CASE 7240: EL PASO NATURAL GAS COMPANY FOR DOWNHOLE COMMINGLING, SAN JUAN COUNTY, NEW MEXICO

Case No.

7240

Application

Transcripts

Small Exhibits

ETC

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

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May 22, 1981

Mr. David Burleson, Attorney
El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas 79978

Re: CASE NO. 7240
ORDER NO. R-6688

Applicant:

El Paso Natural Gas Company

Dear Sir:

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

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCD X
Artesia OCD X
Aztec OCD X

Other

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 7240
Order No. R-6688

APPLICATION OF EL PASO NATURAL GAS
COMPANY FOR DOWNHOLE COMMINGLING,
SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on May 6, 1981, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 20th day of May, 1981, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, El Paso Natural Gas Company, is the owner and operator of the Sunray B Well No. 6 located in Unit G of Section 1, Township 30 North, Range 10 West, NMPM, San Juan County, New Mexico.

(3) That the applicant seeks authority to commingle Fruitland and Blanco-Pictured Cliffs production within the wellbore of the above-described well.

(4) That from the Fruitland zone, the subject well is expected to be capable of rapidly declining production only.

(5) That from the Blanco-Pictured Cliffs zone, the subject well is capable of low marginal production only.

(6) That the initial bottom-hole pressure in the Fruitland zone is expected to exceed a figure three times that of the Pictured Cliffs zone.

(7) That the Division has previously found that when bottom-hole pressures of zones to be commingled differ by a factor greater than two, potentially damaging crossflow between zones could occur if the well should be shut in.

(8) That there is no evidence available in the immediate area of the subject well to indicate how quickly the Fruitland pressure may be expected to decline.

(9) That there is no mechanism to assure the Division that said Sunray B Well No. 6 would not be shut-in following completion of the proposed downhole commingling.

(10) That to avoid the potential for waste the subject application should be denied.

IT IS THEREFORE ORDERED:

(1) That the application of El Paso Natural Gas Company to commingle Fruitland and Blanco-Pictured Cliffs production within the wellbore of the Sunray B Well No. 6, located in Unit G of Section 1, Township 30 North, Range 10 West, NMPM, San Juan County, New Mexico, is hereby denied.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

SEAL

fd/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
6 May 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of El Paso Natural Gas Company for downhole commingling, San Juan County, New Mexico.

CASE 7240

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: David T. Burleson, Esq.
EL PASO NATURAL GAS COMPANY
P. O. Box 1492
El Paso, Texas 79978

I N D E X

PAUL W. BURCHELL

E X H I B I T S

MR. STAMETS: We'll call next Case 7240.

MR. PADILLA: Application of El Paso Natural Gas Company for downhole commingling, San Juan County, New Mexico.

MR. BURLESON: David Burleson of El Paso Natural Gas Company in association with Montgomery and Andrews in the presentation of this case. You have a letter.

We'll have one witness.

(Witness sworn.)

PAUL W. BURCHELL

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

DIRECT EXAMINATION

BY MR. BURLESON:

Q. Would you please state your name and where you reside?

A. My name is Paul W. Burchell and I reside in El Paso, Texas.

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

A. I am employed by the El Paso Natural

Gas Company as the Senior Engineer in the Production Control Department.

Q. In that capacity have you previously testified before the Division?

A. Yes, I have.

Q. Were your qualifications accepted by the Division on those occasions?

A. They were.

Q. Are you familiar with the -- this case?

A. Yes, Case Number 7240, I am.

MR. BURLESON: Are the witness' qualifications acceptable to the Division?

MR. STAMETS: They are.

Q. Mr. Burchell, who is operator of the well that's involved in this case?

A. El Paso Natural Gas Company is the operator.

Q. Why is El Paso seeking the permission which is the subject of this Case 7240?

A. The -- we are seeking permission to perforate the Fruitland formation and downhole commingle this production with production from existing Blanco-Pictured Cliffs gas, and we would like to produce this gas through one meter and particularly in our Sunray B No. 6 Well.

This well is located in Unit G of Section 1, Township 30 North, Range 10 West, San Juan County, New Mexico.

This well presently produces from the Pictured Cliffs formation as a slimhole completed well. El Paso proposes that the allocation of gas to each formation be divided in such a manner that I will explain later on in my testimony.

Q. What would be the benefit of the grant of this application?

A. Downhole commingling is considered by El Paso to be the most economic and conservative method to undertake due to the very low productivity in -- that we see in the Pictured Cliffs zone, and a low productivity that we expect to see in the Blanco -- or in the Fruitland zone.

And, of course, also it would be to our advantage economically to be able to re-enter this well rather than drill an offset well.

Q. Have you prepared an exhibit or had one prepared under your supervision indicating the equipment presently in the well?

A. Yes, I have.

Q. Would you please refer to that exhibit and indicate what it shows?

A. The first exhibit, it is a digrammatic sketch of the equipment which has been marked as El Paso Natural Gas Company's Exhibit Number One.

The exhibit shows that the Pictured Cliffs zone in the Sunray B No. 6 Well produces gas into a slimhole completed well with only 2-7/8ths inch casing set at 3181 feet.

The well is perforated from 3373 to 3394 in the Pictured Cliffs Pool. El Paso is seeking approval at this hearing to perforate three sandstone intervals located in the Fruitland from 3034 feet 3140 feet and commingle its production with that of the Pictured Cliffs.

Now, as noted on the exhibit, the top of the cement behind the 2-7/8ths inch casing is unknown because of lost circulation that was encountered while conducting the cementing job.

If we were granted permission to commingle the Fruitland one of the first things that El Paso would conduct would be to run a cement bond log.

Q. Is there any other Fruitland production in the area presently?

A. Yes, there is some production in the area. There's two fields, the Aztec Fruitland and the Blanco Fruitland Fields. They're located approximately two miles

south and southeast of the Sunray B No. 6 Well.

Q. Do you have an exhibit which indicates the producing characteristics of the Fruitland formation in this area?

A. Yes. Mr. Examiner, before we go into the Fruitland characteristic, I do have one exhibit marked Number Two, and it shows the characteristic of the existing Pictured Cliffs that is perforated, and before we go to the Fruitland, I'd like to point out that on Exhibit Number Two, that El Paso Natural Gas Company has prepared.

It shows the Pictured Cliffs formation and its gas production performance since 1971, which was the first year of production.

The -- on Exhibit Two the bottom part of the curve shows the year and time that the well was producing at certain rates, which is, the rate is shown on the lefthand side of the curve and is marked as yearly daily average Mcf of gas per day.

The formation declined under normal conditions to the present time. The well commenced producing gas at a rate in excess of a million cubic feet of gas per day and then in 1981, at the present time, it's producing around 100 Mcf of gas per day.

And to go back to the Fruitland's char-

acteristic production on Exhibit Number Three, the -- El Paso has prepared this exhibit to show the Fruitland's pressure and production decline curves, and this is in our EPNG well called the Turner No. 5, and this well is located in Unit F of Section 18, Township 30 North, Range 9 West, and it's about two miles south of the Sunray B No. 6 Well.

The figures on this graph are shown thusly: The time element is on the bottom of the graph. The two curves are shown, the solid black line of the lower curve is the Fruitland's production, and its production rate is shown on the lefthand side of the graph, and it's plotted in monthly daily average Mcf of gas per day.

And the upper curve, which is a dashed line, is the Fruitland's pressure decline, and its points are plotted with those values shown on the righthand side of the curve, and it's marked as shut-in pressure in pounds per square inch.

The lower curve, or the Fruitland's gas production, it declined under normal conditions from the time of first production in January of 1979 to the present time. The well commenced producing gas at a rate in excess of a little over 700 Mcf per day and it has now declined to around 100 Mcf of gas per day.

Now, with respect to the Fruitland's

pressure, which is the dashed line or the upper curve, the Fruitland's original shut-in pressure in this particular well was taken right after the well had been completed in 1978, and it was found to be 1009 psia.

After one month of production the well was again tested in February, 1979, and its shut-in pressure had declined to 631 pounds per square inch absolute.

The well produced a cumulative volume of 21MMCF of gas during this period and it resulted in a 378 psia decrease in the original shut-in pressure.

Now this well, or the Turner No. 5 Well, continued the pressure decline until June of 1980, when the test at that time showed the shut-in pressure to be 375 pounds after producing 118 MMCF of gas cumulative. This resulted in a 634 pound decrease in the original shut-in pressure.

Q. What conclusions do you draw from examination of Exhibits Two and Three?

A. In my opinion the flow rates for both the Pictured Cliffs and the Fruitland are small in this area. On Exhibit Number Two for the Sunray B No. 6 Well volume of production from the Pictured Cliffs is about 100 Mcf per day at the present time, and on Exhibit Number Three for the Turner No. 5 Well the volume of production from the Fruitland is also around 100 Mcf of gas per day.

