CASE 4733: Application of DAVID FASKEN FOR POOL CONTRACTION & CREATION OF NEW GAS POOL.

EXHIBITS IN DISTRICT COURT FILES OUTSIDE NUMERICAL ORDER

D.C.#28482

Case Number 4733

Application

Trascripts

Small Exhibits

ETC.

96

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
CONFERENCE ROOM, STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

November 21, 1972

DE NOVO HEARING

IN THE MATTER OF: Application of David Fasken for pool contraction and creation of a new gas pool, Eddy County, New Mexico.	Case No. 4733
IN THE MATTER OF: Application of David Fasken for special allowables, Eddy, County, New Mexico.	Case No. 4865

BEFORE: State Geologist, A. L. Porter, Jr.,
Secretary-Director

Land Commissioner, Alex Armijo,
Member

TRANSCRIPT OF HEARING

NEW MEXICO OIL CONSERVATION COMMISSION

REGULAR HEARING

SANTA FE , NEW MEXICO

Hearing Date NOVEMBER 21, 1972 TIME: 9 A.M.

NAME	REPRESENTING	LOCATION
Jim Henry	Henry Engr. for Novro Fasken	Midland
Tom [illegible]	Black River Corp	Midland
Jack [illegible]	" " "	"
A. W. Rutter, Jr.	Rutter & Wilbanks Corp	"
Jason Kellahin	Kellahin & Fox	Santa Fe, N. M.
W. J. [illegible]	Rutter & Wilbanks	
Wm. P. Aycock	Black River Corp	Midland, Tex.
[illegible]	[illegible]	SF [illegible]
Richard S. Morris	Montgomery, Federici [illegible]	Santa Fe
Max Coll	Max Coll, Inc.	Roswell

98

MR. PORTER: The hearing will come to order. I was going to take up the docket in order this morning, but I don't believe counsel for the Graces is here. Did Mr. Grace leave the room?

MR. HINKLE: Yes, he went looking for Mr. Cooley.

MR. PORTER: We could move over to Case 4733, which is the application of David Fasken, because all the other cases involve pretty much the same people, I believe.

Let's get on with the hearing and get through with these cases as soon as possible. I think we might as well move over to Case 4733.

MR. MORRIS: If the Commission please, I'm Dick Morris of Montgomery, Federici, Andrews, Hannahs and Morris, Santa Fe, New Mexico, appearing on behalf of the applicant, David Fasken in Case 4733, which is his application for a hearing DeNovo. Also in Case 4865, the application of David Fasken for a hearing DeNovo, and this concerns the same pool, the same subject matter, and the same issues, and we ask that the cases be consolidated for the purpose of hearing, since the testimony in Case 4733 will also go to the relief requested in Case 4865.

MR. PORTER: Before I rule on that, Mr. Morris, are there any other appearances in Cases 4733 and 4865?

(No response)

MR. PORTER: Then there is apparently no objection

99

to the consolidation, Mr. Morris. The cases will be consolidated.

MR. MORRIS: I need a few minutes to mark my exhibits in these cases, Mr. Porter.

MR. PORTER: All right, sir.

* * * *

JAMES HENRY,

was called as a witness, and after being duly sworn, testified as follows:

MR. MORRIS: I would like to make a brief statement, if I may, to the Commission before we begin our evidence.

When Case 4733 was first brought to the Commission and presented before an Examiner Hearing, it was presented upon the application to separate two wells at the north end of the Indian Basin Morrow Gas Field from that pool, and to classify them as being in a separate pool. The request was brought to the Examiner in that fashion for several reasons: one was, as Mr. Henry testified, and as he will also testify today, he feels there are good and valid reasons why these two gas producers should be considered in a separate pool and separate reservoir. This is due, as he will testify,to different pressure conditions that would indicate two separate accumulations.

Now, in the order that was entered by the Commission in that case, it found that even though the gas was not in

100

communication, there was pressure communication through a hydraulic saddle that I think Mr. Henry will refer to it as in his testimony. For that reason, it was found that there should not be two separate pool classifications as there was not justification for separating these two wells from the Indian Basin Morrow Gas Reservoir to the south.

Well, we have brought the matter to the Commission today as a De Novo hearing, as we would like to present the matter more fully to the Commission. But also, we have brought the matter here on a separate application which is one for capacity allowable. We have done this for the basic reason that motivated us to bring the case to the Commission in the first instance, and that is that we feel that correlative rights are being violated because there is not sufficient production that is being experienced from the two wells, the two Fasken wells, in the so-called north reservoir. Whether the Commission feels that it can or should separate these two wells into separate reservoirs at this point, we submit that maybe the academic question and what we are really seeking is capacity allowable for these two wells, or in the alternative, a special allowable for these two wells so we can stop the waste that we see occurring in this area.

In bringing this on as a De Novo hearing, we are in a sense arguing with the Commission order that was

entered earlier in that we feel the Commission can and should separate these two into two separate reservoirs, but even if you decide not to by bringing our alternative application, you can afford us relief under the alternative application.

We have a series of exhibits that have been marked, some of them are small enough that I can present them to the Commissioners and Mr. Henry can just testify to them from his seat. Some of them are so large that we are going to have to tack them up on the blackboard.

MR. PORTER: Mr. Morris, may I ask you a question here at the outset? Is your witness going to prove that drainage is occurring from his property to the other properties in the pool?

MR. MORRIS: Yes, that is part of our presentation that will be made. Let me explain just what our evidence will show. Mr. Henry will testify, and let me refer to Exhibit Number One which is there before you, that there are five Fasken wells operated in this area, two of them are in the north reservoir, and three are in the south reservoir. Of course, there are a number of other wells in the south reservoir, and there are only the two Fasken wells in the north. The interest in all of these wells are diverse, and there are no two wells that have exactly the same interest. This is also true as far as royalty interests are concerned.

102

Some of the land is federal land, and some is State land, and we feel that waste is occurring. Gas is being drained away from the north reservoir, some of which is being irrevocably lost due to pressure differentials that exist between the north and south reservoirs.

We also feel that the differential in pressures is inducing an artificial water drive in the south reservoir, which has the effect of watering out some of the wells in the south reservoir that are located on State lands which will cause premature abandonment of those wells unless this pressure differential is stabilized. We are suggesting that the pressure differential can be stabilized only by allowing maximum allowables in the north reservoir because it will be our evidence, and it will very clearly show, that there is some eight hundred to nine hundred pounds differential in pressure between the north and south reservoirs that is caused by the disproportionate withdrawal from the south as compared to the north. Only by increasing production in the north reservoir can this condition be stabilized. Please don't accept my statements here as testimony, I'm sure you won't, but I'm trying to give you a view of what Mr. Henry's testimony will be in this matter.

MR. PORTER: You agree, Mr. Morris, that this is an unusual case in that drainage is occurring, yet you want to separate these from the reservoir.

103

MR. MORRIS: What we are saying, Mr. Porter, is we are losing gas from the north reservoir into a water column that exists between the two reservoirs, and that by virtue of this shift, the water that exists in this saddle structure is being pushed down into the wells in the south reservoir, so they are producing the water. It is not a question of the wells in the south producing gas from the north reservoir.

MR. PORTER: You may proceed.

DIRECT EXAMINATION

BY MR. MORRIS:

Q Mr. Henry, will you please state your name and where you reside?

A James Henry, Midland, Texas.

Q What is your profession, Mr. Henry?

A Consulting petroleum engineer.

Q Are you affiliated with a consulting engineering firm?

A Yes, Henry Engineering.

Q What is your relationship and that firm's relationship to the applicant in this case?

A We are agents for Mr. David Fasken with respect to his engineering problems that we address ourselves to, and we also operate his oil and gas properties. We supervise the drilling and completion of all his wells and take care of the day to day operations that any

producing department would take care of for normal oil operations.

Q How many total wells in the Permian Basin do you operate for Mr. Fasken?

A Approximately one hundred thirty.

Q How many of those are in New Mexico?

A There are sixteen in New Mexico.

Q How many of those are located in the Indian Basin Field?

A Five.

Q Have you previously testified before the Commission, or one of its Examiners, and had your qualifications as a professional engineer established as a matter of record?

A Yes, I have.

MR. MORRIS: Mr. Porter, are Mr. Henry's qualifications acceptable?

MR. PORTER: Yes, the Commission considers the witness qualified.

Q (By Mr. Morris) Mr. Henry, in connection with these combined cases, 4733 and 4865, have you prepared a series of exhibits in support of the applications?

A Yes, I have.

Q Referring first to Exhibit Number One, I believe it is a structure map, will you explain what the map is?

A This map is a structural contour map, the lines being

put on here as to connect points of equal subsurface elevation with respect to the Morrow Clastics Zone.

Now, the Morrow Clastics Zone is defined as the point within the Morrow interval where the sediments are predominantly sand and shale rather than shale and limestone, as they are above this point. The bottom of the Morrow interval is the top of the Barnett shale of the Mississippian Age.

This contour map has been prepared in the area of the north-- what was originally the North Indian Hills Field and which has now been consolidated with the Indian Basin Morrow Gas Pool.

You will note there is a closed lie in the lower part of this map and there are structural dips away from this in a northerly direction to the amount of about four hundred feet. As you go across this saddle, you pick up an additional nose that comes from the north central part of the map, a structural nose coming down to this saddle.

Q When you refer to a saddle, can you characterize that in some way with respect to-- is this more or less a canyon, or is it what is sometimes referred to as a trough between these two predominant structures?

A Correct. This is a low area that persists through here where the formation has been downwashed into a

structurally low area, lower in elevation than these areas here and here (indicating).

Q Excuse me, is this an unusual feature that exists in this Morrow gas field, or do you find it existing in other Morrow fields?

A It's common to all geological formations and structures that have these undulations in the underground configurations of the lower rock. Since there are high and low areas in here, the closed high areas are generally what we refer to as trapped or hydrocarbon. Since they are lighter than the water that we find in here, they gravitate to the higher structural elevation and as they do, they form accumulations of hydrocarbons, and these are, of course, prime targets in exploration.

Now, below the water table, which is generally a few hundred feet from the surface, all the porous rocks are saturated with water, oil, or gases. Now, not all of these gases have hydrocarbons, occasionally you find helium, carbon dioxide, nitrogen, but everything below the water table is predominantly saturated with water.

Q Going back to this exhibit, what are the blue lines, the heavy blue lines that you have shown on there?

A The heavy blue line represents the elevation in the porous Indian Hills sand member where the gas-water

contact occurs on the top of the pay zone. You will notice that these blue lines terminate and they terminate at the limits of the porous sand development. Obviously there could not be gas-water contact at a non-porous zone because there would be no fluids, but with the porous part of the Indian Hills sand in this area, we find the gas-water contact in what we are referring to as the south area, this is south of the saddle at minus 5,700 feet, 5,700 feet below sea level.

In the north area, we find this gas-water contact at an elevation of minus 5,857.

Q Mr. Henry, are these contact points the original gas-water contact points or are they the contacts as they exist today?

A They are the contact points as they existed under original conditions.

Q All right.

A I might show this particular horizon we are mapping here. If I might go to Exhibit Number Two, that will show the interval that has been mapped here.

Q We will come back to Exhibit Number One in a minute, but for a moment here, would you first explain what Exhibit Two is?

A This cross section is made up of a series of gamma ray neutron logs through the two areas that we are discussing

here.

Q Mr. Henry, on your log cross section, the well that is on the left of that cross section is the well which is on the bottom of this trace on Exhibit One, is that right?

