?

A. Bcf per day, yes.

Q. Do you know what the combined San Juan Basin deliverability is?

A. No, I don't.

Q. Do you know if it's greater than 1.9 Bcf per day?

A. As a combined San Juan Basin deliverability, I have no idea what it would come out to be.

Q. I don't know if I've asked you this. Have you placed any compression on your non-marginal units that are underproduced?

A. I don't know -- maybe someone else could -- but I don't know what compression UNOCAL has out there. I don't know what they do as far as PC.

Q. Have you undertaken any kind of studies to see what set of economics would be necessary to justify compression for these wells in the South Blanco-Pictured Cliffs Pool if deprorationing occurred?

A. No. I did no economics.

Q. So do you have any kind of information that shows that a compression would actually occur after deprorationing?

A. Well, what I stated, I think, was to Exhibit 9, those B through D, all I'm showing here is the effective compression that the fact that the current proration system is curtailing the capable gas of the best wells. But I have done nothing other than that.

Q. I've seen some previous information from some of the letters of support that say something, like, less than 2 percent of this pool fall into that category. Would that be an accurate amount? The ones that would be affected adversely by this OCD deliverability test is less than 2 percent of the pool?

A. What they're referring to -- well, less than 3 percent of the number of wells are non-marginal overproducers. So I guess what they're saying is then the deliverability -- your allowables, which is set by your deliverability, would affect that percentage of well, the 3 percent.

Q. Okay. Now, allowables are also set on

actual production; is that correct?

A. Allowables are set on deliverability and acreage.

Q. Is that your testimony?

A. I believe that's correct, as best as I understand it.

Q. And actual production doesn't play a part in setting the allowables?

A. Well, they use -- see, for marginal wells they use the actual production as the allowable, so I guess I have to say you're right for marginal wells. For non-marginal wells the allowable is the difference, and then it's set by the deliverability and the acreage factor of those wells. That's my understanding of the prorationing unit.

MR. CAMP: I have no further questions.

EXAMINER STOGNER: Thank you, Mr. Camp.

Mr. Carr, any redirect?

MR. CARR: No redirect.

EXAMINER STOGNER: I have with me today Chief Engineer Larry Van Ryan. I'm going to pass the witness to Mr. Van Ryan at this time.

EXAMINATION

BY MR. VAN RYAN:

Q. Mr. Engler, in the four other pools that were deprorated in 1974, has there been compression installed in those fields like you anticipated would happen in the South Blanco-PC?

A. As far as I know, I don't know if compression has been installed in those other pools. I just don't know.

Q. It would seem, though, that if the economics were there to what you're talking about here, they would have done that, wouldn't you agree, since it was already deprorated?

A. Since it was already deprorating low productivity, you would think there would be some kind of enhancement, yes.

Q. Okay. In your volumetric calculations I notice where you used your pay thickness figures in there. Those seemed to be pretty high. Were those gross or net figures?

A. That's a net pay number. This is a good point. Within the Rincon Unit, as you're probably aware, they are doing a lot of new drilling activity. With this new activity we're getting good logs for a change.

These new logs, where the PC gross

thickness is about 200 feet, actually we think 100 feet of it -- in this case I don't know whether I used 60 to 80 feet -- is now really actual pay, actually contributing to the production.

Q. Is that interpreted as being all sand, or is there contributions from something other than the sands?

A. Well, yeah, we're assuming it's all sand production right now. The coal, which is right above it, we feel within Rincon Unit it is not a very good producer. So we feel maybe the coal is -- where you could contribute some to the coal, we don't think the coal is in this instance from that area.

Q. But with your log data and your porosity data now, are you using the 11 percent porosity you're showing here as your cutoff for net pay?

A. Yes. That was the number that the log analysis was using, yeah.

Q. So you're finding this kind of thickness of 11 percent porosity or better?

A. Yes. The thickness and the porosity and your water saturation numbers, which go into

your volumetrics, this is currently what we're using from our new wells.

Q. Uh-huh.

A. This is going to be refined even better as we continue on with this new well package. So that I would suspect you will see better numbers -- and I say better -- and maybe more accurate numbers from these new logs for those values.

Q. Okay. In the old wells that have been drilled and completed for a period of time up there, did they drill this full net pay you're talking about, or did they just drill a portion of that? In other words, do they have all the same pay open that you're deciding is now pay?

A. Yeah. What they do is they would at least drill the first 100 feet of PC in a lot of those wells. So I can correlate that this 100 feet is within these new wells, yes.

Q. Was it perforated and completed in those old wells?

A. The perforating was done strictly in, like, the top 20, 30, feet. It's the hydraulic fracturing that will communicate the rest of your sand. All these are very tight. All of them require massive stimulation. That's how you're

draining a larger thickness.

Q. So you are assuming they are draining in a larger thickness, although they only completed at the time maybe in the top 20 foot?

A. Yeah, that's where you're perforated. That's right.

Q. And you just don't have any information about compression on the other pools?

A. I really don't know about compression of the other pools. Maybe someone else does, but I don't.

Q. I didn't get a chance to go through all your exhibits on compression. Can you kind of give me a run-down on what benefits you see from compression? Is this a life-long benefit or a temporary benefit?

A. It would be today -- well, since you're in low-reservoir pressure, low-productivity situation, you could reach an economic limit where you would abandon.

Now, if you have compression, of course, you increase your drawdown, you get those extra reserves out there which you couldn't have gotten before. It would be a project that you would start, and it would go till the end of the

life of the well.

Because by the time you've shut down, you know, to the end of again another economic limit with compression, you're basically -- you've recovered all your reserves. So it would be a life-long process, yes.

Q. Are you envisioning that people will put in single compressors per well, or would it be better to try and get the pipeline companies or whoever to lower the whole system pressure?

A. I don't think pipeline companies would do that. I think the economics would be better if you could gather several wells and put a compressor in so that you could compress multiple wells within your own gathering system. But that's what I would see as being the most economic and efficient way.

Q. Is this what UNOCAL would do?

A. I believe so, yes.

Q. They'd try and gather several wells or something to that effect?

A. They'd try to get several wells within an area to tie into our gathering lines to our compressor and then go from there.

Q. One other thing in your P over Z cum

plots on the South Blanco Pool and another pool, I notice quite a jump in your reserves.

A. Yeah.

Q. What caused that?

A. Okay. This is a reservoir engineer's dream, I guess. There's two reasons why you see this shift. Actually you can see the shift in all pools. But what it is is -- the data, you remember, is from your deliverability testing, seven-day shut-in, shut-in for a buildup.

What these are are tight gas sands. Within seven days you cannot actually build up to a true reservoir pressure, the actual reservoir pressure. So what you see then is what is built up in that seven-day period. Now, that's how the testing is done.

Now, the reasoning for the shift is there are two times when you will actually see the true reservoir pressure. The first time -- and if you notice on all these plots, the very early data will always show higher. That's because you've drained a very small volume. You're in what's termed infinite acting period of flow. So you actually see true reservoir pressure before all the activity comes on line.