Both zones are classified as non-prorated and if approval for commingling is granted, we can expect the Sunray B No. 6 Well to make a combined gas production rate of approximately 200 Mcf of gas per day after the well has been on production, say, for from 20 to 24 months.

Q. And I suppose you would expect a larger volume at least for the first few months?

A. Yes, oh, definitely.

I would like to point out that although I used the Turner No. 5 Well, there were other Fruitland wells in the area that I also could have used as an example. These other wells, their production and pressure characteristics were very similar to this well, but the Turner No. 5 Well just happened to be the closest producer that we had complete data.

A study of these Fruitland wells, of all the wells in the area, resulted in an original average shut-in pressure estimated at 990 psia. Now this is approximately what we would encounter,or expect to encounter, in the Sunray B No. 6 Well. The corresponding bottom hole pressure of this average Fruitland pressure, 990 psia, the bottom hole pressure is estimated to be 1262 psia.

Now, based on the extrapolation of state tests, the Pictured Cliffs in the Sunray well has a

wellhead shutin pressure of 295 pounds with a corresponding bottom hole pressure estimated at 334 pounds per square inch absolute. And that is as of January the 1st, 1981.

Now the ratio of these estimated bottom hole pressures is 3.78 to 1. Although this pressure differential appears high, I believe that because of the rapid pressure decline in the Fruitland, as shown on Exhibit Number Three, that there would be very little possibility of cross flow after the well has produced gas for about 18 months.

It should be noted that both zones will be open to a pipeline pressure of 125 psia, which will -- and this, of course, in my opinion, will prevent any migration of gas from one zone to the other during this first eighteen months.

Q. Mr. Burchell, looking again at Exhibit Number Three, after the first full month of production the bottom hole pressure ratio between the Fruitland and the Pictured Cliffs would be reduced to approximately two, would it not?

A. Let's see, the bottom hole?

Q. Two to one.

A. On the Fruitland?

Q. Okay, after the Fruitland formation is produced for one full month --

A. Okay, this --

Q. -- what would be the ratio at that point between the Fruitland bottom hole pressure and the Pictured Cliffs bottom hole pressure, utilizing, of course, wellhead shutin pressures?

A. Well, offhand, let's see, the first month it dropped down almost 400 pounds pressure, full month production, so if the bottom hole was -- it would be a little over two to one ratio, a little, just a little over.

Q. In other words you had the 631 as compared with the Pictured Cliff corresponding pressure of 295.

A. 295.

Q. So it would be just a little over two to one.

A. That's right.

Q. Then after six months, of course, it would be considerably less than two to one, would it not?

A. Yes. Let's see, six months, that would be July when it dropped down?

Q. July, 1979. At that point the ratio would be --

A. 457 versus 290 that we're looking at.

Q. Right, so that would be what, one and a half, or in that range?

A. Yeah, a little less than two to one.

Q. Two to one. And you have indicated that the well would be produced continuously, at least for this period of time.

A. Right. We anticipate to have this well on production continuously at all times.

Q. And you would not object to any provision in the order which would require immediate notification of the Commission if within the first year period, for instance, the well should be shut in for any reason?

A. You mean like if it were one day or two days that we would --

Q. Yes.

A. No, we would still, we'd have no problem notifying the Division office and advising them immediately when the well would have to be shut in.

Q. Do you have any information regarding fluid production from either of these two formations or anticipated fluid production?

A. Yes, I do. There's very little to discuss.

The Pictured Cliffs zone in the Sunray B No. 6 Well made 238 barrels of condensate, and that was over for an eight year period, from 1971 to 1978. And then

for the years 1979 to the present time both condensate and water production has remained too small to measure; a very, very light spray, and we're unable to measure its true volume.

The Fruitland zone in the Turner No. 5 Well on Exhibit Number Three, it basically produces dry gas and it has no measurable condensate or water, either.

Q. Do you think it's significant that there is not water, appreciable water or condensate production here which conceivably could be of some problem with our cross flow by reason of the pressure differential?

A. Well, certainly any time you do produce dry gas from both zones it will -- you'd have less danger of the well being shut in and cross flowing taking place, and you would have less danger of any reservoir damage to one formation or the other because of water in particular.

Q. In other words, even if there were cross flow of gas, there should not be any cross flow of liquids.

A. Right.

Q. Because there are no liquids to any degree --

A. We don't expect --

Q. -- from either of the two zones?

A. Yes, sir.

Q. Do you believe these fluid and pressure characteristics would be compatible should commingling be approved?

A. Yes, sir. Because of the rapid pressure decline in the Fruitland and the absence of liquids, I would not expect any migration of gas or liquids from one formation to the other. The only time there would be a problem is if the well were shut in shortly after the workover; however, we plan to continuously, you know, continuously produce this well at all times.

Q. What do you think are the main advantages which would flow from grant of this application and permission to commingle the two zones?

A. There are really two main advantages. The first advantage, of course, is eliminating the element of risk. Because of the lenticular nature of the sandstones in the Fruitland formation there is a possibility of missing the developed sands that we now presently see on the logs, and we could miss them by offsetting the Sunray Well and drilling a new one.

The second advantage, of course, is economics and the savings of not drilling a new well. To drill and complete a new Fruitland will cost about $112,800; however, it will only cost about $42,000 to downhole commingle

the Fruitland with the Pictured Cliffs. This would be a savings of $70,800.

Q. The implication in your answer is that the Fruitland formation is particularly well developed in the wellbore in this existing well, is that correct?

A. Yes, as we observed while drilling the well and then subsequently after logging the well.

Q. And this is a very significant factor in the determination to attempt to obtain approval to commingle in this existing wellbore.

A. Yes, it is.

Q. That, coupled with the very highly lenticular nature.

A. Right.

Q. Of the Fruitland formation in this area has caused our geological staff to recommend very strongly that this well, existing wellbore, be utilized.

A. Yes, they very definitely have pointed that out, that they would prefer not to drill a well because of that risk.

Q. And although the economic saving is considerable, the immediate economic saving in commingling as opposed to drilling a new Fruitland test, probably the more important consideration is the presence of this well

developed Fruitland formation in this wellbore?

A. Yes, definitely.

Q. If Division approval were granted, do you propose a formula by which the gas and condensate production would be apportioned between the two producing zones?

A. Yes, sir. It is recommended that prior to workover and in consultation with the NMOCC's supervisor in the Aztec District, that the Pictured Cliffs gas volume be averaged for the last three months prior to the workover and that after the workover this production figure would be allocated to the Pictured Cliffs and all remaining gas be allocated to the Fruitland formation, and do this for a period of nine months. And at the end of nine months whatever that well's average daily production for the last three months of that nine month period, that value could then be used to formulate a percentage allocation, and this percentage allocation should then be used for the remainder of the life of the well.

Q. Would you take an example and indicate how this would work for the Examiner?

A. This a hypothetical?

Q. Yes. Like you make up your own figures and indicate hypothetically how it would work.

A. Well, let's say the last three -- let's say we were to work over the Sunray Well right now. The last three months this well has averaged 100 Mcf of gas.

Q. In other words --

A. Per day.

Q. Assume that the last three months production immediately prior to workover was an average of 100 Mcf per day.

A. Right.

Q. Okay.

A. Okay, now the workover has been completed and the well's been perforated, stimulated, and it's on production, you're going to have a lot higher production. You're going to have some figure like 600 - 700 Mcf of gas per day.

Q. Let's assume 700.

A. Okay, well, okay. The first 100 would be allocated to the Pictured Cliffs and the remaining 600 Mcf would be allocated to the Fruitland, and we would do --

Q. Over what period of time?

A. And we would do this month after month after month for a period of nine months. And then let's say the last three months of that nine month period the well commingled a total amount of production of, say, 300, it

averaged 300 Mcf total.

Then what we would then do is put our ratio of 100 Mcf for the Pictured Cliffs, 200 Mcf for the Fruitland, and that percentage would work out to be 33-1/3 percent for the PC and 66-1/3 percent for the Fruitland, and it is that percentage that we would then use for all time after that nine month, first nine month period; for the rest of the life of the well.

Q. Would you please indicate the ownership of production from the well as to both zones?

A. Yes, sir. El Paso Natural Gas Company owns 100 percent working interest and it is in both formations. One Federal lease, USA-SF078208, covers the entire 150.9 acres dedicated to the well.

There are overriding royalty interests amounting to 6. -- excuse me, amounting to 4.6 percent, which are common in both zones. Now we have contacted all of the overriding royalty owners and they have given their consent to this commingling proposal.

MR. STAMETS: Was the answer to that question that the ownership is common in both zones?

A. That's what I understand from the overriding royalty; it is common.

MR. STAMETS: Okay, and all the owner-

ship is common?

A. Yes. Right.

Q. In other words, the working interest ownership is all El Paso Natural Gas, is that right?

A. Yes, working interest ownership is all El Paso.

Q. And the lease involved is just one Federal lease, and then you're --

A. Yes, sir.

Q. -- saying that the overriding royalty interest is also common.

A. Right.

Q. Right. Let me just return to your allocation formula and the logic that lies behind it for just a second, Mr. Burchell.