A It's the second circled well, the Kerr McGee Number 1 Unit Well. As we progress northward here, we come to the Penn Rock Indian Hills Number 1 Well, which is located here (indicating). We then come up to a well which is not completed in the Morrow and is not shown on this map. Then we come on up to the Fasken wells, the Mobil dryhole in the middle of the trough, and then we show the two Fasken wells here.

Now, through this area, we have the logs at their correct structural depth, their exact depth. There is a heavy line starting here at minus 5,600 feet coming completely across the cross section, and that is a constant elevation line of minus 5,600 feet. This shows then the relationship of these to this level sub-C data.

Now, this uppermost line down in the Morrow section, what we are calling the top of the Morrow Clastics, comes across here, as you can see. On the structure map, it would come down into this saddle, and the Mobil well is at the bottom of the saddle. Then

we come up in increasing elevation into the north reservoir area.

Now, we have colored the sands within the Morrow zone with yellow on the gamma ray side of the curve which is the left-hand trace. As you face the cross section, these sands, as you can see, are quite numerous in here, and not all of them are oil or gas productive. We have used a cut-off porosity, and that is the porosity below which lay the hydrocarbons. The hydrocarbons cannot saturate the rock at the eight percent equivalent, and the capillary properties of these rocks are such that at porosity value, the permeability associated with that rock would normally be water saturated regardless of the elevation, and would not be permeable enough to support commercial production.

Now, these that are saturated with hydrocarbons have been colored in red on the sonic logs, or the right-hand side of these electric logs, to show the porous hydrocarbon part of this formation.

Now, the solid blue line that is colored in here is the line-- if you will remember, I said this is not an entirely sandy section, and the cross-hashed blue has been put on the porous permeable rock that is below the gas-oil contact and the low structural area that

has been depicted on here as the cross-hashed area on this log, is the water-bearing permeable sand.

Now, the predominant producing horizon in the North Indian Basin-Morrow Gas Field has been this sand at the very top which we have designated as the Indian Hills Sand Zone. This occurs immediately below the heavy line at the very top of the Morrow Clastics Zone. There are occasions when there is a thin shale stringer above it, and in other places, there is a Morrow line, very dense, that forms the cap-rock, and it contains and restrains the upward movement of the gas in the porous Indian Hills sand member.

There are some wells that have been tested in the lower zone that have given up minor amounts of production that was not of any consequence compared to the gas reserves and productivity from the Indian Hills sand member.

Q Mr. Henry, may I interrupt you for a moment? Does the log cross section support the interpretation that you have shown of the structure in this area as depicted on Exhibit One?

A Yes. The structure map, Exhibit One, is the top of the Morrow Clastics, which conforms almost exactly to the top of the Indian Hills sand member. Occasionally there is a two to three foot shale stringer above it,

and there is a line there that would make it exactly the top of the Indian Hills sand section.

Q Before we go any further, Mr. Henry, would you come back to Exhibit Number One and point out the locations of the various Fasken wells in this area, and in particular, the two wells for which we are seeking relief in these applications?

A All right. The Fasken wells which we are seeking relief on are the David Fasken-Ross Federal Number 1, located in Section Four of Township 21 South, Range 24 East. The other well we are seeking relief on is the David Fasken-Shell Federal Number 1, located in Section 5 of that same township and range.

Q And both of those wells are in the north reservoir?

A That is correct.

Q I notice on your cross section, there is another well farther up to the north, approximately one mile to the north, what well is that?

A The well to the north is the David Fasken-Ross-Howell Number 1. It was a dryhole drilled to this sand zone, and it had gas saturated sand in the Indian Hills zone, but its permeability was too low to allow commercial production. The gas sand was there, and it did contain some gas, and it flared too small to measure, and the drill stem test showed that it was not a commercial

producer.

Q So the Fasken wells in Sections 4 and 5 are the only two wells that exist in the north reservoir?

A They are the only two producing wells in the north reservoir.

Q Now, do you operate other wells for Mr. Fasken in this area?

A Yes, the David Fasken-Skelly Federal Number 1, located in Section 9, Township 21 South, Range 24 East; the David Fasken-Indian Hills Unit Well Number 6, located in Section 17 in the same township and range; and the David Fasken-Indian Hills Unit Number 7, located in the same township and range.

Q All right, sir, now, there are other wells farther south that are owned by other operators in the field, is that correct?

A That's correct.

Q All right.

A And the three Fasken wells which I have just referred to are in what we have labelled the south reservoir.

Q Would you also identify the two wells that exist in the area of the saddle as shown on Exhibit Number One?

A Yes, there are two wells completed below the gas-water contact in the Indian Hills sand, the Mobil Federal "V" Number 1 in Section 10 of 21 South, 24 East; and

the Corinne Grace-Indian Hills Number 1, located in Section 8 of Township 21 South, Range 24 East.

Q Are either of these wells producing wells?

A The Grace well was completed, but in a different sand from this Indian Hills sand.

Q It is not producing then from this Indian Basin-Morrow Field?

A It's producing from the Indian Basin-Morrow Gas Field, but from other lower zones.

Q I see. Mr. Henry, would you refer to your Exhibit Number Three, and identify it, please?

A Exhibit Three is a map showing the thickness of the Indian Hills sand interval in the area under discussion. You will note in the cross section over here that the uppermost sand is of varying thickness across the top. We have taken here the net thickness, that is the sand above the cut-off of eight percent, and constructed the map showing its thickness. If you had taken the thicknesses over here and flattened them out, the bottoms of those had been flattened out, you would have the thickness of the sand, and this is what is shown here. The heavy dashed line goes around the south side of the yellow area and continues down to the heavy blue line, and then comes all the way around and shows the extent of this sand.

Now, the lighter dashed line shows a five foot thickness up to a maximum of fifteen feet in the south reservoir and up to thirty feet in thickness in the north reservoir, and thirty feet of thickness in the area outside of these structures and traps.

Now, you will note that the area in here colored in yellow represents the hydrocarbon portion of these rocks. These structural traps accumulated hydrocarbons because of the configuration of the underground formation since the hydrocarbons gravitated to the higher structural elevation of the porous and permeable Indian Hills sand.

Now, in the south reservoir, the zero net pay limits the updip movement and lateral movement of this gas, and the downdip limits are limited by the gas-water contact.

You will note that the blue line depicted on Exhibit Three is the same blue line which follows the minus 5,700 foot contour on the structure map. So in effect, as the gas migrated into this trap, it was filled to the point where it could spill and move farther updip. This gas could not accumulate to a greater sub-C depth than the last zero point on the west side of this trap.

The north trap was a similar trap, which had the gas

trapped updip against the pinch-out of the sand, and it was underlined by water.

Now, all the Morrow sands below the gas-water contact are saturated with saline water, and the gas-water contact forms the lower downdip boundary of each of these reservoirs, but they are formed at different structural levels, due to the configurations of these two traps.

Q Mr. Henry, would you go ahead and identify Exhibit Four and explain what it shows?

A Exhibit Four is an expanded view vertically of this Indian Hills sand that is shown on the log cross sections. We have vertically increased the vertical scale to show certain relationships between the accumulation in the south reservoir and the accumulation in the north reservoir. We have in effect sliced this thing along the red line that you see on Exhibit One. We have sliced this thing in two and turned it up on edge and we are looking at it in an expanded scale with the sub-C elevations being depicted on the vertical scales on each end of the map. So we do have representations of the vertical configurations of these wells, of the Indian Hills sand, and of the gas-water contact. I believe that the gas-water contact in the south reservoir was minus 5,700 feet and that in the

116

north reservoir, it was at minus 5,873.

Q As it is shown on the exhibit, your north reservoir is to the right and the south reservoir is to the left?

A That's correct. The south reservoir is higher than the north reservoir as shown on this map, and it has substantially more relief than the north reservoir.

Q Here again,is your gas-water contact,as shown on this exhibit,the original contact before any production occurred in either the north or south reservoirs?

A That's correct. On this cross section, we have also shown some pressure information. The original development was in the south reservoir prior to any development in the north reservoir. These wells down in the south reservoir were drilled and completed and placed on production approximately two years before the north reservoir wells were placed on production. Some of the north reservoir wells, two of them, were shut in for approximately-- one for about a year and a half, and one for over two years prior to any production from this north area.

Now, during the time that these wells were shut in waiting for a gas market, they showed a very substantial pressure drop, between forty and fifty pounds of pressure while they were shut in with no production.

Now, at that time, we interpreted the gas column to be continuous from the south reservoir to the north reservoir because we did not at that time have enough development to define this structural saddle or trough between the two that is filled with water. So the pressure drop that occurred was the result of production from the south reservoir reducing the pressure here so that the water column encroached and this gas column had to expand. By reason of the pressure drop, there was nothing it could do.

Now, in the beginning, there did seem to be a difference in pressures in the south reservoir and the north reservoir, and we could not account for this difference in pressure until the development in the saddle and the encroachment into these producing wells showed that part of this pressure was balanced by the column of water.

If you take a common pressure point at the very apex or bottom of this saddle and you add the hydrostatic weight of a column of gas to it and take the actual pressure at the depth of minus 5,675, you have a pressure of 3,902 PSIA.

Now, in the south reservoir with this same datum, we had a pressure of 3,791 PSIA. If you add to that depth a twenty-five foot column of gas plus the column

of water from that depth down to the bottom of the saddle or trough, you would have a value of eighty-two pounds which would bring the pressure within forty-two pounds of that in the north reservoir.

Now, we think this is very good agreement when the pressures are in effect one and the same, a forty-two pound pressure differential could be accounted for by the fact that the north reservoir is full of gas to its structural spill point. At this point, the structure is higher in the other directions, and it would spill the migration updip and the migration would have stopped at certain capillaries,and the pressure to displace the water would be in the neighborhood of this forty pounds.

Q All right, Mr. Henry, you have said that the production in the south reservoir had caused the water-- excuse me, the gas in the north reservoir to expand and push this water column on up toward these Fasken wells that you have shown on this Exhibit Number Four. Now, is this due to increasing pressure differential between these two reservoirs?

A It is due to the increasing pressure differential. The south reservoir produced earlier and it was, we believe, producing a larger amount of gas daily in proportion to the gas in place than is the north

reservoir, and the result was that it continued to cause a pressure differential in favor of the south reservoir, and it has induced a waterdrive, or water encroachment, into this south reservoir.

I might mention that in dealing with gas reservoirs, we predominantly run into two types of gas reservoirs. The first one is what we engineers refer to as a volumetric reservoir, and that would be one that had no contact with the water column, and in which there was no water encroachment across it. It is completely enclosed with no fluids coming into it because it is an enclosed volumetric reservoir of gas, and as the pressure decreases, the gas is drawn away from it. Now, the gas expands and contracts into what we call a perfect gas law, which says that the pressure is directly proportionate to the volume, and the volume is directly proportionate to the pressure. Now, in the enclosed reservoir, the volume must remain constant, and as it remains constant, production from it lowers the pressure. Now, the perfect gas reservoir, as we describe it in engineering terms, would have a straight line decline of pressure plotted against accumulated production. But these gases are a mixture of hydrocarbons and they are not perfect gases, and in these cases, there are factors we use to correct them so they behave

as if they were perfect gases.

Now, the other kind of reservoir would be the waterdrive reservoir, in which the gas is connected to a very large extensive area of water-saturated rock so that the expansion of the water into the gas reservoir would completely maintain the pressure. This would be a completely maintained gas reservoir in which the water would be encroached. Every time you drew out a unit volume of gas, there would be a unit volume of water to replace it. The reservoir could be depleted at constant pressure this way, and would also have very high pressure.

Now, we find that in the reservoirs we deal with besides these classic examples there are various combinations of these two mechanisms that force the gas to the well bore. In order to have a completely waterdriven field at the pressures that exist, it would require a unit volume of water two hundred fifty times the size of the gas reservoir, the water having very little expansibility when you lower the pressure, and the gas having a very large expansibility when you lower the pressure on it.