The second time you will see true reservoir pressure is when you start getting down into the lower pressured area, as you're seeing here. What happens is the time to build up, the time to build the pressure up now falls within the seven-day period.

So now what you see is, where before you were not catching all up to the reservoir pressure, now since pressure is low, your average pressure meets within the deliverability testing buildup. And so what you end up getting now is higher pressures.

So in actuality if you really -- and for measured depletion, as long as you're comparing each pool consistently, that's good. But the true reservoir pressure of these pools since they are tight is this higher-shifted value. And that's because of the way the pool is, the way the reservoir is. Is that clear?

Q. It's not exactly clear because if your wells, when they were new and the production is not too great, you said that you would have a good pressure buildup pretty quickly and you'd have a true pressure at that period of time. So I would assume you could extrapolate from those

pressure curves and come up with actual reserves in place?

A. Yeah. What I have done -- we didn't -- I have some information, but --

MR. CARR: May it please the Examiner, we have an exhibit that addresses just this particular skip in the production curve. We'd be glad to mark that.

EXAMINER STOGNER: Would you like to make it part of the exhibit?

MR. CARR: We can mark it, I guess, as Exhibit 17. Whatever.

EXAMINER STOGNER: I think it's 16, isn't it?

MR. VAN RYAN: You had 15. I think 15 was the last.

MR. CARR: Well, I may have a rebuttal Exhibit 16. I'd like to mark this as Exhibit 17.

EXAMINER STOGNER: What exhibit was this?

MR. CARR: Those are just for your copies. Those are the actual return receipts that support the affidavit.

EXAMINER STOGNER: You can mark it whatever you want then. Would you like to take a

little recess?

MR. CARR: It would take just a minute. We do have some copies of it.

EXAMINER STOGNER: We'll go off the record.

[A discussion was held off the record.]

EXAMINER STOGNER: Mr. Carr, are you ready?

MR. CARR: Mr. Stogner, at your pleasure, I would ask Mr. Engler to identify what has been marked as UNOCAL Exhibit 17 and review that, and then immediately continue Mr. Van Ryan's cross-examination. At the conclusion of that, I will offer Exhibit 17.

EXAMINER STOGNER: Will that be all right with you, Mr. Camp?

MR. CAMP: Can I ask a few questions on it?

EXAMINER STOGNER: Oh, you bet.

Q. (BY MR. CARR) All right. Mr. Engler, could you identify what has been marked UNOCAL Exhibit 17?

A. Exhibit 17, this is again, it's similar to what was it? Exhibit 8. It's shut-in wellhead pressure versus cum'd gas for each

pool. And what I'd like to show here, you can see the data that was shown in the book, the asterisks.

What you see is a dotted line which is the upper -- it gives you a higher gas in place, what we're trying to explain, the upper pressure curve that you were saying. You can see that this is all data points.

The shift, which is the Black Diamonds, I believe, on all of these is that layer and pressure that you're seeing within your deliverability. If you extrapolate that back, you'll notice that it coincides very nicely with the initial pressure back when the wells were developed.

So I think this sort of lends credence to show that you what you're seeing, this difference, is actually due to the sands not building up, due to the way the deliverability testing, due to its very low permeability. But the two end points, the beginning and now the low pressure at the end, are showing a more accurate picture of the pressure.

Q. (BY MR. VAN RYAN) So you have compared those two. It seems like you have quite a few

more points here?

A. Yeah. What this is doing, these plots now show all points. These plots I tendered earlier was just wells, just the years where the percentage of wells tested was 50 percent or greater than the total active wells.

Q. Okay.

A. This here is now showing all years, all points. You'll have to remember somewhere in here we changed to biannual deliverability testing, and there's some other little quirks, you know, that changed the data. But, all in all, this is all points right here.

Q. What kind of effect does it have by ignoring your compressibility factor in using these plots, using the P over Z --

A. Yeah.

Q. -- as opposed to straight shut-in wellhead pressure?

A. What I did -- I didn't bring the data for it -- but, if you'll recall, very low pressure like this, which is 700 -- less than 700, 800 pounds, your Z factor change is very small because now you're very close to ideal gas. So your Z factor is very high, .96, .97,

and it's not changing radically within the profile that you see here. That's why I didn't bother putting it in.

Q. And it wasn't used even on the initial times, initial reservoir pressure?

A. Not on these, no. No.

Q. So you don't think it would have that big a factor?

A. I don't think so. It's too low pressured, your Z factor. Again it's very small at that pressure, and the change is very small at that pressure.

Q. Okay. It seems that the effect of this is being much more significant in the two prorated pools than it was in the other pools, the shift. In other words, you've added substantially more reserves in the South Blanco-PC and in the Tapacito-PC than you did in the other pools if you're using equivalent shift. It's at least more evident in your Exhibit No. 8, I believe?

A. Yeah. I think the other pool, West Kutz, on this last exhibit is another one that does show a good percentage increase.

Q. How do you explain that?

A. I don't know. I don't know.

Q. Because we went along for several years in prorated pools where it looks like our shut-in pressure stayed consistent, even though we had substantial withdrawals.

A. Yes. Again you're not -- you're having trouble wherever you're taking a seven-day buildup of tight sands. In essence, your reservoir pressure probably is higher and dropping, but what you're seeing is just what you're testing. It's sort of a catch-22, I guess.

EXAMINER STOGNER: Mr. Camp, I'll turn the witness over to you at this time.

MR. CAMP: Just a couple of questions.

EXAMINATION

BY MR. CAMP:

Q. You don't have any deliverability data but, in your experience as a petroleum engineer, I see from from 1976 to 1990, looking at this during the shift period that you've previously been talking about, the reserves actually trend upwards; correct?

A. No. The pressure is constant.

Q. Well, this --

A. The production is continuing. But your reserves are still -- you're depleting the reserves.

Q. Well, then your pressure is trending slightly upward from 76 to 1990?

A. Yes. It's constant, slightly upward. Yeah.

Q. And would there be a corresponding slight trend flatness or slight trend upward in the total deliverability from this pool?

A. I think, yeah, because this is based on deliverability. So if your -- yeah, if your shut-in pressure is constant or, like, slightly larger, slightly increased, then your deliverability should be matching that. Yeah.

Q. But during the same time period -- and now I'm looking at Exhibit 5 for the South Blanco-Pictured Cliffs -- the actual takes during that same time period at all times, with the exception after the precipitous drop of 85, the trend is always downward from the same time period of 1976 to 1991?

A. Yes, the pressure is dropping.

Q. Takes are dropping because this is what reflects -- this graph, the line here with the

little square boxes reflects actual takes from the pool; is that correct?

A. I guess that's correct, yeah.

Q. And productive capability during that same time period would be either flat or slightly trending upward?

A. Well, I guess this is what I was trying to explain earlier. This is the capability you're seeing on your test. This, which you see here, is the pressure that we think is actually happening in the reservoir. So your pressure is, what we think, is actually dropping. This is what you're actually measuring.