MR. STAMETS: I don't really think that's necessary for this case.

MR. BURLESON: Okay.

MR. STAMETS: I don't really foresee that that's an issue. I believe that El Paso and our District Supervisor --

MR. BURLESON: Right.

MR. STAMETS: -- are perfectly qualified to figure out how much goes to which zone.

MR. BURLESON: Thank you.

Q. Do you have any knowledge of similar -- the approval of similar applications for commingling in this general area?

A. Yes, sir. In Case Number 6644 Tenneco Oil Corporation applied for Pictured Cliffs and Fruitland downhole commingling and it was in their State "K" Com Well No. 12.

This well is located in Unit E of Section 16, Township 30 North, Range 9 West, San Juan County, and it is approximately three miles southeast of the Sunray B No. 6 Well.

Now this case was approved by the Division in October the 18th, 1979, in Order No. R-6154.

Q. In your opinion would the granting of this application protect correlative rights and prevent waste?

A. Yes, sir.

Q. Do you have anything further in this case?

A. No, sir.

Q. Were Exhibits One, Two, and Three prepared by you or under your supervision?

A. Yes, they were.

MR. BURLESON: Mr. Examiner, this com-

pletes our direct examination and we move the introduction of the exhibits.

MR. STAMETS: The exhibits will be admitted.

CROSS EXAMINATION

BY MR. STAMETS:

Q. Mr. Burchell, when the workover is completed will the Pictured Cliffs zone be blanked off during the process?

A. Oh, yes, sir, we do intend to blank it off.

Q. Okay. Is there any reason that you couldn't produce the Fruitland separately until the shut in pressure declines to a figure less than the magic 100 percent?

A. Rather than drilling out that plug?

Q. Right.

A. I -- sounds easy enough. At a different period of time we'd have to bring another -- another workover rig and it would be just an additional expense and a period of time would be involved that we would not realize production from the Pictured Cliffs.

That's the only objection.

MR. BURLESON: Was that a significant

objection?

A. To my it would be if it was my money out of my own wallet, and I'm certainly --

Q. Realizing El Paso's good intentions, is there any practical way that the Division can assure itself that this well wouldn't be shut in any time in the next eighteen months?

A. The only thing I would -- that we would even -- we need the gas and so it isn't a problem with supply and demand. We will take all the gas that that well will produce, number one.

Number two, the only thing I can foresee is some pipeline failure, plant failure, going down, and as I indicated earlier, we would let the Aztec office know about it the day it happened and give you an indication of an hour, is it going to be down two hours, a day, six days, what, and then we would have to take immediate action if it looks like it's going to be anything over, say, a week, or something like that. We'd have to do something whether we like it or not. We would be that prudent of an operator that if it was going to be an awfully long time, that we'd have to re-enter the well to correct it.

Q. But even the best systems go wrong, don't they, Mr. Burchell?

A. They certainly do.

Q. And short of stationing a man out there, none of us would know that it would work that way.

A. Well, our production people would know.

Q. And they've never made a mistake. Never mind.

A. I plead the fifth.

Q. At this point, even though you've made some reasonable estimates, we really don't know what the Fruitland pressure is going to be or what it's going to produce as far as liquids or hydrocarbon gas.

A. The only thing that we can, you know, use is existing information and there were other Fruitland wells in the area and their pressures were all around 1000 pounds per square inch, initial shut in pressure. They had rapid decline in that pressure in the first few months of production; they have a rapid decline. And there were more than one well to look that are in the area.

I feel confident that -- that this well should react in the same -- have the same characteristics.

Q. Nevertheless, we still don't know what this well is going to do.

A. No, we certainly don't.

Q. We have no production history on it at

all.

A. No, except, well, just the Pictured Cliffs portion.

Q. Or any immediate offsets.

A. No. The Fruitland, of course, we would know pretty quickly after we -- we perforated it and started commingling. I think the Aztec office could recognize what is the total volume. Well, let's see, like the Fruitland came in around 700 and the Pictured Cliffs is around 100, so we would expect something around 800 cubic feet of gas per day being produced, and I'm sure that if it comes in a lot higher than that, a real, what I would call a barnburner, that again we'd have to take some very drastic actions. That -- that decision could be made by the District office at the time we complete it. In fact, we could make it a point to have a representative of the District office there to see just exactly how big of a well this is going to be.

MR. BURLESON: Mr. Examiner, could I ask a question or two of the witness?

MR. STAMETS: Certainly.

REDIRECT EXAMINATION

BY MR. BURLESON:

Q. I think, Mr. Burchell, there is an in-

ference here that we wouldn't know what the Fruitland is producing after this commingling has occurred, after the workover has occurred and after commingling has occurred.

Well, we could fairly well ascertain what that -- what it would be producing, could we not --

A. Yeah, that's what --

Q. -- because we know what the Pictured Cliffs is producing and we know it's going to be producing essentially the same thing and we know that to the extent the well is then producing more, that the difference --

A. That's what I tried to say.

Q. -- comes from the Fruitland.

A. That's what I thought I pointed out.

Q. Right.

A. To the Examiner, is that if it does come in a combined total of, say, 700 plus 100, 800 Mcf, we know that our estimates were reasonable and that if it comes in much, much higher, then that would cause the alarm button to be pressed by the Division's office and we would have to do something.

Q. But by the same token, by utilizing -- by viewing the production through time after its completion of the commingling operation, you'll know essentially how the Fruitland is -- production is dropping off.

A. Right.

Q. You'd have a clear idea of that, too, would you not?

A. Yes, because we do know the characteristics of the decline.

Q. I guess it is true that we wouldn't know the pressure that initially existed in the Fruitland. That is true, is it not, under our proposed methodology here?

A. Well --

Q. We wouldn't know the wellhead shut in pressure, would we, that existed --

A. We would know the total. We -- we could find out -- we could find out initially what the well shut in pressure is after the workover is complete. We can -- we could get a point right there; take a very short test and find out. I would prefer not to make it an extended test because we're just trying to avoid the well being shut in, but if the Commission wants us to take a pressure test, then we can.

Q. Would that tell us something about the --

A. Well, it will give us a very good idea of what we're looking at.

Q. Of the wellhead shut in pressure of the

Fruitland formation?

A. It will give us a -- yeah, it will tell us pretty closely, because we know what it is now. It's 290, so anything above that is -- is added on to the -- by the Fruitland.

MR. STAMETS: Any other questions of the witness? Mr. Chavez.

MR. CHAVEZ: Yes.

QUESTIONS BY MR. CHAVEZ:

Q. Mr. Burchell, you were saying that the Fruitland sands were very lenticular and there's a possibility of missing that sand if you try and drill another well.

Based on that is it -- how do you conclude that it's feasible to use an offset Fruitland well, say, a mile and a half away or three miles away?

A. Well, they're all characteristic like that, and even those Fruitland wells, they themselves are isolated type lenticular sands. I meant no inference that they're -- that these sands in this well are tied to the sands two miles away at all.

It's a podular type sedimentation out there.

Q. But even though they are pods, they are

similar characteristics?

A. I have made that estimate and it sure looks like it from the several Fruitland wells that have been completed to the south and southeast.

MR. CHAVEZ: That's all I have.

MR. STAMETS: Any other questions of this witness? He may be excused.

Anything further in this case?

The case will be taken under advisement.

(Hearing concluded.)

C E R T I F I C A T E

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

Sally W. Boyd CSR

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7240, heard by me on 5-6, 1981.

Richard L. Stamets, Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
6 May 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of El Paso Natural Gas Company for downhole commingling, San Juan County, New Mexico.

CASE 7240

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: David T. Burleson, Esq.
EL PASO NATURAL GAS COMPANY
P. O. Box 1492
El Paso, Texas 79978

I N D E X

E X H I P I T S

MR. STAMETS: We'll call next Case 7240.

MR. PADILLA: Application of El Paso Natural Gas Company for downhole commingling, San Juan County, New Mexico.

MR. BURLESON: David Burleson of El Paso Natural Gas Company in association with Montgomery and Andrews in the presentation of this case. You have a letter.

We'll have one witness.

(Witness sworn.)

PAUL W. BURCHELL

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

DIRECT EXAMINATION

BY MR. BURLESON:

Q. Would you please state your name and where you reside?

A. My name is Paul W. Burchell and I reside in El Paso, Texas.

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

A. I am employed by the El Paso Natural

Gas Company as the Senior Engineer in the Production Control Department.

Q. In that capacity have you previously testified before the Division?

A. Yes, I have.

Q. Were your qualifications accepted by the Division on those occasions?

A. They were.

Q. Are you familiar with the -- this case?

A. Yes, Case Number 7240, I am.

MR. BURLESON: Are the witness' qualifications acceptable to the Division?

MR. STAMETS: They are.