Now, as you can see, the limits of this sand here and here do not suggest that this is very large blanket type sand. I have studied this all over Eddy County,

and it has a very meandering sand interval, it does not continuously contain porosity and permeability, and the water zone is insufficient to support waterdrive in this area.

Now, what has really happened is this cushion of expansive gas in the north reservoir by being at higher pressure is being expanded,forcing the water up the flank of this structure into this sand in the south reservoir and has induced artificial waterdrive.

The gas expanding from this reservoir has not proved beneficial down here to the south reservoir where Mr. Fasken has wells immediately adjacent to it, but it has caused this well to produce large volumes of water. The well in Section 16 has very little development in the permeable sand, and is not really affected by this influx of water.

Q Where is the gas going, Mr. Henry, that is expanding into this water, into this saddle, or into this water column?

A Well, as you can see from the structure map, this is a very deep trough between these, or a saddle, that would absorb large amounts of expanded gas before it would reach the structural spill point and come back into this upper reservoir.

The perimeter of this north reservoir that is

adjacent to this water column is very large; the perimeter of the south reservoir that is in connection with the aquifer is very small. The gas expands out along all of this contact and only a small part of it is affecting the encroachment of the water into this south reservoir.

Now, when the gas-saturated rock is invaded by water, it is leaving behind a very high residual gas content. In other words, when the gases are displaced by water, there are little traplets of gas that are trapped in there, and we have found that this would be on the order of thirty-five percent. Now, if we invaded the water-saturated portion of this rock with the gas that is expanding out of this north reservoir and turn around and reverse the process, we have estimated that thirty-five percent of this gas will be trapped in here and never returned.

I think you can see also that if the gas ever develops a continuous phase-out of the trap past this spill point that it will never be returned.

Q If I understand you, Mr. Henry, in just laymen's terms, gas is expanded from the north reservoir due to the withdrawal from the south reservoir, and it expands along all fronts along this gas-water contact so that the gas is actually trying to expand into what was

originally the water zone?

A Correct.

Q And even if you can reverse the situation, thirty-five percent of the gas that is or will in the future expand out into this water zone will never be recovered?

A That's correct. And also, there will be other gas loss as gas expands past the structural confinement,it can migrate updip regardless of pressure because of the difference in density. So a droplet of gas that crosses this trough or saddle can begin to migrate because of the difference in density. When it passes out of the structural trap, it will move on updip.

Q Will that gas ever be produced by any existing well, or is it likely that it will be produced by any other well?

A No, sir, it will be wasted. The gas that migrates out of this will never have any significant effect on this reservoir other than to force water in here and water these wells down.

Q So by way of summary at this point, the gas is being wasted by being forced out into the water zone, and also waste is occurring by water being forced down into the south reservoir, watering out or causing a lot of water production in the two or three Fasken wells immediately south of the original gas-water contact?

124

A That's correct. Some of the gas in here would be produced in what we might call a volumetric reservoir, which normally produces seventy-five to eighty-five percent of its gas in place. In some cases, in very high permeable rock, it produces up to ninety percent of the gas in place. More than that, I think the fact that artificial encroachment of water is watering out these structural low wells, and these operators and royalty owners and mineral interests owners under these wells are not going to be allowed to recover their proportionate share of gas underlying their leases.

Now, this would not be a problem if it wasn't for the diverse ownership and working interests, plus the fact that these two wells contain State acreage in their proration units, and one of them is being seriously threatened with being watered out at this time.

Q Mr. Henry, you have testified that a pressure differential has built up between these two reservoirs due to the disproportionate withdrawals in the south reservoir, have you prepared an exhibit which shows these pressure relationships?

A Yes, I have. This is Exhibit Number Eight--

Q Excuse me, Mr. Henry, we are referring now to Exhibit Five, and also to Exhibit Number Five-A, which I will tack up right on the right-hand side of Exhibit Five.

125

A On this exhibit, I tried to show an overall pressure history of these two areas from the beginning down to August of 1972.

Now, in the beginning, we took a pressure datum of minus 5,675 and referred all pressure measurements to that average depth because as you move up or down in here, your values change slightly by reason of the density of the gas.

Now, over in the first upper square of this exhibit, labelled original reservoir conditions, the bottom hole pressure at 5,675 feet is 3,791 pounds per square inch absolute.

The discovery well in the north reservoir has a pressure of 3,902. Now, this difference is shown on the left-hand side in the center of this exhibit, it being one hundred eleven pounds. So there was an apparent difference at that point due in part to this south reservoir pressure being balanced by this column of water that is shown on the cross section from the center of the saddle up to the minus 5,700 foot contour. This column of water showed an apparent difference, if you please, of one hundred eleven pounds under the original conditions.

Now, in August of 1968, the south reservoir had been on production in excess of two years, and the north

126

for about three months. There was a pressure differential between these two areas, averaging the pressure of these two wells in the north and averaging four representative wells in the south reservoir, there was a pressure differential of six hundred fifty-nine pounds.

Now, on the large graph below these, I have shown a circle below each of the little maps depicting the pressure in the reservoir and in the wells according to the vertical scale here that shows the pounds per square inch differential.

Now, I have platted these across here as to the year and the pressure measured for each year. In 1969, the differential increased to eight hundred twenty-four pounds; in August of 1970, it increased to nine hundred twenty-five pounds; and in August of 1971, it had increased to nine hundred sixty-four pounds. This shows that the productive areas of these two reservoirs have been depleted at different rates. As far as the pressure reduction is concerned, there has been an increase in favor of the south reservoir that is lowering the pressure here and around through the water column, completely around this north area. As the pressure continues to lower throughout the area, then the gas is expanding in this north reservoir faster than it is

being produced.

I might point out in qualifying some of these numbers in the south reservoir, there are some pressure points that are on certain wells that have been enclosed with a dashed square. Those are pressures that we did not consider representative of the rest of the pressures. One is a dually completed well, and the other is a well which has substantially no sand development in the Indian Hills zone.

On all of these pressures from the original through 1971, at least the Fasken wells were controlled with bottom hole pressure. Now, in August of 1972, we have only shut in well-head pressure, and from those, we have occasioned that this pressure differential is eight hundred forty-three pounds. I seriously question the validity of some of the data, there seems to have been some discrepancies in here and I did not give this particular point a great lot of emphasis, although it's still on the same order of magnitude as the pressure that existed back here in August of 1971 when these were well controlled with bottom hole pressure.

We have in the process right now a bottom hole pressure build-up on this well to try and confirm what the real pressure is down here, but I do not believe it is substantially different from what it was back

128

here. So I think in some respects, on this little exhibit here, it has not substantially changed.

Q Mr. Henry, the next two exhibits are rather small for a change, and I will ask you to refer to Exhibits Six and Seven respectively. As I understand it, this is information showing pressure versus time information for the north and south reservoirs respectively. Would you identify and explain those exhibits, the north is Exhibit Number Six and the south is Exhibit Number Seven.

A These exhibits, combined with Exhibit Six, show the pressure history and production history and accumulative production for the north reservoir. Down in the left-hand margin, I have shown the scale depicting reservoir pressure with each of the heavy lines representing a one-hundred pound increment to show this. The bottom line represents the twenty-eight hundred pounds, not zero, and it goes to the top, which is a little over thirty-nine hundred pounds. The scale across the bottom shows the months of each year from 1965 through 1974. The pressures were measure by shutting in these wells, and running a pressure gauge to the bottom at or near the Indian Hills sand. Measuring the pressure with these wells shut in, the wells in the north, the Shell Federal and the David Fasken-Ross Federal, these are shown by the small

129

circles and are shown along the descending solid line from the upper-hand corner to the lower right-hand corner.

Now, the line is drawn between these two points representing the average of those two points, and this has been the pressure history with respect to time in this north reservoir.

Now, the heavy line that you see connecting the small circles on the bottom of the exhibit depicts the monthly gas producing rate from the north reservoir, and this scale is the first scale that appears on the right-hand margin beginning with zero and going up in 100,000 MCF increments along the right-hand inner margin.

Now, you can see that the producing rate has been quite variable in the north reservoir. One time, it was up to a maximum of 180,000 MCF per month, and it decreased down to approximately 70,000 MCF in 1972. It was almost zero back in 1969 for a period of time.

Q Do you have the same information shown on a somewhat different scale with respect to the south reservoir?

A Yes. I would like to point out that the pressure scale on the left-hand side shows two hundred pounds pressure increase for each of the heavy lines approximately one inch apart. Now, to have been exactly comparable

130

with the upper curve,I would have had to use two sheets of paper,and the exhibit would have actually been twice as tall in the vertical direction here to have accommodated this, so the pressures are not the same. This shows almost twice the pressure drop that we have in the upper curve depicting the north reservoir.

Q Other than just showing the factual data on the pressure decline, what is the significance of these two exhibits to your application?

A The significance is this, it shows the history with respect to time, which is very critical here. You will note that the production on the lower or the south reservoir commenced in January of 1966, while it did not actually commence until May of 1968 in the north reservoir.

You will note, if you go from the start of production in May of 1968 vertically upwards to the pressure curve, that there has been a very large pressure drop while these wells have been shut in. This is the pressure drop that occurred when these wells were shut in waiting for the gas pipe line.

Now, I might point out that the ascending line, going upwards and to the right, indicates accumulative production from each of these reservoirs and it is shown on the outer scale on the left-hand side-- excuse

131

me, on the right-hand side. There have been approximately 9.35 billion feet produced from the south reservoir through August of this year. Through August of 1972, the north reservoir had produced 5.5 billion cubic feet of gas.

MR. PORTER: That was through what date?

THE WITNESS: Through August, 1972.

MR. PORTER: For both areas?

THE WITNESS: Yes, it's the same date for both areas. Nine point three-five billion through August for the south reservoir, and 5.5 billion for the north reservoir through August of 1972.

Q (By Mr. Morris) Mr. Henry, while you are talking about these exhibits, we are, of course, asking for relief from the Commission in this case by way of permitting the wells in the north reservoir to produce at capacity. Can it be seen from this exhibit that allowing the wells in the north to produce at capacity will alleviate the wasteful conditions that have occurred in the past?

A Yes, we have evidence of that on the next two exhibits.

Q I will hand you Exhibits Eight and Nine, being another series of exhibits referring to the north and south reservoirs, respectively.

A On Exhibit Nine, we have shown representations of the pressure performance of the south reservoir as against

132

its accumulative production. You will recall that on Exhibits Six and Seven, we showed the performance against time. These show performance of pressure in these reservoirs against accumulative gas production from each area.

Now, as I explained earlier, a volumetric reservoir would suggest, or in the classic case, would show a direct relationship between the pressure and production which would be a straight line if you platted pressure on the vertical scale and accumulative production on the horizontal scale. If you did this, a completely enclosed reservoir would show a straight line.

Now, in the south reservoir, we have, of course, had to adjust this information, it not being a perfect gas reservoir, and added as a factor to correct this pressure so that the information given concerning the hydrocarbon mixture, pressure, and temperature would be platted as a perfect gas.

Now, during the first increment of production where reliable pressures were measured in the south reservoir, which was from the start of production in January, 1966 until August of 1966, the pressures in the south reservoir declined from four hundred fifty corrected pressure to four hundred corrected pressure. Now, knowing these pressures and knowing that the volume relationships

are constant, we can project this to zero pressure, and it will show the amount of gas in place originally in this reservoir.