MR. CARR: When you say this being actually measured, you're referring to Exhibit 8, the graph of the South Blanco-Pictured Cliffs pool?

THE WITNESS: Yes.

MR. CARR: When you're talking about actually measured pressures, you're talking about the graph for this pool that's contained in what has been marked as UNOCAL Exhibit No. 17?

THE WITNESS: Yeah. This is measured.

MR. CARR: Being --

THE WITNESS: -- Exhibit 8. Right.

This is what we think is actually happening in the pool.

MR. CARR: That's Exhibit 17?

THE WITNESS: Exhibit 17.

Q. (BY MR. CAMP) So what was measured, because this is reflective of actual delivery capacity on Exhibit 8, is flat or trending up, takes during that time, the same time period, are dropping; is that correct?

A. Yes.

Q. Okay.

A. Falling.

Q. Would it be fair to say that market demand during this time period, 76 to at least 90 -- is 1990 your terminal day?

A. Yes. 1990 is that last point, yes.

Q. Has declined?

A. I don't know. I don't think market demand has declined in that period, but I'm not an expert on market demand.

Q. It takes a decline for this pool, though?

A. The productive capacity of the pool has declined.

Q. Well, your theoretical one is, but your

actual measured one shows that during this time period, just 76 to 90, the actual measured productive capacity is flat or trends upward?

A. I just don't know how to answer that because I don't know. I'm sorry. I just don't know how to answer that now.

MR. CAMP: No further questions.

EXAMINER STOGNER: Thank you, Mr. Camp.

Mr. Carr, do you have any redirect?

MR. CARR: No, I don't. I move the admission of UNOCAL Exhibit 17.

EXAMINER STOGNER: Are there any objections?

MR. CAMP: No objection.

EXAMINER STOGNER: Exhibit No. 17 will be admitted into evidence. Mr. Van Ryan, I'll go ahead and turn it over to you.

MR. VAN RYAN: I have one more question back to our P over Z versus cum plots.

FURTHER EXAMINATION

BY MR. VAN RYAN:

Q. Are you aware of what the line pressures were in that area from 1974 until 1990?

A. No. The only thing I ever read was

from the previous transcript. All they said was unequal pipeline pressures.

Q. Okay.

A. I do not know what that means as far as true numbers in 74.

Q. Have pipeline pressures gone down in the San Juan Basin and then come back up and gone down again? Have we seen a trend like that?

A. I don't know. I know with the current low pressure systems what these wells are going into. But I don't know what was fluctuating in the past.

Q. I was just wondering if we couldn't also attribute some of this change in here to a change in line pressure? Therefore, you're not drawing your well down as much and therefore it takes less time to build back up.

A. That's -- yes.

Q. I think that could have than an effect?

A. That has an effect.

MR. VAN RYAN: Okay. That's all I have. I just wanted to verify.

EXAMINER STOGNER: I'm just going to clean up some stuff.

EXAMINATION

BY EXAMINER STOGNER:

Q. There were some terminologies that you used. This tight formation or tight reservoirs --

A. Yeah.

Q. -- do you want to define "tight" for us for future people looking this transcript over?

A. Well, I guess "tight" -- I guess "tight," by definition, you know, some of these have been designated by whoever does those tight gas-sand designations. Now, that falls under .01 millidarcies.

"Tight" by my definition is low permeability, let's say, which requires a well to be hydraulically fractured, of which all these need to be productive. And that's how I'm going by as far as my definition.

Q. And then the tight formation people that you referred to, I believe, was the Federal Energy Regulatory Commission; is that correct?

A. I don't remember.

EXAMINER STOGNER: Just keep it in perspective, for people 10, 20 years from now reading this transcript, who those tight formation people were.

As opposed to asking any questions pertaining to some of the past previous orders as alluded to in your Exhibit No. 4, Mr. Carr, I will take administrative notice of those previous cases in particular with the South Blanco-Pictured Cliffs Pool.

I have no questions of this witness at this time. Is there anything further?

MR. CARR: We have nothing further. That concludes our direct presentation.

EXAMINER STOGNER: Any other questions of this witness?

You may be excused.

Mr. Carr, does that --

MR. CARR: That concludes our direct presentation in this case, Mr. Stogner.

EXAMINER STOGNER: Thank you, Mr. Carr.

Mr. Camp.

MR. CAMP: I call Dick Lyon.

VICTOR D. LYON

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

EXAMINATION

BY MR. CAMP:

Q. Would you, please, state your name and occupation for the record?

A. Victor D. Lyon, L-y-o-n, consulting petroleum engineer.

Q. Mr. Lyon, have you previously given expert testimony in front of this Division?

A. Yes, I have.

Q. On what matters have you given testimony?

A. Well, just about every kind of case you can think of. I testified a great deal about gas prorationing and about the workings of gas prorationing, as well as other matters involving oil production and water disposal. And I've testified as to most of those.

Q. And you are a petroleum engineer?

A. Yes, I am.

MR. CAMP: Are his credentials satisfactory? I tender him as an expert petroleum engineer.

EXAMINER STOGNER: Mr. Carr?

VOIR DIRE EXAMINATION

BY MR. CARR:

Q. Mr. Lyon, what areas of expertise are you being qualified to testify to as to here

today? Prorationing? Is that what you're going to be testifying to?

A. Well, that's what I intend to testify about, is prorationing.

Q. And you're also an expert in general oil and gas regulation in New Mexico?

A. Yes.

Q. Are you going to be testifying about that today?

A. I don't think that's involved in this case.

Q. So you'll be focusing just on prorationing and your experience with that?

A. Yes.

MR. CARR: I have no objection to Mr. Lyon testifying as to this. I may -- and I want to warn you -- be objecting on grounds of Gas Company standing to bring these questions to the Commission. I could pursue that now, or perhaps Mr. Lyon will able to explain why they're here. But I want you to know that I am going to be challenging the testimony on those grounds. I can do it now or later.

EXAMINER STOGNER: Mr. Camp?

MR. CAMP: I'd just as soon challenge

it now. It might save us all some time.

EXAMINER STOGNER: Okay. Challenge him at this time, Mr. Carr.

MR. CARR: I'm going to have to ask Mr. Lyon generally some questions about what Gas Company's interest is in this proceeding.

MR. CAMP: If I might, I believe under Statute 70-2-23, we are a person interested in this matter. The basic presumption is words used in statutory construction, words used unless they're specifically defined or the contrary as indicated, are to be understood in their normal everyday meaning.

I looked up the definition of interested, and that means to be affected or concerned. We have gas transportation facilities in this specific pool. That is one of the things that is used in determining the allowables and prorationing of pools.

And further we have numerous gas purchase contracts in which we may be affected by any changes in the prorationing system that currently exists in the South Blanco-Pictured Cliffs. I think that alone satisfies that statute that says that any person, any person

interested in this matter shall be entitled to be heard, and it's mandatory.