Q. Mr. Burchell, who is operator of the well that's involved in this case?

A. El Paso Natural Gas Company is the operator.

Q. Why is El Paso seeking the permission which is the subject of this Case 7240?

A. The -- we are seeking permission to perforate the Fruitland formation and downhole commingle this production with production from existing Blanco-Pictured Cliffs gas, and we would like to produce this gas through one meter and particularly in our Sunray B No. 6 Well.

This well is located in Unit G of Section 1, Township 30 North, Range 10 West, San Juan County, New Mexico.

This well presently produces from the Pictured Cliffs formation as a slimhole completed well. El Paso proposes that the allocation of gas to each formation be divided in such a manner that I will explain later on in my testimony.

Q. What would be the benefit of the grant of this application?

A. Downhole commingling is considered by El Paso to be the most economic and conservative method to undertake due to the very low productivity in -- that we see in the Pictured Cliffs zone, and a low productivity that we expect to see in the Blanco -- or in the Fruitland zone.

And, of course, also it would be to our advantage economically to be able to re-enter this well rather than drill an offset well.

Q. Have you prepared an exhibit or had one prepared under your supervision indicating the equipment presently in the well?

A. Yes, I have.

Q. Would you please refer to that exhibit and indicate what it shows?

A. The first exhibit, it is a digrammatic sketch of the equipment which has been marked as El Paso Natural Gas Company's Exhibit Number One.

The exhibit shows that the Pictured Cliffs zone in the Sunray B No. 6 Well produces gas into a slimhole completed well with only 2-7/8ths inch casing set at 3481 feet.

The well is perforated from 3373 to 3394 in the Pictured Cliffs Pool. El Paso is seeking approval at this hearing to perforate three sandstone intervals located in the Fruitland from 3034 feet 3140 feet and commingle its production with that of the Pictured Cliffs.

Now, as noted on the exhibit, the top of the cement behind the 2-7/8ths inch casing is unknown because of lost circulation that was encountered while conducting the cementing job.

If we were granted permission to commingle the Fruitland one of the first things that El Paso would conduct would be to run a cement bond log.

Q. Is there any other Fruitland production in the area presently?

A. Yes, there is some production in the area. There's two fields, the Aztec Fruitland and the Blanco Fruitland Fields. They're located approximately two miles

south and southeast of the Sunray B No. 6 Well.

Q Do you have an exhibit which indicates the producing characteristics of the Fruitland formation in this area?

A Yes. Mr. Examiner, before we go into the Fruitland characteristic, I do have one exhibit marked Number Two, and it shows the characteristic of the existing Pictured Cliffs that is perforated, and before we go to the Fruitland, I'd like to point out that on Exhibit Number Two, that El Paso Natural Gas Company has prepared.

It shows the Pictured Cliffs formation and its gas production performance since 1971, which was the first year of production.

The -- on Exhibit Two the bottom part of the curve shows the year and time that the well was producing at certain rates, which is, the rate is shown on the lefthand side of the curve and is marked as yearly daily average Mcf of gas per day.

The formation declined under normal conditions to the present time. The well commenced producing gas at a rate in excess of a million cubic feet of gas per day and then in 1981, at the present time, it's producing around 100 Mcf of gas per day.

And to go back to the Fruitland's char-

acteristic production on Exhibit Number Three, the -- El Paso has prepared this exhibit to show the Fruitland's pressure and production decline curves, and this is in our EPNG well called the Turner No. 5, and this well is located in Unit F of Section 18, Township 30 North, Range 9 West, and it's about two miles south of the Sunray B No. 6 Well.

The figures on this graph are shown thusly: The time element is on the bottom of the graph. The two curves are shown, the solid black line of the lower curve is the Fruitland's production, and its production rate is shown on the lefthand side of the graph, and it's plotted in monthly daily average Mcf of gas per day.

And the upper curve, which is a dashed line, is the Fruitland's pressure decline, and its points are plotted with those values shown on the righthand side of the curve, and it's marked as shut-in pressure in pounds per square inch.

The lower curve, or the Fruitland's gas production, it declined under normal conditions from the time of first production in January of 1979 to the present time. The well commenced producing gas at a rate in excess of a little over 700 Mcf per day and it has now declined to around 100 Mcf of gas per day.

Now, with respect to the Fruitland's

pressure, which is the dashed line or the upper curve, the Fruitland's original shut-in pressure in this particular well was taken right after the well had been completed in 1978, and it was found to be 1009 psia.

After one month of production the well was again tested in February, 1979, and its shut-in pressure had declined to 631 pounds per square inch absolute.

The well produced a cumulative volume of 21MMCF of gas during this period and it resulted in a 378 psia decrease in the original shut-in pressure.

Now this well, or the Turner No. 5 Well, continued the pressure decline until June of 1980, when the test at that time showed the shut-in pressure to be 375 pounds after producing 118 MMCF of gas cumulative. This resulted in a 634 pound decrease in the original shut-in pressure.

Q. What conclusions do you draw from examination of Exhibits Two and Three?

A. In my opinion the flow rates for both the Pictured Cliffs and the Fruitland are small in this area. On Exhibit Number Two for the Sunray B No. 6 Well volume of production from the Pictured Cliffs is about 100 Mcf per day at the present time, and on Exhibit Number Three for the Turner No. 5 Well the volume of production from the Fruitland is also around 100 Mcf of gas per day.

Both zones are classified as non-prorated and if approval for commingling is granted, we can expect the Sunray B No. 6 Well to make a combined gas production rate of approximately 200 Mcf of gas per day after the well has been on production, say, for from 20 to 24 months.

Q And I suppose you would expect a larger volume at least for the first few months?

A Yes, oh, definitely.

I would like to point out that although I used the Turner No. 5 Well, there were other Fruitland wells in the area that I also could have used as an example. These other wells, their production and pressure characteristics were very similar to this well, but the Turner No. 5 Well just happened to be the closest producer that we had complete data.

A study of these Fruitland wells, of all the wells in the area, resulted in an original average shut-in pressure estimated at 990 psia. Now this is approximately what we would encounter, or expect to encounter, in the Sunray B No. 6 Well. The corresponding bottom hole pressure of this average Fruitland pressure, 990 psia, the bottom hole pressure is estimated to be 1262 psia.

Now, based on the extrapolation of state tests, the Pictured Cliffs in the Sunray well has a

wellhead shutin pressure of 295 pounds with a corresponding bottom hole pressure estimated at 334 pounds per square inch absolute. And that is as of January the 1st, 1981.

Now the ratio of these estimated bottom hole pressures is 3.78 to 1. Although this pressure differential appears high, I believe that because of the rapid pressure decline in the Fruitland, as shown on Exhibit Number Three, that there would be very little possibility of cross flow after the well has produced gas for about 18 months.

It should be noted that both zones will be open to a pipeline pressure of 125 psia, which will -- and this, of course, in my opinion, will prevent any migration of gas from one zone to the other during this first eighteen months.

Q. Mr. Burchell, looking again at Exhibit Number Three, after the first full month of production the bottom hole pressure ratio between the Fruitland and the Pictured Cliffs would be reduced to approximately two, would it not?

A. Let's see, the bottom hole?

Q. Two to one.

A. On the Fruitland?

Q. Okay, after the Fruitland formation is produced for one full month --

A. Okay, this --

Q. -- what would be the ratio at that point between the Fruitland bottom hole pressure and the Pictured Cliffs bottom hole pressure, utilizing, of course, wellhead shutin pressures?

A. Well, offhand, let's see, the first month it dropped down almost 400 pounds pressure, full month production, so if the bottom hole was -- it would be a little over two to one ratio, a little, just a little over.

Q. In other words you had the 631 as compared with the Pictured Cliff corresponding pressure of 295.

A. 295.

Q. So it would be just a little over two to one.

A. That's right.

Q. Then after six months, of course, it would be considerably less than two to one, would it not?

A. Yes. Let's see, six months, that would be July when it dropped down?

Q. July, 1979. At that point the ratio would be --

A. 457 versus 290 that we're looking at.

Q. Right, so that would be what, one and a half, or in that range?

A. Yeah, a little less than two to one.

Q. Two to one. And you have indicated that the well would be produced continuously, at least for this period of time.

A. Right. We anticipate to have this well on production continuously at all times.

Q. And you would not object to any provision in the order which would require immediate notification of the Commission if within the first year period, for instance, the well should be shut in for any reason?

A. You mean like if it were one day or two days that we would --

Q. Yes.

A. No, we would still, we'd have no problem notifying the Division office and advising them immediately when the well would have to be shut in.

Q. Do you have any information regarding fluid production from either of these two formations or anticipated fluid production?

A. Yes, I do. There's very little to discuss.

The Pictured Cliffs zone in the Sunray B No. 6 Well made 238 barrels of condensate, and that was over for an eight year period, from 1971 to 1978. And then

for the years 1979 to the present time both condensate and water production has remained too small to measure: a very, very light spray, and we're unable to measure its true volume.

The Fruitland zone in the Turner No. 5 Well on Exhibit Number Three, it basically produces dry gas and it has no measurable condensate or water, either.