Now, this should be constant for a volumetric completely enclosed reservoir with no outside influence. The first indications here are that there were 20.7 billion cubic feet of gas in place in this reservoir. You will remember here that the north reservoir is still shut in and only the south reservoir is producing. On the next pressure increment, which was a one-year period from August, 1966 until August, 1967, the north reservoir is still shut in, experiencing some pressure decline, the south reservoir's original gas in place is indicated to be 53.4 billion cubic feet, which is over two and a half times what it showed on the first increment of production. We believe this is a reflection of the expansion of the north reservoir. It showed a pressure drop during this period of time and it had to expand and it did influence and flatten the pressure accumulative for the south reservoir.

Now, in August of 1968, the next pressure point that was measured down in the south reservoir, the north reservoir had commenced to produce in May of that year at a rate of approximately 90,000 MCF per month.

You will notice that the supposed straight line,

134

if it were a volumetric reservoir, has increased in its slope and indicates only 13.6 billion cubic feet of gas in place. This is a very drastic change that took place when the gas began to be withdrawn from the north reservoir and reduced the effect it was having to maintain the pressure in the south reservoir. It continued on down here until 1969, when the production rate increased in the south reservoir due to the addition of some wells. It increased to approximately 125,000, 130,000 cubic feet of gas daily, and it has been maintained at about that level.

Now, this performance in here is varied depending on what has happened to the north reservoir. During the early production from the north reservoir, it indicated a 48.6 billion cubic feet of gas in place and has since decreased and it has decreased as the pressure differential has increased, showing that the gas from the north reservoir is maintaining its pressure against the water which is encroaching into the south reservoir.

Now, the varying slopes on this plat continue on into the very last pressure point here between 1971 and 1972. The August surveys showed the flattening to be very dramatic to 80.5 billion cubic feet of gas in place. You will notice that there is a very drastic decline in the production rate in the north from 180,000 down

135

to 70,000 during this period of time that this last survey was measured.

Looking at just the north reservoir's performance with respect to its producing rate, depicted on the bottom of this exhibit, you will note that it shows more gas in place during the period of time when the producing rate is high. When it was produced at the maximum rate of 180,000 MCF per month, it indicated 36.8 billion cubic feet of gas in place.

Now, we believe that the reason for this is that the withdrawal through the wells is producing the major pressure drop at the high rate of production, and at a low rate of production, this is greatly exceeded by the gas that is expanding out of the reservoir.

So these two exhibits graphically show the effect of one reservoir on the other,and I have prepared another exhibit that shows-- Exhibit Number Ten, which shows, the very small typewritten one if you have it, that shows a comparison of the total gas in place indicated by these curves.

Now, I do not want to suggest that these are representing the actual gas in place, they are representing the indicated gas in place.Because of the interference between these fields it is impossible to quantitively pinpoint exactly, or as exact as we

136

make engineering estimates of reserves.

We believe that the remedy to alleviate the undue expansion of this north reservoir is to produce the wells at capacity, and I believe that it would take four years at capacity production to reverse this pressure differential that we now see.

Q In that regard, Mr. Henry, would you have any suggestions to make if the Commission sees fit to grant your application for capacity allowables for these two wells in the north reservoir as to how the Commission would keep control of the situation and check on it from time to time to see that the pendulum hasn't swung the other way?

A Well, this could be done in a number of ways--

MR. PORTER: Before we get into that, let's take a short recess to give the reporter a break.

(Whereupon a recess was taken.)

(Hearing continues.)

MR. PORTER: The hearing will come to order. Mr. Morris, you may proceed.

MR. MORRIS: Yes, sir.

Q (By Mr. Morris) Mr. Henry, just to finish up the exhibits we wish to present, you mentioned with respect to, I believe it was Exhibit Nine, that you had some question concerning the reliability of some of the

137

current data in the south reservoir. Have you taken any action to determine the reliability or unreliability of that data?

A Yes, we have.We have a bottom hole pressure build-up test in progress on a well and the preliminary results are presented in Exhibit Eleven.

Q Just basically, generally what does that show?

A It shows that in twenty-two hours, the bottom hole pressure of the David Fasken-Indian Hills Well Number 2 was fifteen hundred and fifteen pounds and was still building at fifteen hundred fifteen pounds.

Q Mr. Henry, one facet of our application here was to ask the Commission to consider separating the north reservoir from the south reservoir. Would you summarize your position with respect to this recommendation?

A Well, I think the two areas are what we would conventionally call two separate gas pools. I believe they have all the attributes of separate accumulations of gas, a different gas-water contact, in effect, two separate traps that collected the gas, and I believe that there is, under ordinary engineering concepts generally accepted in the industry, that they do constitute two separate and distinct accumulations of gas.

Now, there are many cases where in continuous porous intervals several miles removed from one another

that they will have pressure effects on other fields. This was first brought out, to my knowledge, by a very classic paper presented by Humble showing the effects of four Ellenberger reservoirs on each other. They showed production from fields as much as six to eight miles removed from one another affected the pressure in these other fields. In order to correctly predict the performance of those reservoirs, it was necessary to incorporate the pressure effect from these nearby and adjacent and sometimes rather far removed fields.

Q Mr. Henry, whether the Commission separates these into two separate pools or whether they grant your application for capacity allowable, in either case, what you are seeking is the right to produce these two wells in what you have called the north reservoir at capacity?

A That's correct. Separating them into two fields was the first recommendation I made to my client as a result of the study I made, and it was just as a matter of convenience. Any other relief that would bring on the reversal of these pressure differences would be satisfactory and highly so.

Q In other words, Mr. Henry, should the Commission decide to keep it all one pool, but to accept these two wells from the regular proration requirements of the pool, this would achieve the same result as far as you are

139

concerned?

A Yes, it would.

Q I want to ask you just a few questions with respect to showing that the capacity allowable will be an effective remedy for you, and in that regard, I will ask you to state the manner in which you are presently producing and operating all five of the wells, all five of the Fasken wells in this area.

A All right. Mr. Fasken is operator of these 640-acre producing units for three of the wells, and there are 900-plus acre proration units assigned to two of the wells, they being non-standard units. At the time we obtained the gas market for Mr. Fasken, it was necessary that he build a gathering line to connect each of these wells to a common point in order to secure a gas market. This in effect has placed Mr. Fasken in the position of being the pipe line gatherer as well as the producer, and it's been our attempt to take the gas ratably in exact proportion to the allowable in each of these wells during each balancing period.

We have from time to time produced some of the wells at a higher rate and have shut in other wells, but we have always tried to balance these during the balancing period so that in the end result, the wells have been produced in proportion to their allowable.

140

Q Are you referring to all five wells, the two in the north and the three in the south?

A That's correct. We have tried to protect the correlative rights of all the diverse interests by maintaining these takes ratably. From time to time, you will notice over production and then under production, and that's allowed us to do rather extensive testing in the development of the field. We did rather extensive testing on the pressure build-ups and pressure fall-offs, and how far it was to the lateral boundaries of these sands, and we have accumulated a rather large volume of data, much of which is reflected in these maps, isopacks, and cross sections here as to the locations of these limits.

Q If the Commission sees fit to enter an order that would permit you to produce the two wells in the north reservoir at capacity, how then can you produce and operate these wells,and as a practical matter, provide the remedy to this wasteful situation you have depicted here?

A I think if we have this relief, with the prospects of an additional gas market for the additional gas that we will have, at that point, the Commission will be able to adjust the takes from these wells so that we can in effect take all of the gas, the larger volumes

141

from these north wells, without violating the ratable take provisions. Since these are now classified as being in the same pool and have the same allowable, we have an obligation toward ratable take which forces us to continue to produce the wells on the north flank of the south area, which is in effect aggravating the water encroachment. But in order to protect the State's royalties and the other working interest owners here, we do not feel we can arbitrarily shut these wells down without the approval of this Commission.

Q Mr. Henry, you testified that it would take about four years at capacity production to stabilize the pressures between the north and the south reservoirs. Do you have any recommendation to the Commission as to the time frame of an order that could be entered, should the Commission see fit to grant your application?

A Well, I think that with proper testing and reporting on these wells that a two-year period would be in order. We now have rules requiring shut in well head pressure each year, and I believe that in all wells where it is mechanically possible to do so, these should be, these bottom hole pressures, should be measured each year.

Q Would it be your recommendation, Mr. Henry, that you come back to the Commission or to an Examiner Hearing in two years to present a status report on the

142

conditions that then exist in this area?

A Yes, I believe we could come back following the second pressure survey, and this would give a two-year performance record.

Q By way of summary, Mr. Henry, is it your opinion that relief by way of capacity allowable is necessary in order to prevent waste in this reservoir?

A Yes, it is. I believe waste is occurring by expansion from the north reservoir, and this has not been beneficial to the south reservoir, it is, in effect, detrimental to it and it is damaging the correlative rights there by undue water encroachment. The correlative rights in the north are being violated here by the expansion of the gas in this area where it is unrecoverable and by any means, this is not serving conservation nor is it serving the working interest owners.

Q If your application is granted, in your opinion, would there be any adverse affects on the correlative rights of any other operators in this area?

A I see no adverse affects on any other operator in the field. This has been well advertised, and we have had no response from any other operators indicating any unfavorable comments from them.

MR. MORRIS: At this time, if the Commission

143

please, we offer into evidence Exhibits One, Two, Three, Four, Five, Five-A, Six, Seven, Eight, Nine, Ten, and Eleven.

MR. PORTER: What was Exhibit Number Eleven, Mr. Morris?

MR. MORRIS: Exhibit Number Eleven was the exhibit showing the bottom hole pressure report on the David Fasken-Indian Hills Unit Well Number 6 in the south reservoir.

MR. PORTER: If there is no objection, the exhibits will be admitted.

(No response)

(Whereupon Applicant's Exhibits One through Eleven inclusive were admitted in evidence.)

MR. MORRIS: That's all we have on direct.

MR. PORTER: Mr. Nutter, do you have some questions of the witness?

MR. NUTTER: Yes.

* * * *

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Henry, a great deal of this testimony is based on your cross section and on your structure map. Now, you have drawn a great abatement in from the east and going back to the west and back to the north. Actually there are not any wells drilled back up in there to establish for a fact that the abatement exists, are there?

144

A Yes, sir, there are wells that show that this has to be depicted in this manner.

Q There are wells that show a dip to the east referring in there to Section 11, I believe. You have a minus 4,580 there, which would be lower than the well to the west of that, which is still covered up, but while it shows the dip to the east, it doesn't actually show the presence of a big abatement, does it?

A The well here is structurally--

MR. MORRIS: Which well are you referring to?

THE WITNESS: The North Indian Hills Basin Number 2 in Section 11.

A (Continuing) The drill stem tested water from a section of sand that was twenty-six feet in thickness, and it updip from these wells that are producing gas. Now, in order to form the trap at the level of the gas-water contact in this north reservoir, we have to have a closure on that side of the field. I cannot exactly pinpoint that, except by continuing the dip established in Township 21 South, Range 23 East, and continuing it and extrapolating it and extrapolating the west dip in the area of the Fasken-Shell Federal Number 1, Section 5 of Township 21, 24, to establish this as a reasonable structural interpretation.

The exact location of it is, I would say, tied

145

down within a quarter of a mile.

BY NUTTER

Q Well, it's indeed necessary to do quite a bit of extrapolating to draw an abatement there between them, the Number 1 Well and the Marathon-North Indian Basin Number 2 Well when they are three miles apart, is that not true?

A That's not entirely true-- that's not true. It did require some extrapolation, and I believe it is a reasonable engineering and geological extrapolation with the data we had at hand. Certainly the control is not complete, and not as good as where we have a greater density of wells.

Q As a matter of fact, you don't have any well that actually shows you the gas-water contact for the north reservoir, as you call it, with the exception of the Mobil dryhole over there, is that correct?