EXAMINER STOGNER: Mr. Carr, does Mr. Camp's explanation satisfy you at this time?

MR. CARR: It goes part of the way. When we talk about being interested in the matter, I think it's important to understand what being interested means. It means that you've got an interest which will be affected.

And I can either now pursue whether or not they have correlative rights or any waste consideration that is valid, basic jurisdictional points for your decision, or we can see what they come up with and then we can explore those after Mr. Lyon makes his presentation.

EXAMINER STOGNER: I'm a little confused here, Mr. Carr. Are you challenging what their interest is in the case?

MR. CARR: I am questioning whether or not they in fact have an interest that entitles a gas transporter to come in and challenge a matter or become involved in a matter, which is a production question, when they have no wells that they operate, no wells that they produce, no property interest that will be affected, no

correlative rights, no waste issue, nothing of theirs that will be wasted.

They can't show that -- I believe that we will see that they have no correlative rights, that there is nothing of theirs that is subject to waste, and that in fact they don't have any interest in this proceeding except perhaps collaterally, as Mr. Camp indicated, to watch out for their gas purchase agreements, which I submit is not a proper consideration or a proper interest for a conservation proceeding.

EXAMINER STOGNER: Mr. Camp, I'd like a response from you on that.

MR. CAMP: Sure. 70-2-23 talks or is completely silent as to correlative rights or the type of right that is going to be affected. His characterization of a collateral is just kind of a red herring. We have an interest that will be affected. That's all that's necessary.

Further, whenever this Division sets matters of conservation, that is a public right, and there is a public interest in that matter. It is not solely a matter between individuals, between individual producers when you deal with waste and production, setting production issues.

This isn't just a dispute as to a Division order; this is going to be an administrative decision on a whole productive area. And, therefore, is a public right involved in the conservation of natural resources. And we appear because we are affected as much as any other person in the state of New Mexico may be affected by the decisions made as to the conservation of a natural resource.

In addition, we have a direct interest in this because of our gas purchase contracts. In addition, we are a gas transportation facility that is a very part of the allocation procedure of 72-16.

MR. CARR: Mr. Examiner, I will explore the exact nature of Gas Company's interest on cross-examination.

EXAMINER STOGNER: Are you withdrawing your motion at this time?

MR. CARR: I will not object at this time.

EXAMINER STOGNER: In that case let's continue, Mr. Camp.

DIRECT EXAMINATION (CONTINUED)

BY MR. CAMP:

Q. Mr. Lyon, what is the nature of your testimony today?

A. The nature of my testimony is that I think that there is reason to question why this case is brought at this time and why particularly in this pool.

Q. Why do you have a problem with it being brought at this time?

A. Well, as I'm sure everybody in the room is aware, about 18 months ago the Commission changed its format in gas prorationing. Prior to that time there was a monthly hearing, at which nominations were read into the record, and comments were taken from anybody who had any input as to gas demand.

And then, based on the actual production from the latest available data and the status of the pool, over/underproduced, a seasonal market demand factor was used to set the allowable. Under the new rules, most of those things still are considered, but the hearing takes place twice a year, or two proration schedules which are issued giving a monthly allowable, which for each of the six months is the same. And so there is that difference.

The problem, as I see it at this time, is that in trying to make the changeover from the one system to the other that there is an awful lot that has fallen through the cracks. At about the time we went into the new system, it became apparent that the data that we were using for gas prorationing from the C-111s was not complete; in many cases it was inaccurate. So the database is questionable.

Also when the rules were implemented, the system of reclassifying wells broke down. So there has been no well reclassifications, I think, for the last year. And this is a very important aspect of gas prorationing in that when wells become -- have demonstrated that they cannot produce the allowable, then they are reclassified to marginal. And this allows the higher producing wells, larger wells to set higher allowables because their production is higher. And this system has broken down.

When we sent out a monthly proration schedule, we indicated the wells which were excessively overproduced by an asterisk. And this indicated that the well should be shut-in until the well was within allowable limits of

overproduction. Those schedules don't go out monthly anymore; they go out biannually, or twice a year.

Also the Division had supplemented this notice in the schedule by a letter that advised people to shut in their wells because they were excessively overproduced. This system has broken down too.

And my evaluation of the situation is that there is no system right now. I think very soon we will be having a system, but the system has not been permitted because of these failures to demonstrate the viability of the new system.

The new system was devised to give operators more flexibility to be able to know what their allowables were for six months in advance. And without the rest of the system working, they do have those allowables, but there has been no instruction from this office that I'm aware of for people to shut in excessively overproduced wells.

The wells have not been reclassified. Consequently, the system has not been able to demonstrate the flexibility to change as conditions change, as market demand changes, to

make those changes because the number of non-marginal wells is staying constant.

Q. And what's the significance particularly to this application in these failures of the present system at this time?

A. Well, another problem that we have is lack of monthly production data, which we used to get with the old monthly proration schedules. We have requested that an abbreviated report be sent out to producers and the people who are interested so that they could build data for specific purposes. And that data just is not available.

And -- now, what was your question?

Q. Well --

A. Oh, about the timing.

Q. Yes.

A. Well, I'm disappointed that they're asking that the pool be deprorated at this time when we lack the data to make an evaluation of the need to deprorate.

Q. Have you also undertaken a study of the history of the South Blanco-Pictured Cliffs Pool as it pertains to non-marginal units versus marginal units?

A. Well, what I did was to look at the South Blanco-Pictured Cliffs Pool and the other prorated pools in the state. One of the things that I wondered why it is being done at this time, we have had several times in the past where there were many fewer non-marginal wells in all of these pools than there are now. I can remember --

Q. Than there are now in the South Blanco-Pictured Cliffs?

A. Yes. Yes. For instance, in May of 1981, in the South Blanco there were 80 non-marginal units. Today, according to the last data which we have, which I have, which is the April to September 92 gas proration schedule --

Q. Which you previously stated that has some frailties as to the data accuracy?

A. Yes. The database, I'm sure, is somewhat suspect. And the reclassifications have not been done. But there are 326 non-marginal proration units in that schedule.

And I might also show that in May of 81 there were 56, 57 non-marginal units in Basin Dakota. There's 289 now or 277 in the Mesaverde. There's 568 now. The Tapacito, there

were 12, and now there's 79.

And so it makes me wonder. Back in those days, in the early- and mid-70s, I would look at the continuing decline in non-marginal wells in all the prorated pools. And I would wonder: Do we need gas proration? Are we getting the point that demand and supply are equalizing?

And I would have just about -- well, I had given some thought to suggesting that. And then in 1986 all hell broke loose when the minimum billing was removed from the pipeline companies and --

Q. Are you referring to FERC Order 380?

A. Yes. And at that time we went from very few non-marginal wells to a majority of non-marginal wells, large numbers of non-marginal wells. I would never have anticipated that because it looked like we were getting the point that we were just producing all-out. And I saw no reason why it would change, but it did.