Q. Do you think it's significant that there is not water, appreciable water or condensate production here which conceivably could be of some problem with our cross flow by reason of the pressure differential?

A. Well, certainly any time you do produce dry gas from both zones it will -- you'd have less danger of the well being shut in and cross flowing taking place, and you would have less danger of any reservoir damage to one formation or the other because of water in particular.

Q. In other words, even if there were cross flow of gas, there should not be any cross flow of liquids.

A. Right.

Q. Because there are no liquids to any degree --

A. We don't expect --

Q. -- from either of the two zones?

A. Yes, sir.

Q. Do you believe these fluid and pressure characteristics would be compatible should commingling be approved?

A. Yes, sir. Because of the rapid pressure decline in the Fruitland and the absence of liquids, I would not expect any migration of gas or liquids from one formation to the other. The only time there would be a problem is if the well were shut in shortly after the workover; however, we plan to continuously, you know, continuously produce this well at all times.

Q. What do you think are the main advantages which would flow from grant of this application and permission to commingle the two zones?

A. There are really two main advantages. The first advantage, of course, is eliminating the element of risk. Because of the lenticular nature of the sandstones in the Fruitland formation there is a possibility of missing the developed sands that we now presently see on the logs, and we could miss them by offsetting the Sunray Well and drilling a new one.

The second advantage, of course, is economics and the savings of not drilling a new well. To drill and complete a new Fruitland will cost about $112,800; however, it will only cost about $42,000 to downhole commingle

the Fruitland with the Pictured Cliffs. This would be a savings of $70,800.

Q. The implication in your answer is that the Fruitland formation is particularly well developed in the wellbore in this existing well, is that correct?

A. Yes, as we observed while drilling the well and then subsequently after logging the well.

Q. And this is a very significant factor in the determination to attempt to obtain approval to commingle in this existing wellbore.

A. Yes, it is.

Q. That, coupled with the very highly lenticular nature.

A. Right.

Q. Of the Fruitland formation in this area has caused our geological staff to recommend very strongly that this well, existing wellbore, be utilized.

A. Yes, they very definitely have pointed that out, that they would prefer not to drill a well because of that risk.

Q. And although the economic saving is considerable, the immediate economic saving in commingling as opposed to drilling a new Fruitland test, probably the more important consideration is the presence of this well

developed Fruitland formation in this wellbore?

A. Yes, definitely.

Q. If Division approval were granted, do you propose a formula by which the gas and condensate production would be apportioned between the two producing zones?

A. Yes, sir. It is recommended that prior to workover and in consultation with the NMOCC's supervisor in the Aztec District, that the Pictured Cliffs gas volume be averaged for the last three months prior to the workover and that after the workover this production figure would be allocated to the Pictured Cliffs and all remaining gas be allocated to the Fruitland formation, and do this for a period of nine months. And at the end of nine months whatever that well's average daily production for the last three months of that nine month period, that value could then be used to formulate a percentage allocation, and this percentage allocation should then be used for the remainder of the life of the well.

Q. Would you take an example and indicate how this would work for the Examiner?

A. This a hypothetical?

Q. Yes. Like you make up your own figures and indicate hypothetically how it would work.

A. Well, let's say the last three -- let's say we were to work over the Sunray Well right now. The last three months this well has averaged 100 Mcf of gas.

Q. In other words --

A. Per day.

Q. Assume that the last three months production immediately prior to workover was an average of 100 Mcf per day.

A. Right.

Q. Okay.

A. Okay, now the workover has been completed and the well's been perforated, stimulated, and it's on production, you're going to have a lot higher production. You're going to have some figure like 600 - 700 Mcf of gas per day.

Q. Let's assume 700.

A. Okay, well, okay. The first 100 would be allocated to the Pictured Cliffs and the remaining 600 Mcf would be allocated to the Fruitland, and we would do --

Q. Over what period of time?

A. And we would do this month after month after month for a period of nine months. And then let's say the last three months of that nine month period the well commingled a total amount of production of, say, 300, it

averaged 300 Mcf total.

Then what we would then do is put our ratio of 100 Mcf for the Pictured Cliffs, 200 Mcf for the Fruitland, and that percentage would work out to be 33-1/3 percent for the PC and 66-1/3 percent for the Fruitland, and it is that percentage that we would then use for all time after that nine month, first nine month period; for the rest of the life of the well.

Q. Would you please indicate the ownership of production from the well as to both zones?

A. Yes, sir. El Paso Natural Gas Company owns 100 percent working interest and it is in both formations. One Federal lease, USA-SF078208, covers the entire 150.9 acres dedicated to the well.

There are overriding royalty interests amounting to 6. -- excuse me, amounting to 4.6 percent, which are common in both zones. Now we have contacted all of the overriding royalty owners and they have given their consent to this commingling proposal.

MR. STAMETS: Was the answer to that question that the ownership is common in both zones?

A. That's what I understand from the overriding royalty; it is common.

MR. STAMETS: Okay, and all the owner-

ship is common?

A. Yes. Right.

Q. In other words, the working interest ownership is all El Paso Natural Gas, is that right?

A. Yes, working interest ownership is all El Paso.

Q. And the lease involved is just one Federal lease, and then you're --

A. Yes, sir.

Q. -- saying that the overriding royalty interest is also common.

A. Right.

Q. Right. Let me just return to your allocation formula and the logic that lies behind it for just a second, Mr. Burchell.

MR. STAMETS: I don't really think that's necessary for this case.

MR. BURLESON: Okay.

MR. STAMETS: I don't really foresee that that's an issue. I believe that El Paso and our District Supervisor --

MR. BURLESON: Right.

MR. STAMETS: -- are perfectly qualified to figure out how much goes to which zone.

MR. BURLESON: Thank you.

Q. Do you have any knowledge of similar -- the approval of similar applications for commingling in this general area?

A. Yes, sir. In Case Number 6644 Tenneco Oil Corporation applied for Pictured Cliffs and Fruitland downhole commingling and it was in their State "K" Com Well No. 12.

This well is located in Unit E of Section 16, Township 30 North, Range 9 West, San Juan County, and it is approximately three miles southeast of the Sunray B No. 6 Well.

Now this case was approved by the Division in October the 18th, 1979, in Order No. R-6154.

Q. In your opinion would the granting of this application protect correlative rights and prevent waste?

A. Yes, sir.

Q. Do you have anything further in this case?

A. No, sir.

Q. Were Exhibits One, Two, and Three prepared by you or under your supervision?

A. Yes, they were.

MR. BURLESON: Mr. Examiner, this com-

pletes our direct examination and we move the introduction of the exhibits.

MR. STAMETS: The exhibits will be admitted.

CROSS EXAMINATION

BY MR. STAMETS:

Q. Mr. Burchell, when the workover is completed will the Pictured Cliffs zone be blanked off during the process?

A. Oh, yes, sir, we do intend to blank it off.

Q. Okay. Is there any reason that you couldn't produce the Fruitland separately until the shut in pressure declines to a figure less than the magic 100 percent?

A. Rather than drilling out that plug?

Q. Right.

A. I -- sounds easy enough. At a different period of time we'd have to bring another - another workover rig and it would be just an additional expense and a period of time would be involved that we would not realize production from the Pictured Cliffs.

That's the only objection.

MR. BURLESON: Was that a significant

objection?

A. To my it would be if it was my money out of my own wallet, and I'm certainly --

Q. Realizing El Paso's good intentions, is there any practical way that the Division can assure itself that this well wouldn't be shut in any time in the next eighteen months?

A. The only thing I would -- that we would even -- we need the gas and so it isn't a problem with supply and demand. We will take all the gas that that well will produce, number one.

Number two, the only thing I can foresee is some pipeline failure, plant failure, going down, and as I indicated earlier, we would let the Aztec office know about it the day it happened and give you an indication of an hour, is it going to be down two hours, a day, six days, what, and then we would have to take immediate action if it looks like it's going to be anything over, say, a week, or something like that. We'd have to do something whether we like it or not. We would be that prudent of an operator that if it was going to be an awfully long time, that we'd have to re-enter the well to correct it.

Q. But even the best systems go wrong, don't they, Mr. Burchell?

A. They certainly do.

Q. And short of stationing a man out there, none of us would know that it would work that way.

A. Well, our production people would know.

Q. And they've never made a mistake. Never mind.

A. I plead the fifth.

Q. At this point, even though you've made some reasonable estimates, we really don't know what the Fruitland pressure is going to be or what it's going to produce as far as liquids or hydrocarbon gas.

A. The only thing that we can, you know, use is existing information and there were other Fruitland wells in the area and their pressures were all around 1000 pounds per square inch, initial shut in pressure. They had rapid decline in that pressure in the first few months of production; they have a rapid decline. And there were more than one well to look that are in the area.

I feel confident that -- that this well should react in the same -- have the same characteristics.

Q Nevertheless, we still don't know what this well is going to do.

A. No, we certainly don't.

Q We have no production history on it at

all.