A That's correct. The Mobil well had a flow of gas too small to measure and recovered 9,600 feet of salt water. We believe it was drilled right on the gas-water contact.

CROSS BY MR. NUTTER

Q Whether the abatement is there, that Mobil well isn't necessarily evidence of it, is it? I mean, it could be a low well on the east side of the structure whether the abatement was present or not, isn't that true?

A That was our interpretation until the drilling of the

146

Corinne Grace-Indian Hills Well in Township 21, 24, and that well indicated a substantial north dip over and above what we had seen between the David Fasken-Indian Hills Well Number 7 in Section 16, and the David Fasken-Skelly Federal in Section 9. There is a north dip established here, and we believe there is an indication, a very strong indication, of a south dip and a west dip from the David Fasken-Ross Federal to the Shell Federal. It was the extrapolation of these dip trends, and they are just that, and I think they are established within the limits of reservoir engineering and geological concepts capable of being depicted on 640-acre spacing.

Q The Mobil well could have been a low well on the east side of the structure whether or not the abatement was there, isn't that correct?

A I don't believe I understand your question.

Q I am assuming, Mr. Henry, that the abatement is not present, and that we have a structure that dipped to the east here, and there is no abatement, the Mobil dryhole could be a dryhole on the east side of the structure, it could have been low on the east side of the structure, isn't that right?

A With the control we have today and the wells available to us and the logs available to us, I do not believe

147

that is possible.

Q I am assuming that the abatement is not present for the purpose of my question. Could the well be a low well structurally on the east side of the structure?

A Well, I suppose anything could happen if we assume the abatement is not there.

Q And we would have no evidence of gas-water contact for the north reservoir then?

A Well, I think the abatement is there, and I can't testify otherwise about it. It is, in my opinion, there, and if we assume it isn't, then there's no limit to what we can speculate on regarding the field.

Q And you interpreted the structure as having this abatement?

A Yes, sir, based on the north dip in the wells to the south of it and the south and westerly dip of the wells to the north of it.

Q I don't know what number this exhibit is--

MR. MORRIS: N[illegible] Four.

Q (By Mr. N[illegible]tter) Referring you to Exhibit Four, Mr. Henry, [illegible] order for you to show this yellow line that comes across from the south end of the reservoir to the north end on the right, and to show the trough containing water, it has been necessary to zig-zag around Exhibit Number One considerably, has it not?

148

A Exhibit Number One shows the red line, the straight or connected straight lines across this, and shows the structure map as if we had just sawed it in half and expanded it vertically to show this cut.

Q And you have brought wells in from the side and placed them on Exhibit Four, is that correct?

A At their correct structural position. They were projected on that map to show the well at its particular structural position.

Q Would you take this pen and mark the actual line that your wells follow if you were taking a cross section in a manner in which the wells are depicted here, and show with a black line the direction that this yellow line takes on Exhibit Number One?

A Well, Mr. Nutter, I might say again that the line is shown by the red straight line.

Q Isn't it a fact, Mr. Henry, that when one looks at Exhibit Number One, one sees the line of the cross section and tends to overlook these little lines coming in from the side?

A Well, this is a profile, and this exhibit shows the profile along the connecting straight lines. Now, these wells have been put on here at their structural position, the structural position that they would occupy if we sliced through that particular well.

Q I realize you were drawing this structurally, but you did do a lot of zig-zagging on Exhibit One to get that structure, didn't you?

A Well--

Q Draw them, and let's see if it zig-zags.

MR. MORRIS: If the Commission please, I think we can admit there is a lot-- if you are going to connect the wells up, it would require a zig-zag line to do it, but I think this is an acceptable engineering technique, and I prefer that we not completely obliterate the work that Mr. Henry has done, unless it is absolutely necessary.

MR. NUTTER: Well, if I may, I would like to offer as Oil Conservation Commission Staff Exhibit Number One this map which does have a black line drawn on it.

MR. MORRIS: I would certainly have no objection to that.

MR. NUTTER: What case is this?

MR. MORRIS: 4733 and 4865.

MR. NUTTER: Because I think it is rather apparent that the line does zig-zag, and it is deceptive to the eye to glance at Exhibit One and see the straight line coming across there.

Q (By Mr. Nutter) Now, Mr. Henry, if we took your straight line that you have drawn between the Skelly Federal Number 1 and the Ross Federal Number 1, and if we

150

ignored the zig-zagging back and forth, and we connected those two wells on Exhibit Number Four, I believe we would go from this point on the Skelly Federal Number 1 to this point on the Ross Federal Number 1, is that correct?

A That's correct.

Q And we wouldn't show the big U-tube connecting the two wells?

A Not if you are on the structure map.

Q When we follow your red line from one well to the other, doesn't it zig-zag two miles east and two miles west?

A Perhaps I didn't make myself clear on the purpose of this Exhibit Number Four. This has been verified in two ways, Mr. Nutter, we have shown on here the trace across the structure and the isopack match the thickness map of the Indian Hills sand. The wells were just put on there where they were-- if you disregard the wells, this would have been a straight line across the section through this structure map, and through this isopack map. Now, we can confirm this water level here and here by the pressure in the north reservoir and the pressure in the south reservoir having approximately this water level to accommodate the dips in pressure. These were measured and had to be consistent with the pressure decline that we saw prior to the production

151

from the north. We could not assume these were not in any way connected because we had the pressure drop and, on the other hand, with the difference in pressure, they had to be accommodated by a difference in water level to physically fit that data into this structural and stratographic interpretation that I have shown on this exhibit.

Q When you answered that question, you said that this confirmed the water level,and you were p inting to the Corinne Grace Well and the Mobil dryhole, is that correct?

A That's correct. This placed the water level somewhere between the Corinne Grace-Indian Hills Number 1 and the David Fasken-Skelly Federal Number 1, and in order to get the pressure in line, we had to assume they came to this depth completely filled with gas, and on that assumption, it confirmed the pressure. So we think this well established both from a structural interpretation and from the pressure performance the pressure we found originally supporting a water column difference of this order and magnitude.

Q On Exhibit Number Four, the yellow line is filled with water in certain parts of it?

A The yellow line is gas.

Q Yes, the yellow is gas and the blue represents water?

A Yes.
Q And that is based on Exhibit Number One and the zig-zag cross section which Exhibit Number One depicts, is that correct?
A It is based on the cross section as depicted on Exhibit One, and it is based on the isopack map, which is Exhibit Number Two, and the exhibit under discussion.
Q But when you draw a straight line from the Skelly Federal Number 1 to the Ross Federal Number 1, we simply see a dipping generally from the south to the north, and we don't have this tremendous sincline in between the wells, is that correct?
A If you ignore the Corinne Grace Well, but--
Q I said if we went from the Skelly Federal Number 1 to the Ross Federal Number 1, just straight across.
A That's right. And that was an interpretation in some earlier exhibit presented to this Commission prior to the drilling of the Corinne Grace Well. The data now on hand shows that that was an erroneous interpretation because we did not have enough data to tie down the north dip in the areas of Sections 8 and 9 of Township 21, 24.
Q Mr. Henry, I think we are through with those exhibits. According to the November gas proration schedule for Southeast New Mexico, we have ten wells in this pool,

153

and I believe that all of them except one well are shown in your yellow areas on several of your exhibits. The one well that isn't shown is the Marathon Well, which is in Section 14, out to the far west, do you consider it not actually an integral part of this pool we are talking about here?

A That's correct, it's producing from the lower Morrow or C-zone of the Morrow, and has a producing interval of approximately 250 feet below the Indian Hills sand that we are studying.

Q I think I said that the schedule lists ten wells including that well, there are eleven, so if we throw that well out, we have ten wells in the pool?

A Yes.

Q And David Fasken has two wells in the north reservoir?

A Yes.

Q So two wells out of ten wells represent twenty percent of the wells, is that correct?

A Yes, sir.

Q What has been the production from the north area, and what is the total accumulated production from the south area?

A Five point five billion through August in the north area and 9.35 billion from the south reservoir for the wells that are included in this Indian Hills sand.

154

Q In other words, the total production is in the neighborhood of fifteen billion in the reservoir as a whole, and twenty percent of the wells are the two David Fasken wells in the north part and they have produced approximately forty percent of the gas produced from the pool as a whole?

A The David Fasken wells are drilled on non-standard units with in excess of 920 acres in each proration unit. These were approved by this Commission, and the allocation is on an acreage basis in the field. A number of the wells aside from the David Fasken wells are at limited capacity as producers, and that limited capacity as producers and the excess acreage attribute a lot more allowable to the Fasken wells.

Q Is your Shell Federal Number 1 in Section 5 a limited capacity well?

A No, sir.

Q How come it was 117,000 MCF under-produced on the November schedule?

A The David Fasken-Indian Hills Number 6 will not produce at less than 1.5 million MCF without logging it up with water and dye, and its allowable is not that much. When it is produced, the other wells have to be cut back when this well is produced at this excess rate. We now have it shut in and are making up the underage

on the Shell well.

Q If your Indian Hills Unit Number 6 is in the south part of the reservoir and that well happens to be over-produced, aren't you contributing to this loss of gas in the north by over-producing this well in the south?

A That's one of the problems we are trying to remedy here today. Mr. Fasken has always had the gas pipe line, and we did not feel that it was our prerogative to decide how and where and when to take this gas without the concurrence of the Oil Conservation Commission.

Q But you are over-producing the well in the south?

A But it is now shut in to make up for the north. I might say that the encroaching water is ready to kill it.

Q That's the Number 6 Well?

A Yes, sir.

Q Why is the Ross Federal over-produced and the Shell Federal under-produced?

A We have rotated this production and we have cut back to get them in line by the balancing period, and we have done some testing on the wells and, as I mentioned earlier in my testimony, we do keep these in balance within the balancing period, but we may shut in wells for testing and measurement of pressure and for long-time build-up where we can get extensive and very good data. We do not produce the wells continuously every

156

day at their uniform allowable rate.

Q According to this exhibit here, I don't know which one it is, it's the one that shows production from the pool and pressure decline in the north, and it appears that production from the north reservoir declined quite drastically in the first half of 1972. What was the reason for that?

A The pipe line decreased the gas they would accept from Mr. Fasken's gathering system from approximately nine million a day to 5,750,000 a day.

Q Why did they do that?

A That was their prerogative, and even though we objected to it strenuously and negotiated with them with some very hard words over it, they insisted on it, and instructed their field man that if we put more gas through their meter, that he was to close the valve.

Q Was that during that period of time that the one well accrued all that under-production?

A I don't know, I don't have the allowable and production statistics with me. We keep that, but I don't have it in my notes.

Q The takes from the well were pretty good during 1971, particularly during the last three quarters.

A Right. These wells were one of the three or four top allowable wells in the Indian Basin field. We were

157

taking at these high rates and over-producing them a part of that time. We nominated for a higher gas rate-- is that how the formula works? I'm not sure I fully understand the formula. But from time to time, production does reduce the nomination, and we did nominate for that amount of gas, but our allowables were not always that high.

Q Do you have any figures for October production yet?

A No, sir.

Q It appears from this exhibit that production has started upwards again. Do you know whether the pipe line intends to resume their original rate of take in the area?

A They have not given us any indication that they will. They have,on a day to day basis, asked for additional gas, as of last Friday, they had asked for thirteen hundred additional MCF per day.

MR. NUTTER: I believe that's all I have.

MR. PORTER: Mr. Stamets?

* * * *

CROSS EXAMINATION

BY MR. STAMETS:

Q Mr. Henry, what you have described on this Exhibit Number Three in the north pool, just by eyeballing it, it looks like there must be about five sections that are productive of gas, five or more, would that be right?