Q. And you attribute that change to the softening of market demand or the lack of --

A. Well, there was a change in condition. The contracts began to come under fire. They

were not able to sell the gas at the prices that the FERC orders had authorized. And when the spot market was implemented, everybody wanted to buy the cheaper gas on the spot market. And so it played hell with demand from conventional gas.

But the same situation shows up in the southeast pools; that many of those pools had far fewer non-marginal wells in those days than they do now.

Q. In your noting of the non-marginal units, the changes for the Basin Dakota, the Tapacito, and the Mesaverde, those are all prorated pools?

A. Yes.

Q. And therefore the South Blanco-Pictured Cliffs is also consistent with the picture that occurs in the Basin Dakota, Mesaverde, and Tapacito?

A. I'm sorry?

Q. In terms of the change of non-marginal units?

A. Yes. They have all enjoyed substantial increase in non-marginal units from the lower point. I'm not sure that I found the lowest

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point, but it was a point that certainly the non-marginal units were much fewer than they are today.

Q. Well, what's the significance of the increase in non-marginal units? Is it your opinion that the non-marginal units have to decrease in order for a deprorationing to be considered?

A. Well, the normal course of events in a pool as it declines, you have fewer and fewer non-marginal wells until you get down to one well that is virtually setting its own allowable. And then in a number of pools even those wells have been reclassified to marginal so that they -- there's no non-marginal wells, but we still continue to carry it on the gas proration schedule.

And that may be an exercise in futility, but if somebody comes up with -- or two or three people go in and drill additional wells or somebody works over wells that may create a problem of protecting correlative rights, the system is available there to take care of it.

Q. Did you also review the under/overproduction status of wells in the South

Blanco-Pictured Cliffs?

A. Well, I did as to UNOCAL's wells. My study showed that they operate 123 wells in the pool; 14 are overproduced; a total of 72,910 Mcf. Now, that was as shown in this gas proration schedule, which probably included data through January of 92.

They also had 20 wells underproduced; a total of 151,673 Mcf; and 89 wells which are classified as marginal.

Q. So they had twice as many MCF underproduced as overproduced?

A. Yes. A little more than that.

Q. What do you foresee as the market demand for New Mexico gas on a statewide basis in the near future?

A. I see no reason why market demand for all gas out of New Mexico should decline. I am concerned somewhat about the impact of the coal seam gas.

Q. Why is that?

A. Well, the coal seam gas now is the largest single supply of gas in the state and is growing. And I'm told that there are several hundred wells which have not been connected yet

so that the impact is still growing.

The New Mexico Oil & Gas Association had a meeting to discuss the advisability of looking into prorating that Basin Fruitland pool. And there were so many things that were taking place at that time, they felt that it was not timely, because interconnections were being made for movement of gas out of state, the additional pipelines were being laid in California, which would bring about a larger market.

And it just was felt that until we could show that the curtailment of production was due to some factor other than pipeline capacity, that they would not be able to evaluate the impact of the coalbed methane.

One impact that certainly you must consider is the fact that there is a tax credit involved with the coalbed methane which could possibly impact the price structure of gas, which if wells are curtailed by market demand and getting less money for the gas too could cause some wells to be plugged prematurely perhaps.

Q. Well, in light of the increased capacity of the Fruitland Basin, what would be

your -- and I guess it would have to be just an estimate -- but would you foresee an increase in marketed demand for the South Blanco-Pictured Cliffs Pool for the next --

A. No, I don't.

Q. -- pick a time line, one to five years?

A. No. I really do not because I think that probably any increase in gas demand is going to be filled by the coalbed methane.

Q. So you see the demand staying at best relatively constant for the South Blanco-Pictured Cliffs pools for the next five years?

A. Well, I don't claim to be a prophet. I just do not see anything on the horizon that would cause an increase in demand from South Blanco, but I can see a possibility of less demand.

Q. Okay. Mr. Carr was kind enough to provide us with this book of exhibits. Did you have a chance to look through that at all?

A. Well, a little bit. I'm not a very fast study. And I'd like to compliment their witness on the quality of the study.

I was a little confused in his discussion about the effect of the deliverability

test and its impact on feasability of compression.

Q. And why was that?

A. Well, I didn't understand exactly what he was saying. I think that he was referring to the fact that our deliverability determination is based on a percentage of the shut-in pressure, that if they were to increase the flow, the Q, in a test, that under the pool rules you'd have to extrapolate that Q back up to the theoretical deliverability at the given percentage of the shut-in pressure.

And if that isn't what he was saying, that is what happens. That even though you produce your well at a higher rate, you have to extrapolate that back to the uniform percentage of the shut-in pressure.

And, very likely, if you put a compressor on a well, just because of the fact that you're reducing the wellhead pressure, the back pressure against the well, you're going to produce more. And if you put it on a marginal well, there's a good likelihood that the well will become non-marginal and be limited like all the other wells.

When he was talking about compression, I wasn't sure whether they were talking about the operator putting on compression or whether the pipeline company was to put on compression. But I did not understand all that he said in that regard.

Q. Is there anything else that sticks out in your mind as you go through it?

A. Well, I was glad that he discussed this leveling out of the pressure in there. When I saw that, I thought well, you know, that indicates one of several things, either that you've got a water drive in there that's maintaining the pressure or these pressure points that preceded it are very suspect.

And as I gather it, the wells can reach a fair equilibrium pressure within the seven days; whereas, before they could not. And probably it has some impact on infill drilling and the higher pressures from wells which are not so depleted.

On Exhibit 6 where it has the sum of the Pictured Cliffs Pool, I did not quite understand the significance of comparing the South Blanco to the sum of all of the other

pools. That doesn't say anything to me.

I think that's about all the comments I have.

Q. Mr. Lyon, is it your opinion that this Division, in ruling on orders that affect the allowable production in a pool, must take steps to prevent unreasonable discrimination between other pools in the state of New Mexico?

A. Well, under the statute that is provided for. I am aware of that provision, and when I was Chief Engineer for the Division, I was aware of it then. I am not in a position to discuss at what point or under what circumstances some action needs to be taken to prevent such discrimination.

MR. CAMP: That concludes my testimony.

EXAMINER STOGNER: Thank you, Mr. Camp.

We're going to take a five-minute recess, Mr. Carr, before I turn the witness over to you.

[A recess was taken.]

EXAMINER STOGNER: Hearing will come to order.

Mr. Carr, just for a little bit of verification, one of your questions to Mr. Camp -- to Mr. Lyon, I think it was at the beginning, but, Mr. Lyon, you referred to FERC order I believe it was 360; was that correct?

THE WITNESS: No, I didn't say that number. Mr. Camp did.

MR. CAMP: FERC Order 380. That's the one that did away with minimum billing obligations of utilities.

EXAMINATION

BY EXAMINER STOGNER:

Q. I was wanting to try to allude to what your answer was to the FERC Order 380. In trying to write it down, I think you said that's when all -- something broke loose.