A. No, except, well, just the Pictured Cliffs portion.

Q. Or any immediate offsets.

A. No. The Fruitland, of course, we would know pretty quickly after we -- we perforated it and started commingling. I think the Aztec office could recognize what is the total volume. Well, let's see, like the Fruitland came in around 700 and the Pictured Cliffs is around 100, so we would expect something around 800 cubic feet of gas per day being produced, and I'm sure that if it comes in a lot higher than that, a real, what I would call a barnburner, that again we'd have to take some very drastic actions. That -- that decision could be made by the District office at the time we complete it. In fact, we could make it a point to have a representative of the District office there to see just exactly how big of a well this is going to be.

MR. BURLESON: Mr. Examiner, could I ask a question or two of the witness?

MR. STAMETS: Certainly.

REDIRECT EXAMINATION

BY MR. BURLESON:

Q. I think, Mr. Burchell, there is an in-

ference here that we wouldn't know what the Fruitland is producing after this commingling has occurred, after the workover has occurred and after commingling has occurred.

Well, we could fairly well ascertain what that -- what it would be producing, could we not --

A. Yeah, that's what --

Q. -- because we know what the Pictured Cliffs is producing and we know it's going to be producing essentially the same thing and we know that to the extent the well is then producing more, that the difference --

A. That's what I tried to say.

Q. -- comes from the Fruitland.

A. That's what I thought I pointed out.

Q. Right.

A. To the Examiner, is that if it does come in a combined total of, say, 700 plus 100, 800 Mcf, we know that our estimates were reasonable and that if it comes in much, much higher, then that would cause the alarm button to be pressed by the Division's office and we would have to do something.

Q. But by the same token, by utilizing -- by viewing the production through time after its completion of the commingling operation, you'll know essentially how the Fruitland is -- production is dropping off.

A. Right.

Q. You'd have a clear idea of that, too, would you not?

A. Yes, because we do know the characteristics of the decline.

Q. I guess it is true that we wouldn't know the pressure that initially existed in the Fruitland. That is true, is it not, under our proposed methodology here?

A. Well --

Q. We wouldn't know the wellhead shut in pressure, would we, that existed --

A. We would know the total. We -- we could find out -- we could find out initially what the well shut in pressure is after the workover is complete. We can -- we could get a point right there; take a very short test and find out. I would prefer not to make it an extended test because we're just trying to avoid the well being shut in, but if the Commission wants us to take a pressure test, then we can.

Q. Would that tell us something about the --

A. Well, it will give us a very good idea of what we're looking at.

Q. Of the wellhead shut in pressure of the

Fruitland formation?

A. It will give us a -- yeah, it will tell us pretty closely, because we know what it is now. It's 290, so anything above that is -- is added on to the -- by the Fruitland.

MR. STAMETS: Any other questions of the witness? Mr. Chavez.

MR. CHAVEZ: Yes.

QUESTIONS BY MR. CHAVEZ:

Q. Mr. Burchell, you were saying that the Fruitland sands were very lenticular and there's a possibility of missing that sand if you try and drill another well.

Based on that is it -- how do you conclude that it's feasible to use an offset Fruitland well, say, a mile and a half away or three miles away?

A. Well, they're all characteristic like that, and even those Fruitland wells, they themselves are isolated type lenticular sands. I meant no inference that they're -- that these sands in this well are tied to the sands two miles away at all.

It's a podular type sedimentation out there.

Q. But even though they are pods, they are

similar characteristics?

A. I have made that estimate and it sure looks like it from the several Fruitland wells that have been completed to the south and southeast.

MR. CHAVEZ: That's all I have.

MR. STAMETS: Any other questions of this witness? He may be excused.

Anything further in this case?

The case will be taken under advisement.

(Hearing concluded.)

C E R T I F I C A T E

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

Sally W. Boyd CSR

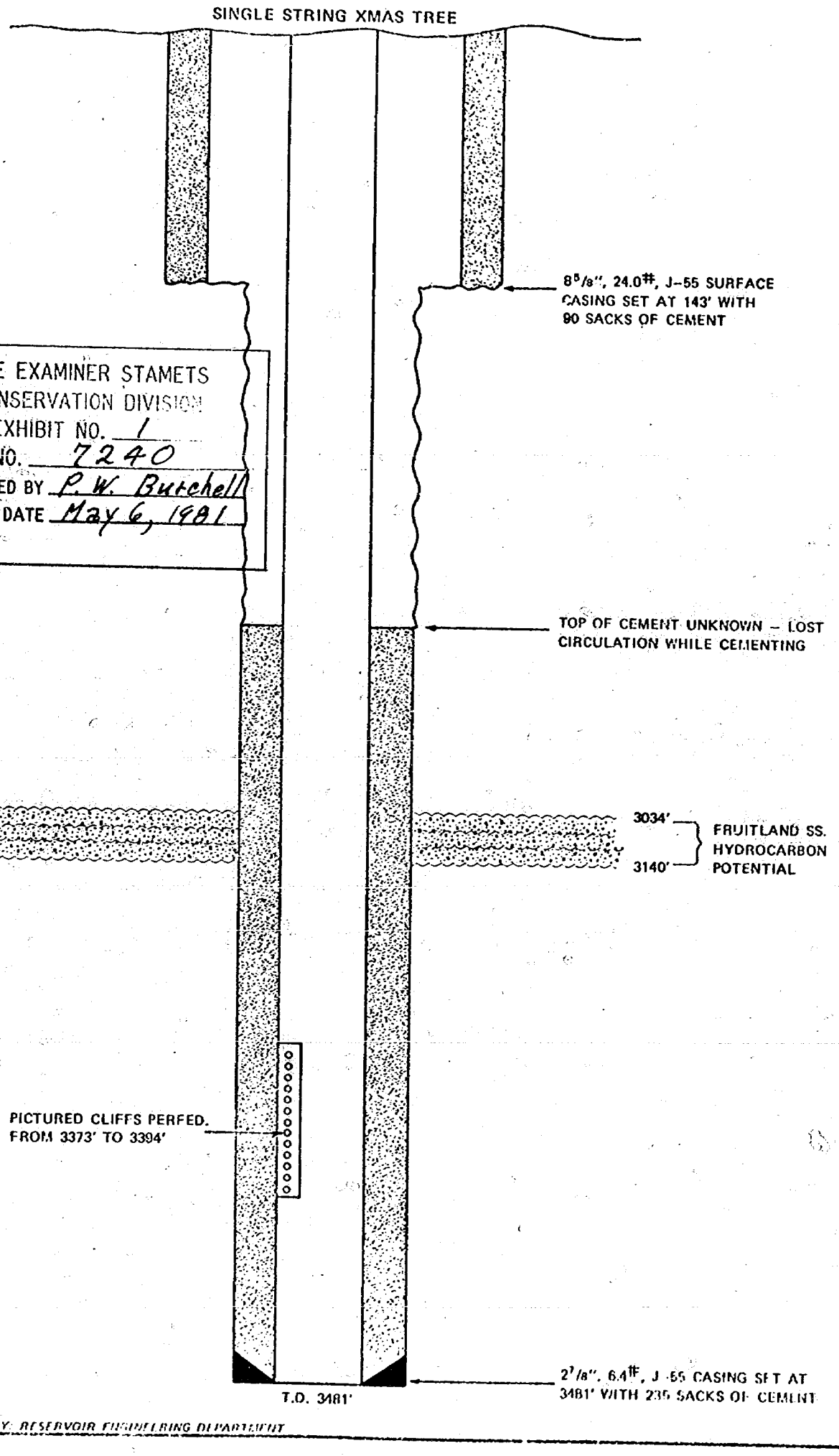
I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. _____, heard by me on _____ 19____.