158

A There are five sections that are underlined by Indian Hills sand. We have proved in Section 32, for instance, that the saturated sand was not of sufficient permeability to produce at a commercial rate.

Q How about Section 31? How about the Northeast quarter of Section 6? How about the South half of Section 3? These have not been developed, have they?

A That's correct.

Q You have two wells in these five sections, if additional wells were drilled and participated in the pool allowable, wouldn't that help the situation that now exists?

A Not necessarily, because most of the area is covered by the same gas contract and these people refuse to take over 5.25 MCF per day, and as the situation now stands, there is no economic incentive to drill and develop. Some of those are not controlled by our client, and I can't speak for them.

Q You are saying that the contract you have in here would prevent the production of sufficient quantities of gas from the north pool to alleviate waste if it is occurring?

A Would you state that again?

Q Are you saying that the contract that you have in this area is written in such a way that it would not alleviate the problem of waste if waste is occurring?

159

A If we show waste and drainage away from our client's leases, there is a provision in the contract to make supplemental gas sales. When these factors have been established, then we can obtain additional gas sales to another party. We can give the present gas purchaser ninety days notice if we are going to do this, and he can take the gas necessary to alleviate the conditions. Our client is free to sell gas on another market after the ninety days.

Q Through the production of these wells, waste would be prevented, and there are provisions in the contract to permit this?

A If waste is occurring under the contract acreage, we have a remedy. Much of this acreage was contracted to Natural Gas Pipe Line Company of America when it was totally undeveloped wildcat acreage. Some of this acreage is committed to that and to that contract.

Q Referring back now to Exhibit Number One, I had previously, very quickly, scratched on here the outline of productive sand that you have shown on Exhibit Number Three. In any event, it appears to me that when you go from the south end of the pool down into this saddle and move over to the west that the formation, as we go farther to the west, is substantially higher than the formation down here where the Kerr McGee Well is in Section 30,

160

is that an accurate statement?

A Yes, it is a closure on the west side of the porosity pinch-out.

Q Is this the water saturated area to the west?

A Yes.

Q Outside of the trap, is there any mechanism across that neck in Section 7 that would prevent this water from migrating downdip and back up again into the gas wells?

A At the original condition, the gas pressure was equal to the water pressure at the gas-water contact, plus the hydrostatic head of that water wherever the updip limit might be.

Q What about now?

A Well, at this point, the pressure that is occurring is not being maintained by any encroachment on an overall basis.

Q In other words, you are saying this water updip is not migrating downdip?

A Right here (indicating). The reason for that is that the expansion of water is approximately one two hundred fiftieth of that of gas. Now, to maintain that gas pressure, the area would have to be two hundred fifty times the area of the gas now.

Q I believe it was your testimony that the gas is migrating out of the bottom of this U-tube to the north and then

161

updip to the north into or toward the south reservoir and was forcing the water out of the saddle updip toward the Skelly Well, the Indian Hills wells?

A That's correct, because there is pressure there, and the line of resistance is to move toward the low pressure area.

Q Have you made any calculations of how much water would have to move here and how much gas would have to replace it and whether that was actually happening?

A We have depicted that on Exhibits Eight and Nine.

Q Not in absolute fashion. There are no calculations within a mile or within a quarter of a mile. You would need a billion cubic feet build-up if you removed the water and filled it with gas.

A It's difficult to say, we have more unknowns in here than we have equations. We could speculate on some limits, and that would be about it. I think if I might refer to Exhibit Ten, that probably would help. That's the August, 1967 and August, 1968 totals.

Q Mr. Henry, are there any other zones in the Morrow formation which are productive in the north pool as you have described it and the south pool across this saddle?

A There's none in the north pool that are productive, there were none perforated in the Fasken-Shell Federal. There were some Middle Morrow sands perforated and

162

tested at gas volumes too small to measure in the Ross Federal. This was done with controlled pressure and the well was tested and did not produce commercially until we perforated the Indian Hills sand.

Q Is that the same zone as perforated in the Grace well in Section 8?

A It's the same general section within the Middle Morrow, what we have called the Avalon Zone on Exhibit Number Two.

Q That zone has not been discussed at length in this hearing.

A That zone is contributing a minor amount of gas. Since it was perforated in the Fasken-Skelly Federal, it made 800 MCF per day, and immediately decreased to about 400. Then we put the Indian Hills zone back with it, and we could not tell of any increase in well productivity as a result of perforating and cracking that Avalon Zone.

(STRUCTURE MAP PET'S EX. #1)

Q This map could be interpreted in a number of different ways. We could accentuate this saddle, or we could sort of diminish the effect of the saddle just by the interpretation of these points, and for the interpretation to be one hundred percent cooperated by the pressure data, you would have to place this thing about fifty feet deeper, isn't that right?

A Or you would have to place the gas-water contact above the Skelly-Federal Well.

163

Q Just ignoring the water-gas contact, isn't it a matter of connecting the geological points on the map, and by doing this, we could interpret it in a variety of ways?

A Well, as I mentioned earlier, we have included in this isopack map and the structure map all of the data we have accumulated.

Q Mr. Henry, I realize that--

A You will notice the zero limit of the sand.

Q -- You mentioned that several times. I would just like to ask you a question, and I would just like you to answer whether or not we could interpret this structural map in different ways.

A Different people would draw different maps with the same points.

MR. STAMETS: That's all the questions I have.

* * * *

CROSS EXAMINATION

BY MR. PORTER:

Q You mentioned, I believe, that the operators in the south pool were being adversely affected--

A The other working interest owners. If I said operators, it should have been other working interest owners.

Q In the Fasken wells.

A Yes, sir.

164

MR. PORTER: That's all the questions I have.

MR. MORRIS: I have no redirect.

MR. COOLEY: William Cooley, I'm with Burr and Cooley, Farmington, New Mexico, and am appearing on behalf of Mr. Michael P. Grace, who, as the testimony has indicated here, does own a well in the pool in question. I was detained at the outset and was not here at the time appearances were called for. I respectfully request the Commission to permit our appearance at this time, so that we might question the witness briefly.

MR. MORRIS: Is Mr. Cooley appearing for Mr. Grace or Mrs. Grace, or both of them?

MR. COOLEY: Michael P. Grace II and Corinne Grace.

MR. MORRIS: Fine, I have no objection.

MR. PORTER: You may proceed, Mr. Cooley.

* * * *

CROSS EXAMINATION

BY MR. COOLEY:

Q Mr. Henry, are you aware of all of the perforations and the completion that was made with respect to the Grace well?

A I was aware of those that are on file with the New Mexico Oil Conservation Commission Office in Artesia, New Mexico, prior to May 15th.

Q Are you aware that the highest perforation in the Grace

165

well would be in the same producing zone that you referred to here in most of your testimony if that zone is at least ten feet thick? Do I make myself clear?

A No, would you say that again?

Q The highest perforation of the Grace well would be, sir, in what you call the Indian Hills Zone if that zone is as much as ten feet thick.

A I went through the Commission records and they have the perforations as of May 15th, and they had on file a log of the Grace well, and from the data that I had, this zone at that time was not perforated. If it has been perforated subsequent to May 15th when I checked the records, then I have no knowledge of that.

Q Has the Grace well produced any substantial amount of water in excess of the several Fasken wells?

A According to the records, it has.

Q It is the highest water producer in the pool, isn't it?

A That's correct.

Q Are you aware of the water production from each of the wells in the pool?

A I'm aware of what has been reported to the New Mexico Oil Conservation Commission.

Q And it is your testimony that the Grace well is the highest water producer in the pool?

A I couldn't say that for sure because I don't know

166

exactly what its production is, and I really don't have any specific knowledge of it aside from the Commission records.

Q If your structural interpretation on Exhibit One is correct, you would assume it would be the highest producer because you have the Indian Hills Zone below the Grace water contact, do you not?

A That's right. The information I have through the Commission records of May 15th is that the Indian Hills sand was not perforated in that well.

Q And if it is not a greater water producer than the other wells in the field, that would tend to contradict your interpretation?

A Not if it is producing water out of a different zone.

Q Which zone would that be?

A What is depicted on Exhibit Two as the Avalon Zone which has to be maybe seventy-five to one hundred feet lower than the Indian Hills Zone.

(BY COOLEY)

Q You are aware of the fact that the Grace well initially produced a substantial quantity of gas?

A No, sir.

Q They tested the capability of producing a substantial quantity of gas.

A They tested gas, but I would not call it substantial.

Q Whatever gas it is capable of producing, where would it

167

be coming from in your opinion?

A It is coming out of the Avalon Zone. Under the first set of perforations, it was gas and water coming from the Avalon Zone, that is, from the first set of perforations reported to the Commission.

(BY COOLEY)

Q Referring to your testimony on cross examination, it came out that you have certain gas purchase contract problems with respect to what you described as the north pool, is that correct?

A We have them with respect to all of the connections in the Indian Basin.

Q The entire pool has a greater capacity to produce than Mr. Fasken is able to pass on to the pipe line company?

A We have an excess capacity to produce, yes.

Q If the present capacity under the present allowable is in excess of your present market, what is to be gained by giving capacity allowables or increasing the allowable for any well in the field or giving a capacity allowable as you suggest?

A (No response)

Q You are already capable of producing more gas than you can sell?

A That's right.

Q And you wish now to aggravate this problem by increasing the allowable?

A No, we would like to increase the gas sales.

Q How are you going to be able to accomplish that?

A We have a remedy under our contract to make supplemental gas sales if we have the increased allowable, which we have asked for here today.

Q Would you describe that contract, the actual mechanism of how the Commission can help you sell more gas?

A Yes, sir. The contract that we have provides that if waste is occurring or drainage is occurring away from Mr. Fasken's wells, then he can notify the gas pipe line company that this condition exists, and to what extent it exists, and then they have ninety days to take the additional gas or he is free to sell it elsewhere.

Now, we are asking the Commission here today, we have brought out the waste that is occurring, and we have asked the Commission here today to set an allowable for these two wells that will allow us to make this additional gas sale without violating the rules and regulations of this Commission.

Q Your contract reads that they will buy your allowable?

A No, sir.

Q I think you previously testified that a number of wells were substantially under-produced when your sales were curtailed by the purchaser, is that correct?

A No, sir, I did not testify to that.

169

Q When the sales to the pipe line company were curtailed, as you mentioned earlier in your testimony, did any under-production result from that curtailment?

A Not within the balancing period. There was a reallocation of allowables at the end of the balancing period.

Q So it was cancelled and reallocated?

A That's correct.

MR. COOLEY: No further questions. Thank you.

* * * *

REDIRECT EXAMINATION

BY MR. MORRIS:

Q One question, Mr. Henry, to clear up any confusion that may exist on this contract. If the Commission sees fit to grant your application, is it your opinion that you will be able to make practical use of the additional allowable granted to the wells in the north reservoir and make sales of the additional gas permitted?

A Yes, sir. Within ninety days of the order, it will require ninety days to trigger our contract provision.

MR. MORRIS: That's all I have.

MR. PORTER: Are you through with your questioning, Mr. Morris.

MR. MORRIS: Yes, sir.

* * * *

170

CROSS EXAMINATION

BY MR. UTZ:

Q Anywhere in your exhibits, have you shown the capacity of these two wells to produce, your Ross and your Skelly wells?

A The deliverability of the Ross Federal Number 1 against 1,100 pounds of saline pressure is 6,200 MCF per day. The Shell Federal Number 1 has a current deliverability against 1,100 pounds of pressure of 2,800 MCF per day.

Now, we have build-up data on the Shell Federal, and there are factors which indicate that there is a plug-in immediately at the well bore in that well, and if we did not get complete restoration of productivity by a perforating job and at such time as we can sell additional gas, we can fracture this well and/or re-perforate it, and we believe at that time, it will deliver about twice what it is now capable of delivering.