By the way, Mr. Carr, since I do have some problems with four letters words being utilized, I will allow you two, if you would like, in your closing statements. So I'll prorate the cuss words in this particular case.

A. I think when I was writing letters to the Director, trying to call attention to things that might be needed to be done, I referred to it as chaos.

Q. Perfect. I like that. But you referred to FERC Order R-380 -- that's when chaos broke loose -- and then you mentioned something else. Could you allude a little bit more of what order R-380 did in your testimony today?

A. Well, as you'll recall, the pipeline companies had contracts with the producers, and most of these were long-term contracts and they specified a price. And on the basis of contracts at the other end, at the consumer end, they had a provision called minimum billing, which provided a guaranteed revenue to the pipeline company for the gas that they had contracted to deliver.

And when FERC outlawed the minimum billing, then that guaranteed revenue was no longer available, but they did not disturb the contracts with the producer. So that the pipeline was still obligated to take gas and pay the contract price for the gas. And if they did that for very long, they'd probably go bankrupt because they weren't receiving the money, the price for the gas at the other end. And that's when the chaos broke out.

EXAMINER STOGNER: I appreciate you straightening me out on that.

Okay. Mr. Carr, your witness, unless you had any other questions, Mr. Camp.

Mr. Carr, your witness.

EXAMINATION

BY MR. CARR:

Q. Mr. Lyon, I do have a couple of questions on Gas Company's interest in this proceeding. Before that I would like to just identify what your role is with Gas Company. You have been retained by them, have you not?

A. Yes.

Q. And what do you do? Do you monitor Oil Commission activity?

A. Yes.

Q. What does that entail? Does that entail advising them on prorationing matters? Is that part of it?

A. For my own information I look at all the dockets to see the cases of interest. And sometimes when I think that there's something that is of interest to Gas Company, I will call them. More often they call me and say we'd like to talk to you about such-and-such a situation, and so I talk to them.

Q. In your relationship with them, do you

also advise Gas Company of contractual matters or involved in contractual questions, or is it limited to regulatory kinds of issues?

A. No. The only thing I consult with Gas Company about is regulatory matters.

Q. When did you find out about UNOCAL's application in this case?

A. I saw it probably -- saw the docket, oh, a week or ten days ago.

Q. Did you contact Gas Company at that time?

A. No, I didn't.

Q. When did you contact the Gas Company on this matter?

A. Well, they contacted -- they contacted me more in connection with the hearing next week.

Q. And when did that occur?

A. Monday.

Q. You indicated that you had made a study of the South Blanco-Pictured Cliffs Pool. How long have you had actually to study the pool?

A. Last night.

Q. What did you review? Just the prorationing schedule?

A. Yes. Well, I also looked at some of the old proration schedules just to get a comparison of the current time to times in the past when things looked bleak for -- well, where there was perhaps some question as to the need for gas prorationing.

Q. Was it just yesterday that it was determined that you were going to appear in this case?

A. Yes.

Q. That's why we just got a prehearing statement yesterday?

A. Yes.

Q. The last time UNOCAL was before this Commission with an allowable question, you also appeared. At that time we talked about correlative rights and waste. I don't want to necessarily repeat all of that.

Does the Gas Company have any property interest that you're aware of in the South Blanco-Pictured Cliffs Pool?

A. Well, if you're talking about real property, other than rights of way --

Q. Do they have any mineral interests?

A. I really don't know.

Q. Do they operate any well?
A. I don't know.
Q. Do you know of any right in production that they have as an owner of production?
A. No, I really do not know.
Q. You know, as an expert in oil and gas regulatory matters, you know that correlative rights are the opportunity afforded to the owner of each property in a pool to produce his fair share.
A. Yes.
Q. Are you here today trying to protect the correlative rights of Gas Company of New Mexico?
MR. CAMP: This is really kind of getting into just a strictly legal -- he's just asking legal opinions of my petroleum engineer. And I have a little bit of difficulty. Vic is a very intelligent person and he can answer, but he's asking him legal questions that are trying to bind the company as to exactly how this testimony is to be construed. And that's really your job and our job.
If they want briefs on it or something, that's fine. But this is really kind of -- that

is a legal question, and it calls for a legal opinion, which he's not qualified to make.

EXAMINER STOGNER: Mr. Carr, I agree with Mr. Camp.

MR. CARR: The only thing I would suggest is this witness was qualified as an expert in oil and gas regulation in the matters concerning this Division. And if he wants to say he doesn't know what correlative rights -- how they're defined in statute, I think he can do that.

But I can't imagine a person qualified as an expert in the OCD who doesn't know what correlative rights are as defined by our Oil & Gas Act.

THE WITNESS: I don't think you asked me that.

Q. (BY MR. CARR) Do you know what correlative rights are?

A. Yes.

MR. CAMP: Just a second. Also Mr. Carr spent some time to see if he was coming here to talk about prorationing. He's talked about prorationing. Now he's just -- there's a legal argument. He'd made it before. He withdrew it

temporarily. He's coming back, I guess, to do it now. But it's a legal argument of whether we have standing or not. And it really doesn't have very much to do with what Mr. Lyon is going to testify as to.

I mean, it's pretty clear-cut. I gave the basis for our standing. If Mr. Carr has a problem with that, then he should attack it on that. We don't have to spend any time on correlative rights or anything else. I gave the three reasons that I thought that we had standing for this conservation measure.

MR. CARR: We can clarify this if counsel will say you're not here with a correlative rights concern.

MR. CAMP: I don't think that we are here for a --

MR. CARR: Is that a no?

MR. CAMP: -- correlative rights concern.

MR. CARR: Are you here for a waste concern?

MR. CAMP: I think we are. Yes, we are. We're here for a waste concern and a conservation of natural resources concern, of

which this Division is hearing this matter on.

Q. (BY MR. CARR) Mr. Lyon, could you summarize what Gas Company's concern is, what kind of waste issue you're trying to identify here?

A. The concern, I believe, is that you are proposing to make a change in which they have well connections, they have well contracts. And I might point out that Gas Company is one of the few, if not the only, gas transporter who is also a purchaser in the state. This is what was the result of the order, FERC order.

It has torn apart the system that existed at that time. And all of the previous gas purchasers, transporters, marketers, have become simply transporters. They really don't care what you do, what the Commission does. Gas Company does because they are a purchaser with contracts, and it affects the way they operate.

Q. Prorationing affects the way you operate?

A. Yes.

Q. How does it do that?

MR. CAMP: Again he's getting into legal questions as to our contracts. And he's

already said he's not consulted on our contracts.

MR. CARR: No, I did not.

MR. CAMP: Yes, you did. You said: How does it affect you, and how does it affect your contracts. And --

MR. CARR: I said how does -- your witness testified, I believe, that prorationing affects the way you operate. You've stated you're here because it affects you. I'm saying how?

EXAMINER STOGNER: That is a question in which I'd like to know the answer to.

MR. CARR: I don't see what's wrong with that. I'd just like to know how.

MR. CAMP: Okay.