_____, Examiner
Oil Conservation Division

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

EXHIBIT NO. 1

SCHEMATIC DIAGRAM OF PICTURED
CLIFFS SLIMHOLE COMPLETED WELL
EL PASO NATURAL GAS CO. SUNRAY B NO. 6 WELL
UNIT G OF SEC. 1, T-30-N, R-10-W
SAN JUAN COUNTY, NEW MEXICO



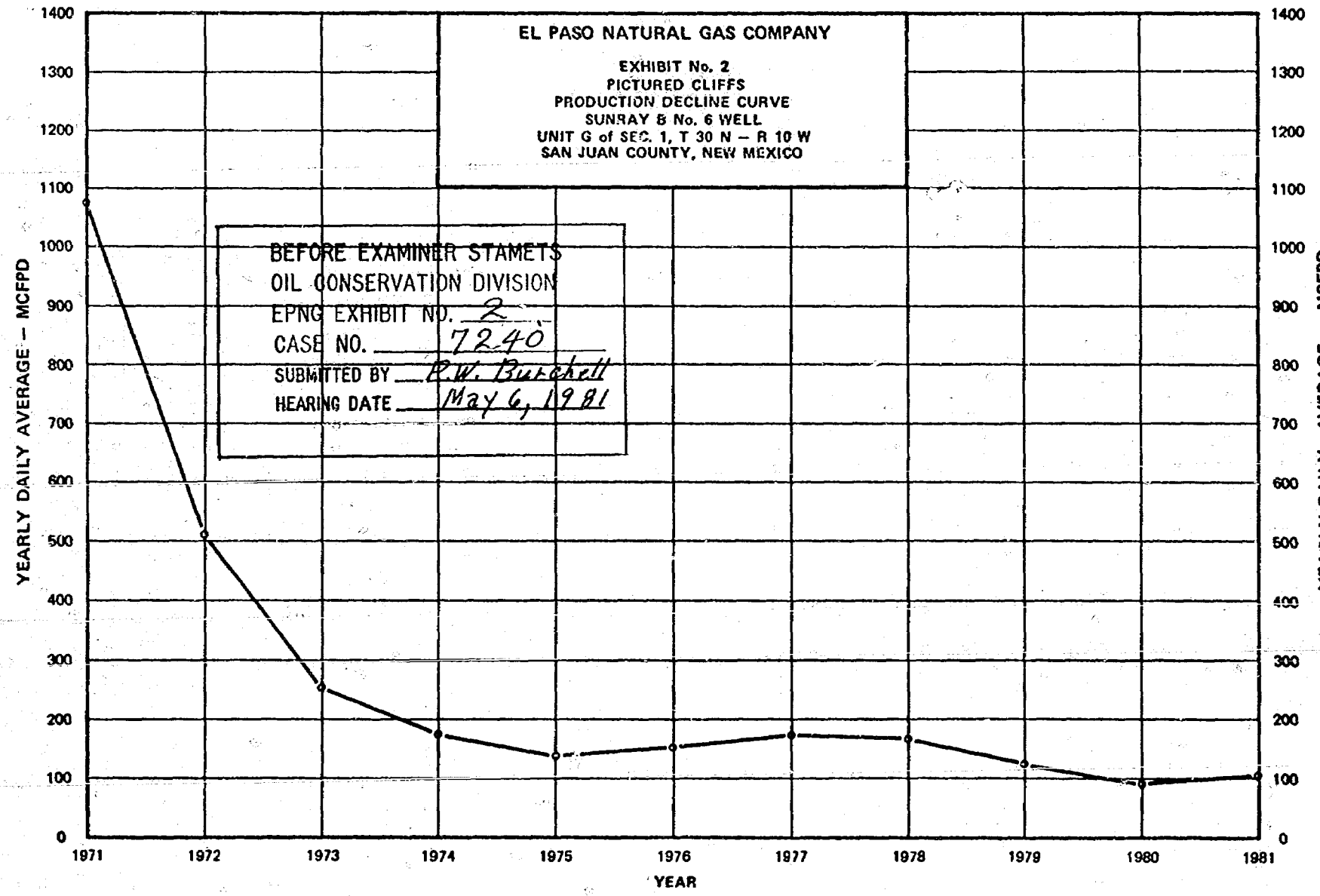
BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EPNG EXHIBIT NO. 1
CASE NO. 7240
SUBMITTED BY P. W. Burchell
HEARING DATE May 6, 1981

PREPARED BY: RESERVOIR ENGINEERING DEPARTMENT

EL PASO NATURAL GAS COMPANY

EXHIBIT No. 2
PICTURED CLIFFS
PRODUCTION DECLINE CURVE
SUNRAY B No. 6 WELL
UNIT G of SEC. 1, T 30 N – R 10 W
SAN JUAN COUNTY, NEW MEXICO

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EPNG EXHIBIT NO. 2
CASE NO. 7240
SUBMITTED BY P.W. Burchett
HEARING DATE May 6, 1981

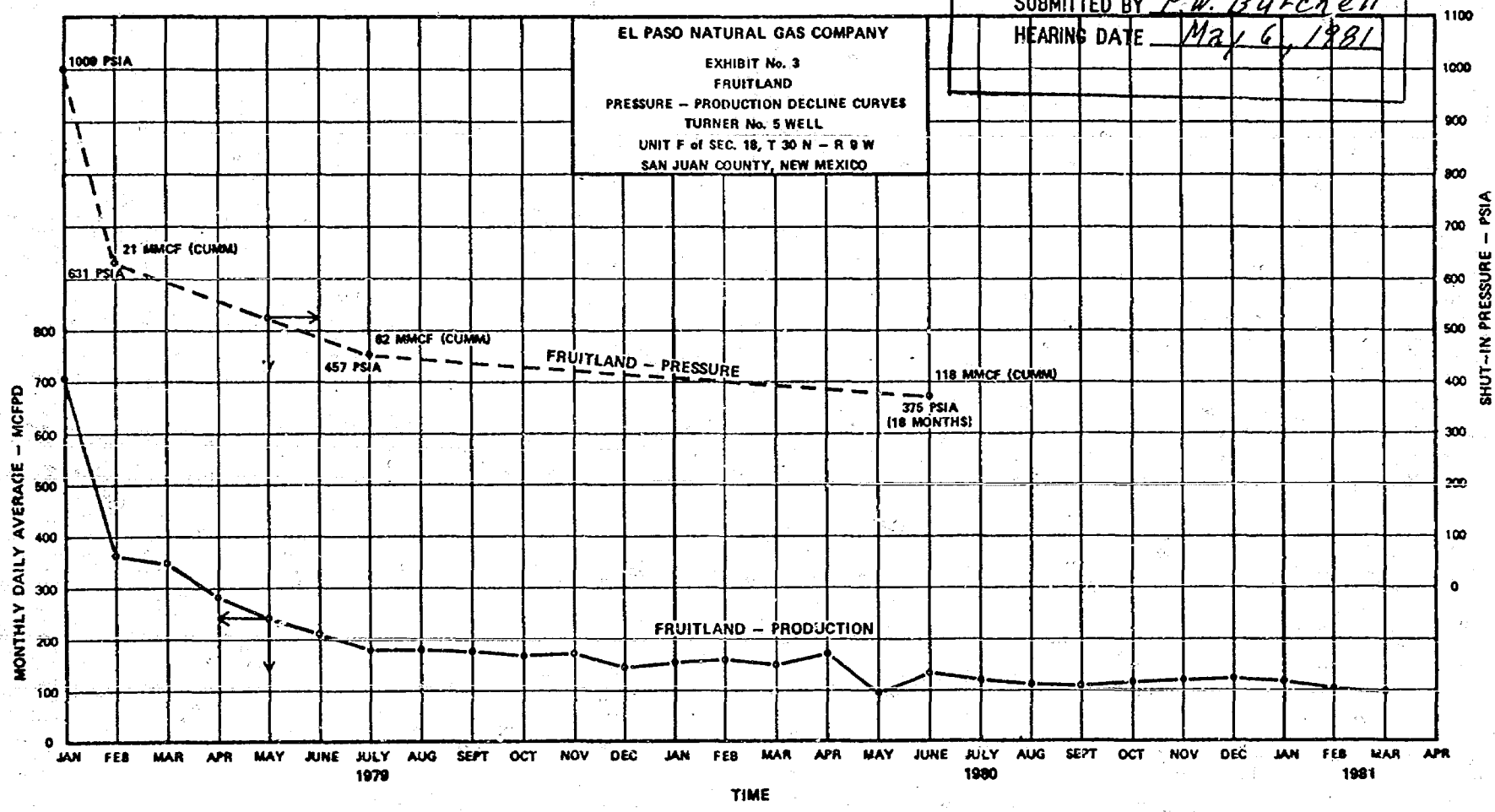


PREPARED BY : RESERVOIR ENGINEERING DEPARTMENT

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EPNG EXHIBIT NO. 3
CASE NO. 7240
SUBMITTED BY P.W. Burchell
HEARING DATE May 6, 1981

EL PASO NATURAL GAS COMPANY

EXHIBIT No. 3
FRUITLAND
PRESSURE – PRODUCTION DECLINE CURVES
TURNER No. 5 WELL
UNIT F of SEC. 18, T 30 N – R 9 W
SAN JUAN COUNTY, NEW MEXICO



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May 5, 1981

New Mexico Energy and
Minerals Department
Oil Conservation Division
Land Office Building
Santa Fe, New Mexico 87503

Re: NMOCD Case No. 7240 - Application of El Paso Natural Gas Company for Downhole Commingling, San Juan County, New Mexico

Gentlemen:

Please be advised that David T. Burleson of the Office of General Counsel of El Paso Natural Gas Company, El Paso, Texas, is associated with our firm for the presentation of evidence and argument in the above-referenced case.

Sincerely,

Owen M. Lopez

OML:to

Docket No. 15-81

Dockets Nos. 16-81 and 17-81 are tentatively set for May 20 and June 3, 1981. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - MAY 6, 1981

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

The following cases will be heard before Richard L. Stamets, Examiner, or Daniel S. Nutter, Alternate Examiner:

CASE 7235: Application of Public Lands Exploration Inc. for a unit agreement, Guadalupe County, New Mexico. Applicant, in the above-styled cause, seeks approval for the O'Connell Ranch Unit Area, comprising 640 acres, more or less, of State and fee lands in Township 11 North, Range 25 East, said unit being for the purpose of conducting an enhanced oil recovery project by the injection of steam.