Q Which Shell well is that?

A The Shell Federal. The Ross Federal does not indicate any large skin damage, however it does indicate a small amount.

Q How much has the allowable been on this well?

A It has been variable.

Q Do you have an average figure on it?

A The last I looked--

171

Q I want to know how much more gas you want to produce out of these wells.

A We want to produce, currently, 9,000 MCF daily. I believe the last proration schedule showed 37,500 per month for these wells, which is a little over a million feet per day.

Q So the two wells together are only getting an allowable of two million per day?

A With the excess acreage, they are probably getting three million a day.

Q And you want to produce nine million?

A Yes, sir. And we might possibly want to increase that to ten or eleven million if our fracture job is successful.

(BY MR.)

Q Mr. Stamets asked you about drilling another well up in Section 31. What is the reason you don't want to develop that acreage?

A Well, to date, my client has not provided the money to do it with, he maintains very strict budgetary control on what I drill and don't drill, and he's not provided the money. We have recommended it and discussed it from time to time, and he does own the lease on that acreage.

Q Do you think it is productive?

A Yes, sir.

172

Q And that would increase your allowable by almost a third, wouldn't it?

A I would hope so.

MR. UTZ: That's all.

MR. PORTER: Does that conclude your questioning?

MR. MORRIS: Yes.

MR. PORTER: The witness may be excused.

(Witness excused.)

MR. PORTER: I would like Mr. Nutter to be sworn, please.

* * * *

DANIEL NUTTER,

was called as a witness, and after being duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. PORTER:

Q I believe you want to offer an exhibit?

A Yes, sir.

Q Would you tell us what that exhibit is?

A Yes, sir. It's an adaptation of Henry Engineering Company s Exhibit Number One in Case 4733. On this exhibit, I have taken a black pencil and depicted the line from the Manzano State Number 1 to the David Fasken-Howell Number 1. The black line simply connects the wells in sequence as they are connected by Mr. Henry. However,

173

he drew a straight line and brought the wells in from the side with red arrows.

Q And you have numbered that as Commission Staff Exhibit Number One?

A Yes, sir, and I would like to offer it.

MR. PORTER: Mr. Morris, you have already indicated that you have no objection.

MR. MORRIS: No objection.

MR. PORTER: Commission Staff Exhibit Number One will be admitted.

(Whereupon Oil Conservation Commission Staff Exhibit Number One was admitted in evidence.)

MR. MORRIS: Does anybody else have anything to offer in these cases?

(No response)

MR. PORTER: If not, the cases will be taken under advisement, and we will recess this hearing until one-thirty.

174

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, RICHARD E. McCORMICK, a Certified Shorthand Reporter, in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings to the best of my knowledge, skill and ability.

Richard E. McCormick
CERTIFIED SHORTHAND REPORTER

175

I N D E X

WITNESS	PAGE
JAMES HENRY	
Direct Examination by Mr. Morris	8
Cross Examination by Mr. Nutter	48
Cross Examination by Mr. Stamets	62
Cross Examination by Mr. Porter	68
Cross Examination by Mr. Cooley	69
Redirect Examination by Mr. Morris	74
Cross Examination by Mr. Utz	75
DANIEL NUTTER	
Direct Examination by Mr. Porter	77

E X H I B I T S

EXHIBIT		ADMITTED	OFFERED
Applicant's			
Exhibit #1	Structure map	48	9
Exhibit #2	Cross section	48	12
Exhibit #3	Map	48	18
Exhibit #4	Expanded view	48	20
Exhibit #5	Overall pressure history	48	29
Exhibit 5A	Overall pressure history	48	29
Exhibit #6	Production history	48	33
Exhibit #7	Production history	48	33

176

INDEX (Continued)

EXHIBIT		ADMITTED	OFFERED
Exhibit #8	Plat	48	36
Exhibit #9	Plat	48	36
Exhibit #10	Comparison	48	40
Exhibit #11	Test	48	42
OCC Staff			
Exhibit #1	Adaptation	78	77

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(Lewis v. D.C.C.

Transcript —

Index - i
Petition for Review (28482) - p.1
Order K-4409-A - p.6
Application for Rehearing - p.8 (Case #733)
Notice of Appeal (28482) - p.12
Entry of Appearance (28482) - p.13 Carr
Certificate of Record (28482 + 28483) - p.14
Acceptance of Service (28482) - p.15 Cooley
Answer to Petition for Review (28482) - p.16
Motion for S.J. (28482) - p.18 - Morris
Motion for S.J. (28482) - p.20 - Carr
Requested Findings (28482) p.22 - Carr
S.J. - (28482) - p.28 — Carr
Notice of appeal 28482 + 28483 - p.30 - Buell
Praecipe - p.31 - Buell
Clerks Certificate - p.33
Reporters Certificate - p.34
Petition for Review (28483) - p.35
Order K-4444 - p.39
Application for Rehearing - p.41
Notice of Appeal ——— p.45
Entry of Appearance - p.46 - Carr
Certificate of Record p.47 (28482+83)
Acceptance of Service - p.48 - Cooley
Answer to Pet. for Rev. - p.49 - Carr
Motion for SJ - p.51 - Morris
Motion for SJ - p.53 - Carr
Summary Judgment p.55 - Carr
Tr. (4733) - pp.57 - 95
Tr. (4865) - pp.96 - 175
Certificate 176 - 177

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
CONFERENCE HALL, STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
June 7, 1972

EXAMINER HEARING

IN THE MATTER OF:

Application of David Fasken for pool contraction and creation of a new gas pool, Eddy County, New Mexico.

CASE NO. 4733

BEFORE: Daniel Nutter
Examiner

TRANSCRIPT OF HEARING

Page 1

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, , NEW MEXICO

Hearing Date JUNE 7, 1972 TIME: 9 A.M.

NAME	REPRESENTING	LOCATION
[illegible] Christy III	Shenandoah & Dalport	Roswell
T. P. Bate	Shenandoah Oil	
JOE A. COLEMAN	HARPER OIL CO	Ft. Worth
Jim Henry	HENRY ENGR. - For David Fasken	HOBBS Midland
R. M. Richardson	American Trading & Prod	Roswell
Jason Kellahin	Kellahin & Fox	Santa Fe
[illegible]	R. W. Byram	" "
Victor T. Lyon	Continental Oil Co	Hobbs
Jack E. Brown	Stoltz Wagner & Brown	Midland
Richard S. Morris	Montgomery et al	Santa Fe
Douglas [illegible]	Amer. Trad & Prod Corp	Midland
[illegible]	American Trading & Prod Corp	Midland
Hugh E. Hanagan	Hanagan Petroleum	Roswell
[illegible]	Dalport Oil Corp	Dallas Tex

MR. NUTTER: The Hearing will come to order, please, and we will call Case Number 4733.

MR. HATCH: Application of David Fasken for pool contraction and creation of a new gas pool, Eddy County, New Mexico.

MR. MORRIS: Dick Morris, Montgomery, Federici, Andrews, Hannahs & Morris, appearing on behalf of the Applicant. We have one witness we would like to have sworn, Mr. Jim Henry.

(Whereupon,the witness was sworn by Mr. Hatch.)

* * * * *

JAMES. B. HENRY,

called as a witness, after having been first duly sworn, testified as follows:

MR. NUTTER: You may proceed, Mr. Morris.

DIRECT EXAMINATION

BY MR. MORRIS:

Q Mr. Henry, please state your name and where you live.

A James B. Henry, Midland, Texas.

Q And what is your affiliation with the Applicant?

A I am a consulting engineer on retainer for engineering services and management of his operating and drilling operation.

Q And have you previously testified before this Commission ~~or~~ one of its examiner hearings and had your qualifications

made a matter of record?

A Yes, I have.

Q Were you briefed at the outset of the hearing, Mr. Henry, as to what is sought by this Application?

A In this Application, we are seeking to contract the limits of the Indian Basin Morrow Gas Pool in order to exclude two wells and their proration units that are now found to be producing from a separate reservoir, from some of the other wells in this field, and these wells are suffering damage as a result of the rules being applied uniformly and the proration being applied uniformly, specifically to these wells.

The Indian Basin and Morrow Gas Pool has many very shallow reservoirs that are of insignificant economic consequence and have been lumped together over a wide, long section of the Morrow zone. However, in these two wells, some damage to the reservoir is occurring because of the way these wells are required to be produced, and we are seeking relief from the damage that is occurring to these reservoirs and the adjacent one as a result of the present method of operation.

Q All right. Would you refer to your Exhibit Number 1, your structure map, and first of all, would you point out two wells and the acreage that you are seeking to delete from the Indian Basin Morrow Gas Pool?

A Yes. I'd like to point out the area, here, in Township 24 -- excuse me, 21 South, Range 24 East, in Sections 4 and 5, containing the David Fasken Shell Federal Number 1 in Section Number 5 and the David Fasken Ross Federal Well Federal Well Number 1 in Section 4 and these are the two wells in the area that we would like to delete from the Indian Basin Morrow Pool.

The map here is a structure map, contoured on the top. This is a point in the Morrow zone where going downward we progressed from a lime shale.

Q Do you want to refer to your Exhibit Number 2, your isopach map, together with this Exhibit, Exhibit Number 1?

A Yes, Exhibit Number 2 is a map of the Indian Hills sand zone and the area that has been shaded yellow is the gas productive area. You'll notice some heavy blue lines on the south end of what we referred to as the north reservoir, depicted on here, and on the north end of the south reservoir.

This has limited these two pools, by gas-water, contact, and these same contacts have been inscribed on the structure map to show the relative position.

These were obtained by overlaying the two maps. And, as you can see, the dashed area on the contour, on the isopach map, represents the area of sand development, and the blue line represents the limits of these

reservoirs by the water contact. You will notice, on the structure map, that there is a feeling between these two areas, and we have not found there is a different gas-water contact in the south reservoir and the north reservoir, but that these are hydraulically corrected through this water zone. Earlier in the life of the development of the north area, we found there was pressure interference caused by the Penrock well in Section 19. These wells produced for approximately two years, then created a pressure drop in the Fasken-Ross wells.

We were informed at that time that the thing was continuous sand. It was not until the drilling of the Corinne Grace well in Section 8 that we found it did appear to be so and that the water contact was established in here. The Fasken Skelly Federal Number 1 began to produce water at an early date and production of water from the Fasken Hills Indian Unit Number 6, structurally high, at an early date, it became apparent these were two separate reservoirs.

Q Would you refer, now, to Exhibit Number 3, your cross-section?

A This is the Indian Basin Morrow Gas Field. That is the north-south -- basically a north-south cross-section. The blue area, here, is the Indian Hills sand interval.

This being the south reservoir, this being the configuration of the north reservoir at the base of this cross-section. Now, early in the development, down here, the Kerr-McGee well, the south reservoir, I believe the first well in the area, it had an original pressure of -- reservoir datum of --

MR. NUTTER: Jim, could you identify your wells on there so that I can draw a trace of it?

MR. HENRY: The ~~Manzano locality~~ Navajo Locality is Section 36 of Township 21.

MR. NUTTER: And then were does it go?

MR. HENRY: To the Kerr-McGee well, Section 30, diagonally northeast of it, due north of the Penrock well in 19, to the David Fasken Indian Hills Unit Number 7 over in 16 and Number 6, down here, at a lower structural position is the Indian Hills Unit 6 and 17, and we go to the David Fasken Skelly Number 1 to the Corinne Grace well in Section 8 to the Federal Well in Section 10, to the David Fasken Shell Federal in 5, and then to the Ross Federal in Section 4, and to the dry hole north in Section 32, of Township 20, South.