THE WITNES: Gas prorationing allowables sets the measure of the pipeline's responsibilities to take gas. And without it then there's got to be some other measure when people don't agree that a pipeline has complied.

Q. (BY MR. CARR) And that's why Gas Company is concerned?

MR. CAMP: No. I think the prehearing statement sets forth that he has, I think,

articulated one of the concerns. I think we have -- if he wants to know my closing argument, it's we have an interest as any person, as defined by 70-2-33, as any person in the conservation of natural resources.

This Division is statutorily required to not set allowables in excess of market demand. Their own evidence shows that they're going to increase production and the market demand is not there. We have an interest in that. We have an interest as to the operation of our pipeline.

We have -- and I think it goes without saying that shut-in notices and other things as to the permissibility of wells connected to our system to flow can affect us one way or the other. And I think there has to be a determination, and I believe that we have standing to raise it, that this Division carry out its duty to prevent unreasonable discrimination between pools as required by 70-2-16(d).

MR. CARR: May it please the Examiner, I will tell you right now I'm not going to object to standing so Mr. Camp can quit worrying about

that. He said they was concerned that it would cause waste, and I've said how. I've asked that again, and Mr. Lyon has explained. And I said so that's why you're concerned. I thought I would get a yes, not another argument on standing. I'm not going to argue standing.

MR. CAMP: Again waste is a legal term that includes the concept of market demand.

MR. CARR: Will you stipulate then that your witness is not here to testify about what is meant by waste or correlative rights?

MR. CAMP: I think that he has discussed what waste is. I think he has discussed market demand concerns. And that is part of the definition of waste.

MR. CARR: And is what he said concerning Gas Company's concern about the potential of this prorationing change, was that a correct statement of Gas Company's concern why they're here? That's what I'm asking.

MR. CAMP: Yes, that is one of them. Yes.

MR. CARR: All right. That's all I ask.

EXAMINER STOGNER: Do you have any

other questions, Mr. Carr?

MR. CARR: Yes, I do, Mr. Stogner.

EXAMINER STOGNER: It's not as to Gas Company's standing, I would assume?

MR. CARR: We've got some other things that Mr. Lyon has discussed that I'd like to cross on, if I may.

EXAMINER STOGNER: Okay. At this point I do recognize Gas Company's standing here today. They have been a party to the C-111s.

MR. CARR: I don't intend to challenge that or raise that again.

EXAMINER STOGNER: Okay.

MR. CARR: Four letter words or otherwise.

EXAMINER STOGNER: You still have two that are owed to you, so you might want to use them.

MR. CARR: If I say "FERC" twice, will that do it?

Q. (BY MR. CARR) Mr. Lyon, you stated, if I understood your testimony, that the problem we face right now with prorationing is the system has really broken down at the moment; is that correct?

A. That's my view, yes.

Q. And that we really don't have data, the kinds of data we might have had at an earlier time as we dealt with prorationing?

A. It isn't available to me.

Q. When we get in this situation, one of the few things we have we can still look to is the production rates of wells and pools; isn't that right? We still have that?

A. Right -- well, you can go to the annual report or the monthly statistical reports to get it. We don't have the gas proration figures.

Q. We don't have those schedules, but we do have production information, although we don't have monthly sort of updates on where we are well by well?

A. Right.

Q. When you looked at this and conducted the review you have of the production trends in the South Blanco-Pictured Cliffs Pool, I believe you indicated that based on the data, admitting there were some problems potentially with the data, that there were approximately 326 non-marginal units in the pool at this time, or at least the last time you had data?

A. That's what the schedule shows.

Q. Looking at the schedule or any other information available to you, could you determine or were you able to determine how many of those wells were able to produce even 100 Mcf a day?

A. No, I did not -- did not look at that.

Q. Well, would it surprise you to know that not even 50 of them came?

A. No -- or at least I don't know about the capability, but I think that that wouldn't surprise me to learn that 50 or less did not produce.

Q. Now, other pools have been deprorated in the past?

A. Yes.

Q. And to the extent that you may be familiar with those, and you can tell me if you're not, are you aware of any pool that got down to just one non-marginal well before it was deprorated?

A. Yeah. Four or five.

Q. Which one?

A. In the southeast.

Q. In the southeast?

A. Yeah.

Q. Any of these other Pictured Cliffs pools hit that cutoff before they were deprorated, or do you know?

A. I doubt it. But I also do not recall exactly what the industry situation was at the time that brought up that deproration. Times change.

Q. In the prehearing statement filed and in response to some questions from Mr. Camp, you talked about non-discrimination between pools?

A. Yes.

Q. And if I understood your testimony, you weren't really making a recommendation on that today?

A. No.

Q. That's right. No, you were not making a recommendation?

A. No, I was not making a recommendation, and I wasn't alleging that there was any unreasonable discrimination between pools.

MR. CARR: All right. That's all I have.

EXAMINER STOGNER: Thank you, Mr. Carr.

Mr. Camp, any redirect?

MR. CAMP: No, sir.

EXAMINER STOGNER: Mr. Van Ryan?

MR. VAN RYAN: None.

EXAMINER STOGNER: I have no other questions of Mr. Lyon at this time. You may be excused.

Do you have anything else or any other witnesses?

MR. CAMP: No. No other witnesses.

EXAMINER STOGNER: Mr. Carr, do you wish to recall your witness or have any other witnesses?

MR. CARR: No, I do not. I have a brief closing.

EXAMINER STOGNER: Okay. Mr. Camp, I'll allow you to go first. And, Mr. Carr, I'll allow you to finish up with a couple of four letter words, if you'd like.

MR. CAMP: Just don't deprorate his ability to use that.

MR. CARR: I don't know anymore whether to say "deprorate" or "deproration," grammatically that is.

MR. CAMP: I think our position can be succinctly put that their own evidence shows that

takes are declining from the South Blanco-Pictured Cliffs Pool and that take is reflective of the market demand in our opinion.

The productive capability is not declining at that rate. And to deprorate it at this time, which they have testified will at least temporarily increase production, means that they've got to be taking the market demand away from somebody else.

First of all, you shouldn't be doing it because the market demand isn't there. But if you did do it, then you'd fall into the prohibition, or at least there needs to be an inquiry by this Division into if there is a finite market for all of northwestern New Mexico gas, who are they taking it away from? And is that reasonable, or is it unreasonable?

And everything that I've seen shows that the market demand is going to remain relatively stable. And there's a tremendous increase of deliverability that's going to come on from other sources of supply. And it's a statutory requirement that we in setting allowables shall prevent unreasonable discrimination.

The takes aren't there. But they want to increase production. Something has to give. I believe that, first of all, it's unnecessary because the market demand is not there. Second of all, because if it is, if they can increase their market share, it's going to have to be at the expense of somebody else.

And then finally I think the point that Mr. Lyon was trying to make is we really don't have really good data right now to determine whether they really are being adversely affected by the proration rules. I believe that within a fairly short time that data will become available.