CASE 7236: Application of Belco Petroleum Corporation for a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion of its James Ranch Well No. 11 located in Unit E of Section 36, Township 22 South, Range 30 East, to produce gas from the Atoka and Morrow formations thru parallel strings of tubing.

CASE 7237: Application of Conoco Inc. for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion of its State F-1 Well No. 10 located in Unit V of Section 1, Township 21 South, Range 36 East, to produce oil from the Hardy-Drinkard Pool and an undesignated Tubb pool thru parallel strings of tubing.

CASE 7238: Application of Holly Energy, Inc. for directional drilling and an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to directionally drill its Salt Lake South Deep Well No. 1, the surface location of which is 2189 feet from the North line and 500 feet from the East line of Section 6, Township 21 South, Range 32 East, South Salt Lake-Morrow Gas Pool, in a northerly direction to bottom it within 150 feet of the center of Unit A (Lot 1) of said Section 6, Lots 1 thru 8 to be dedicated to the well.

CASE 7239: Application of Troy Strickland and E. V. Isbell for a non-standard proration unit, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 75.5-acre non-standard proration unit comprising Lot 3 and that portion of Lot 4 North of the San Juan River mid-channel, all in Section 14, Township 29 North, Range 15 West, to be dedicated to a well to be drilled at a standard location thereon.

CASE 7240: Application of El Paso Natural Gas Company for downhole commingling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Fruitland and Blanco-Pictured Cliffs production in the wellbore of its Sunray B Well No. 6 located in Unit G of Section 1, Township 30 North, Range 10 West.

CASE 7241: Application of Harvey E. Yates Company for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox Mississippian location of its Austin State 18 Well No. 1 to be drilled 1980 feet from the South line and 1650 feet from the East line of Section 18, Township 14 South, Range 36 East, the S/2 of said Section 18 to be dedicated to the well.

CASE 7242: Application of Harvey E. Yates Company for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox Wolfcamp-Pennsylvanian location of its McDonald Well No. 1 to be drilled 660 feet from the South line and 990 feet from the East line of Section 33, Township 13 South, Range 36 East, the S/2 of said Section 33 to be dedicated to the well.

CASE 7243: Application of Harvey E. Yates Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian and Mississippian formations underlying the S/2 of Section 33, Township 13 South, Range 36 East, for a gas completion and/or all mineral interests in the Devonian formation underlying the SE/4 SE/4 of said Section 33 for an oil completion. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7217: (Continued from April 8, 1981, Examiner Hearing)

Application of Harvey E. Yates Company for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox Morrow location of its Travis Ohio State Com Well No. 1 to be drilled 660 feet from the South and West lines of Section 13, Township 18 South, Range 28 East, the S/2 of said Section 13 to be dedicated to the well.

CASE 7244: Application of Crescent Energy Corp. for an unorthodox oil well location and non-standard oil proration unit, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox Bough "C" location of a well to be drilled 2630 feet from the North line and 1980 feet from the East line of Section 32, Township 8 South, Range 37 East, Allison-Pennsylvanian Field, the SW/4 NE/4 and NW/4 SE/4 of said Section 32 to be dedicated to the well.

CASE 7245: Application of The Superior Oil Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Morrow formation underlying the N/2 of Section 21, Township 20 South, Range 35 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well. (This case will be dismissed.)

CASE 7246: Application of Getty Oil Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion of its Getty 32 State Com. Well No. 1 located in Unit C of Section 32, Township 21 South, Range 32 East, to produce gas from the Atoka and Morrow formations.

CASE 7247: Application of Getty Oil Company for a gas well classification, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the reclassification of its State 29-J Well No. 1, an oil well located in Unit J of Section 29, Township 24 South, Range 33 East, as a retrograde gas condensate well with the S/2 of said Section 29 to be dedicated to the well.

CASE 7248: Application of Inexco Oil Company for pool creation, special pool rules, and an oil discovery allowable, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Wolfcamp oil pool for its Federal 10 State Com. Well No. 1 located in Unit L of Section 10, Township 21 South, Range 26 East, and the promulgation of special rules therefor, including provisions for 160-acre spacing. Applicant further seeks the assignment of approximately 42,290 barrels of discovery allowable to the aforesaid well.

CASE 7249: Application of Southland Royalty Company for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp and Pennsylvanian formations underlying the N/2 of Section 21, Township 18 South, Range 29 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7250: Application of Southland Royalty Company for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the N/2 of Section 22, Township 18 South, Range 29 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7251: Application of Southern Union Exploration Company of Texas for compulsory pooling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the West Puerto Chiquito-Mancos Oil Pool underlying all of Section 36, Township 24 North, Range 1 West, to be dedicated to its Mobil Federal Well No. 1 drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7252: Application of Four Corners Gas Producers Association for designation of a tight formation, San Juan and Rio Arriba Counties, New Mexico. Applicant, in the above-styled cause, seeks the designation of the Dakota formation underlying portions of Townships 24 and 25 North, Ranges 7, 8, 9, and 10 West, containing 135,040 acres, more or less, as a tight formation pursuant to Section 107 of the Natural Gas Policy Act and 18 CFR Section 271.701-705.

El Paso NATURAL GAS COMPANY

P. O. BOX 1492
EL PASO, TEXAS 79978

PHONE: 915-543-2600

April 6, 1981

Case 7240

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

Gentlemen:

El Paso Natural Gas Company respectfully requests a hearing to be set before the Division or its designated examiner on May 6, 1981, if possible. El Paso seeks approval to perforate the Fruitland Formation and downhole commingle this production with production from the existing Blanco-Pictured Cliffs Gas Pool in its Sunray B No. 6 Well. This well is located in Unit Letter G of Section 1, T30N-R10W, San Juan County, New Mexico.

Very truly yours,

E. R. Manning

mm

cc: Messrs. D. C. Adams - Farmington
D. E. Adams
D. T. Burleson
D. N. Canfield
E. J. Coel
J. F. Eichelmann, Jr.
C. E. Matthews
D. R. Read
L. G. Truby

El Paso NATURAL GAS COMPANY

P. O. BOX 1492
EL PASO, TEXAS 79978
PHONE: 915-543-2600

Case 7240

April 6, 1981

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

Gentlemen:

El Paso Natural Gas Company respectfully requests a hearing to be set before the Division or its designated examiner on May 6, 1981, if possible. El Paso seeks approval to perforate the Fruitland Formation and downhole commingle this production with production from the existing Blanco-Pictured Cliffs Gas Pool in its Sunray B No. 6 Well. This well is located in Unit Letter G of Section 1, T30N-R10W, San Juan County, New Mexico.

Very truly yours,

E. R. Manning

E. R. Manning

mm

cc: Messrs. D. C. Adams - Farmington
D. E. Adams
D. T. Burleson
D. N. Canfield
E. J. Coel
J. F. Eichelmann, Jr.
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D. R. Read
L. G. Truby

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. ~~6702~~ 7240
Order No. ~~R-6235~~ R-6688

APPLICATION OF EL PASO NATURAL GAS COMPANY FOR DOWNHOLE COMMINGLING, San Juan ~~RIO ARRIBA~~ COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on ~~November 28, 1979~~ May 6, 1981, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 9th day of ~~January, 1980~~, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, El Paso Natural Gas Company, is the owner and operator of the Sunray B Well No. 6 located in Unit G of Section 1, Township 30 North, Range 10 West, NMPM, San Juan County, New Mexico.

(3) That the applicant seeks authority to commingle Fruitland and Blanco-Pictured Cliffs production within the wellbore of the above-described well.

(4) That from the Fruitland zone, the subject well is capable of ~~low~~ marginal production only.

(5) That from the Blanco-Pictured Cliffs zone, the subject well is capable of low marginal production only.

(6) That the ~~bottom-hole~~ initial pressure in the Fruitland zone is ~~approximately~~ three times that of the Pictured Cliffs zone.

(7) That the Division has previously found that when bottom-hole pressures of zones to be commingled differ by a factor greater than two, potentially damaging crossflow between zones could occur if the well should be shut in.

(8) That there is no evidence available in the immediate area of the subject well to indicate how quickly the Fruitland pressure may be expected to decline,

(9) ~~(8)~~ That there is no mechanism to assure the Division that said Sunray B Well No. 6 would not be shut-in following completion of the proposed downhole commingling.

(10) ~~(9)~~ That to avoid the potential for waste the subject application should be denied.

IT IS THEREFORE ORDERED:

(1) That the application of El Paso Natural Gas Company to commingle Fruitland and Blanco-Pictured Cliffs production within the wellbore of the Sunray B Well No. 6, located in Unit G of Section 1, Township 30 North, Range 10 West, NMPM, San Juan County, New Mexico, is hereby denied.