As we draw it up from the C-115s and get another source of data, we will have that, and at that time let's consider it, see how they really are being affected by some good data. But at this time at a minimum it's premature. And if this Division thinks that it should go ahead, I think that there at least should be some inquiry into the effect on the market demand of other pools that are nearby.

And I point this out because we are a gas transportation facility that are connected to

almost, if not all those other Pictured Cliffs pools, we serve those areas too. And that is exactly what you're supposed to do under 70-2-16(d), is inquire into that area. Just make sure that unreasonable discrimination is not occurring. Thank you.

EXAMINER STOGNER: Thank you, Mr. Camp.

Mr. Carr.

MR. CARR: May it please the Examiner, UNOCAL is before you today seeking an order to terminate prorationing in the South Blanco-Pictured Cliffs Pool. We stand before you having pooled every operator in the pool and having not one dissenting vote.

The Gas Company has come in here today, and they have basically testified that the system is broke. I submit to you that is a good reason to step outside prorationing right now. They said they need more data; that we're working on the C-115s.

I'll tell you right now, our Exhibit No. 12 is a compilation of information from the C-115s. That work has been done, and we're standing before you at this point in time where

we've looked to the one thing we can rely on, the one thing that we can count on, and that's production information. And we've taken that and translated it so that we can show you that we have a low productivity reservoir and a reservoir that is substantially depleted.

In looking at these two things and comparing it to the precedent that was set in the mid-1970s, we submit to you that we have made not only a prima facie showing but a compelling showing that the time has come to deprorate this field.

Mr. Lyon says that he is not going to make a presentation or a recommendation concerning discrimination between fields. His attorney, however, keeps pointing to the fact that that's a charge in the statute.

Well, I would submit to you that when you look at the information that we've presented, if there is discrimination between fields, it's where you have pools correctively that have been deprorated or individually Pictured Cliffs pools have been deprorated in one pool.

And you can look at the South Blanco-Pictured Cliffs, and you can see it's

performing the same way and that it appears to be in the same reservoir. And if you deprorate some and you apply allowable limitations in the other, in the South Blanco, the pool that's being discriminated against is South Blanco.

And if you look at the statutory charge alone, I submit to you this pool must be deprorated. The reason it wasn't in 1974 was because of pressure variations in the pipelines that were connected and taking from the field. That doesn't exist anymore, so we're beyond that.

This pool at that time, if you look at our evidence, was producing at such a low rate that it actually in all respects qualified for deprorationing at that time, except for this pipeline problem, and that now is gone. And in the meantime the producing capability of average wells in the pool has dropped from somewhere near 100 to down to about 24. So, if anything, the case is more compelling today.

Gas Company didn't recommend you not grant our application. They just puzzled that it might be brought prematurely. We submit to you that when you look at this record and when you

look at your statutory charges, that you'll find you have to grant the application.

Your jurisdiction, whether it is in prorating or compulsory pooling or approving an unorthodox location, is to prevent waste. The only response we have from Mr. Lyon on waste was, well, it will affect it. This order could affect the way they do business. I fail to see how that meets a waste issue when what we're showing you is that if you deprorate, we remove an obstacle that will permit additional compression, will permit enhanced recovery techniques to be employed.

Now, we can't tell you that it happened on this particular well in another pool that was deprorated in 1974, but we have told you it was an impediment to efficient practices now and that, if you grant this application, these things will take place and that the ultimate recovery from the reservoir will be increased. That is a waste prevention matter. And under your statutory duty, we submit, on the waste issue, you must grant the application.

As to correlative rights, how do you look at correlative rights? Well, you take

production data; you take the best information you have; and you prepare volumetric calculations. And you say, in an old reservoir at these low producing rates with these low pressures, you can deprorate the best well in the pool, and you can take the cap off, and it cannot drain the acreage dedicated to it.

I submit to you in that circumstance we could not be violating the right of any operator in the pool or any owner in the pool to produce his just and fair share of the reserves. On the correlative grounds alone you must grant this application.

We've reviewed for you the benefits, and the benefits were simply encouragement of future development, avoidance of unnecessary curtailment of a few good wells, maintaining a market share, and avoiding ridiculous unnecessary paperwork.

On each and every one of these points, we've carried the burden, and we stand before you now asking you to follow the statute and grant this application.

I have been granted the opportunity by the Examiner to use four letter words twice, and

I will say, "FERC," "FERC" in closing.

EXAMINER STOGNER: Thank you, Mr. Carr.

Does anybody else have anything further in Case 521 at this time?

Just as a matter of record, was there an Exhibit No. 16?

MR. CARR: There was no Exhibit 16.

EXAMINER STOGNER: Let the record show there were Exhibits 15 and 17 but no 16.

As alluded to earlier, there was an advertisement error in the Observer. This case will be called on August 20, 1992. I don't expect any additional testimony to be given at that time. An order would then be subsequently issued. However, I'd like to take advantage, since we have two ex-OCD or OCC employees here, I'd like a rough draft between now and then, by August 20 from both parties for me to consider in the case. I'll take advantage of Mr. Carr's and Mr. Lyon's writing abilities in writing orders.

With that I will conclude this particular case. Let's take a ten-minute recess. We've got two additional cases to

consider, nomenclature and the Barber Oil.

Thank you gentlemen.

[And the proceedings were concluded.]

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10521, heard by me on 6 August 1992.

Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

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

I, Debbie Vestal, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I caused my notes to be transcribed under my personal supervision; 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 AUGUST 20, 1992.

Debbie Vestal

DEBBIE VESTAL, RPR
NEW MEXICO CSR NO. 3

NEW MEXICO OIL CONSERVATION DIVISION

STATE OF NEW MEXICO

CASE NO. 10521

IN THE MATTER OF:

The Application of Union Oil Company of California, d/b/a UNOCAL, for termination of gas prorationing in the South Blanco-Pictured Cliffs Pool, Rio Arriba, Sandoval, and San Juan Counties, New Mexico.

BEFORE:

DAVID R. CATANACH

Hearing Examiner

State Land Office Building

August 20, 1992

REPORTED BY:

DEBBIE VESTAL
Certified Shorthand Reporter
for the State of New Mexico

ORIGINAL

EXAMINER CATANACH: And at this time I'll call Case 10521, application of Union Oil Company of California, d/b/a UNOCAL, for termination of gas prorationing in the South Blanco-Pictured Cliffs Pool, Rio Arriba, Sandoval, and San Juan Counties, New Mexico.

Again I understand this case was heard on August 6 and was readvertised -- I'm sorry. It was not advertised in a certain newspaper and had to be continued for this time.

Are there additional appearances in this case at this time?

There being none, Case 10521 will be taken under advisement.

[And the proceedings were concluded.]

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10521, heard by me on August 20 1992.

David R. Catanach, Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

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

I, Debbie Vestal, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I caused my notes to be transcribed under my personal supervision; 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 AUGUST 24, 1992.

Debbie Vestal

DEBBIE VESTAL, RPR
NEW MEXICO CSR NO. 3