MR. NUTTER: Okay.

MR. HENRY: That's the zig-zag pattern.

A (continuing) The south area had an original pressure of 3772 at a datum of 5420.

In the north area, there was a datum pressure

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measured at 5675 of 3902. This seemed to be a disparity in the pressures. Recognizing that there were differences in these pressures, that would suggest that they were not in the same reservoir, but the interference created a pressure drop in the two Morrow wells producing in the area.

Now, at the time, we didn't recognize the significance of this. The Corinne Grace Indian ~~Rail~~ Number 1 was drilled and found to be water bearing in the Upper Indian Hills sand. We began to do some additional work here. We found that if we placed the gas-water contact in the south dome between the Corinne Grace and David Fasken Federal wells, it was a minus 5700 datum, and if we projected that gas column down to here, we had a pressure of 3793. If we projected it down to the salt in the bottom of this structural trough, between the two fields, we would come down to a pressure in the south reservoir, corrected for the water column, gas column, the original pressure measured to a value of 3875. We did the same thing on the north site, take the gas-oil contact all the way down to the structural point, here. That is an equivalent to the point that Mobil Federal Number 1 has encountered; the same water bearing, and this well had a pressure reported, on drill stem test, of 3900 pounds.

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If we come down here and take this 3902 corrected for gas column, all the way to this datum, we come out with a 3917, which would suggest that this reservoir under original conditions was completely filled with gas to the spilling point. You'll note on the trap to the south, the gas-water contact was at about 5700 feet.

That's how we arrived at this point of 5700 feet. There also could be a high dynamic radient of this magnitude over the five mile interval between these two wells, and we feel this is a pretty good indication that these are connected through here and that the pressure caused by early production from these wells actually caused encroachment of that reservoir to lower its pressure. This was further confirmed by the fact that the well commenced to produce large volumes of water.

Q The Skelly Number 1 commenced to produce water about a year and a half to two years ago?

A The David Fasken Number 6 well produced in excess of a million and a half feet a day, and we believe that this is creating an artificial water drive into the south dome.

Q Mr. Henry, would you refer, next, to your differential pressure map, or collage, or montage, or whatever you want to call it?

A Montage is a little bit of everything, I believe.

On this Exhibit, I have attempted to show the pressure history of these two reservoirs on the north reservoir and the south reservoir in the Indian Hills sand unit. Historically what the pressures have looked like.

Now, to begin with, under original conditions, the datum I chose to study, this 5675 -- this would be an apparent pressure of 111 pounds. This is based on taking the difference at this datum of 5675. That would have an apparent difference, because of water balancing the pressure up to this point from the north reservoir.

Q Now, in August, 1968, after the south reservoir had been on production for a little over two years and the north reservoir had been on production for about three months, what was the pressure?

A We had an average pressure in the north reservoir of 3818 and in the south reservoir of 3157, showing a difference of 659 pounds in the ratio pressure differential at this spill point between the two reservoirs. Now, as we come on down to 1969, this pressure between the reservoirs had been some 659. In August of 1970, it increased to 925 and in August of '71, it increased to 964. Now, I might explain that in the writing at the average pressures, the north reservoir shows very close agreement in the pressures between the two wells; only a

few pounds, on the order of 20 to 30 pounds difference in pressures. In the south reservoir, we have some rather wide discrepancies in pressures. In the south dome, or I should say the south reservoir, it isn't exactly a dome, the pressure, however, has continued to increase between these areas, and is, in fact, still increasing.

It increased the least amount between 1970 and 1971. For a very unique reason, we produced the north reservoir during this period at the highest rate that it had ever been produced and which affected this flattening in the last year, as depicted on that Exhibit.

Q Mr. Henry, would you refer to your Exhibits 5 and 6 which show the production history of the south and north reservoirs, respectively?

A Yes, Exhibit Number 5 shows the production history of the north reservoir containing the David Fasken Shell Federal Number 1 and the David Ross Federal Number 1 producing wells. You'll note the pressure history starts in 1965 at the completion of the David Fasken Ross Federal well depicted at the top of the page with the pressure plotted on the left margin of this Exhibit. The pressure had, in fact, decreased substantially at the time the wells were put on production in May of 1968. This pressure drop, we believe, was affected by the production of the

68

south reservoir prior to that time. The heavy curve, circled at the bottom, shows the monthly gas producing rate from these two wells. The solid curve with the upward trend is the cumulative gas production curve which is also shown on the extreme right-hand margin as being the cumulative production, being slightly in excess of five billion cubic feet.

The producing rates have been quite variable. They were higher during the last seven months of 1971. Now, the next Exhibit is the same data for the south reservoir.

I have, on here, in addition, shown the traces of the pressure performance of the individual wells. They show a rather wide variation between the average pressure, depicted by the heavy line, with the triangles in it, and the light lines with the little circles. However, you'll note that by 1971, the last pressure measurement, these things were converging and beginning to show fairly consistent pressures. We think there is a much greater variation in permeability in the south reservoir and probably in the north. This accounts for the insufficient buildup, I think, for the wide variation in the David Fasken wells.

We computed the bottom pressure from operator reports, wellhead pressures, and this accounts, I'm sure, for some of the apparent discrepancies in these pressures.

I also believe that the pressure gradient from the south, from the north to the south, you'll notice in here, these pressures had been generally higher than these at the south end. There is one point in here in which the Kerr-McGee well decreased. Number 1 decreased from 2700 pounds in 1968 to 2400 pounds in 1969, and increased to 2430 pounds in August of 1970.

We believe the only way this could have happened was the migration of fluid across here. These are some of the things that contributed to the wide spread of pressures in the individual wells in the south reservoir.

Q Have you prepared P/S plat for the south and north reservoir?

A Yes, the one for the south reservoir I'd like to discuss.

Q Are those Exhibits 7 and 8, respectively?

A Yes, they are.

Q All right, go ahead.

A The P/S function of pressure divided by completion ability against cumulative gas production should be a straight line or volumetrically controlled reservoir. I'd like to point out that in the south reservoir the original P/S was depicted on the left-hand margin of the Exhibit.

The next point at 4,000 pounds is shown in August of 1966. At this time, there was no production

70

from the north reservoir, and that early production history there at a rate of about 90,000 MCF per month indicated 20.7 billion cubic feet of gas. Shortly thereafter, between August of '66 and August of '67, again, before there had been production from the north reservoir, the rate was down slightly, to about 80,000 MCF per month, and during that time, the indicated gas increased to 53.4 billion feet.

Now, these indicated gas and place figures are shown in circles, the larger circles between the observed pressure points.

MR. NUTTER: What pressures are you using on this P/S?

MR. HENRY: That is the datum pressures minus 56.

MR. NUTTER: Which well?

MR. HENRY: That's the average for the south reservoir.

MR. NUTTER: For which wells; the wells shown on your Exhibit?

MR. HENRY: Right, the average pressures shown on that Exhibit.

MR. NUTTER: In other words, we go over here to August of '68 and you show your pressure P/S as 3560; is that the 3159 over S?

MR. HENRY: Right.

71

MR. NUTTER: What was the pressure at August of '67? That's not shown on this Exhibit.

MR. HENRY: In August of '67?

MR. NUTTER: Yes, sir.

MR. HENRY: Your P/S is 3920.

MR. NUTTER: I just wondered what the pressure was.

MR. HENRY: It's shown on the other Exhibit; on my Exhibit for the South dome, the historical Exhibit. That's the average pressure. Reading it from the curve, it would be 3540. If you need to refer back to the actual pressure, identify them by dates.

MR. NUTTER: That would be the triangle on the heavy line?

MR. HENRY: Yes, sir.

MR. NUTTER: This average pressure is the pressure of these four wells that you have shown individually?

MR. HENRY: That's correct.

MR. NUTTER: Okay. Now, for the north reservoir, then, when you get to your other P/S curve, that's going to be for those two wells?

MR. HENRY: For those two wells. Well, It's not always observed at a point. To read the curves, if you'll follow some of these, you'll find that they may -- to get comparable data, I sometimes had to read not a point on them, but a point between them, on the average curve.

72

MR. NUTTER: And identify it with the cumulative production?

MR. HENRY: Right, against pressure and these points will correspond with the cumulative production.

The curve may, in some cases, be observed in between to correspond with the changes in producing rate that I was trying to show occurring and affecting the rate of decline on the P/S curve.

MR. NUTTER: And the pressure in both areas, north and south, are computed on the same data of a minus 5675?

MR. HENRY: Yes, sir, they are. In the south reservoir, the flattening of the P/S curve, between August '66 and August of '67, we believe to be the result of encroachment of fluids into this reservoir giving it an apparent gas pressure larger than the actual. You'll notice on the north reservoir historical plot, that there had been a pressure drop occur in it at that time. Now, as we continue on down this curve, the next point of significance in that is the gas in place, indicated by the August '67 point and the August '68 point decreased to 13.8 which is a very wide variation. It had been on production two and one-half months, almost three months, at the time that pressure reading was made.

It also indicates the gas and pressure is varied between 20.4 and 16.9 billion cubic feet of gas in place.

73

Now, I would like to refer, now, to the north reservoir plat of P/S versus cumulative production, and note that between May of 1968 and September of 1968, which is a period of about five months, we had an indicated gas in place at the north reservoir of 48.6 billion cubic feet. That's the highest value it's ever had and that occurred when it first went on production, and when this pressure differential was at the highest point after production commenced.

Now, as the production continued here -- I'd like you to refer to the production rate at the bottom of the page, at the rate of a hundred thousand MCF per month during this early stage. We had a larger gas in place indicated and during the subsequent period from September '68 to November '69, when the thing was produced at a substantially lower rate on the order of 70,000 MCF per month.

These are average figures which you can take from the cumulative curve or from the historical plot. Taking them step-wise, about the time there was a major change in the rights, from November '69, until November '70, it indicates gas at 25.9 in the north reservoir. At that time there was a slight rate change, but essentially a 23.2 gas in place until April, 1971.

Now, from then until February of 1972, the average producing rate was increased to approximately 180,000 MCF per month. During that high producing rate, the highest ever

in the history of this north reservoir, the indicated gas in place increased to 36.8 billion cubic feet of gas, and in February, a cut-back, new pressure variation, in April, 26.6 and showed a decline, the rate from the north reservoir, and we had a decrease in the indicated gas in place. This led us to compare the indicated gas in place as shown on the last Exhibit.

MR. MORRIS: The last Exhibit was Exhibit Number 9,your tabulation of combined totals, original gas in place?

A (continuing) Yes, this is the column showing the north reservoir at a particular point in time, the south reservoir at a particular point in time, and the total gas in place indicated.

Notice that early 1966, in August, 1966, the south reservoir indicated 20.7 billion cubic feet. No production from the north reservoir. Only the south three -- south wells were producing.

MR. NUTTER: Dick, how much longer is your Direct Examination going to take?

MR. MORRIS: Ten, fifteen minutes.

MR. NUTTER: Okay. We'll adjourn this hearing until 1:30.

(Whereupon, the hearing was recessed at 12:00 Noon.)

* * * * *

75

MR. NUTTER: The hearing will come to order. We'll resume Case 4733.

Q (By Mr. Morris, continuing) Mr. Henry, before the noon recess, you were discussing your Exhibit Number 9.

A Yes.

Q Would you resume that discussion, please?

A This Exhibit shows a comparison of the indicated gas in place for the north-south reservoir, and the combined total. The first representation is here in August of 1966, showing zero from the north reservoir and 27.7 billion cubic feet indicated by the south reservoir pressure production plot, August of 1967. It increased to 53.4 billion cubic feet, and still zero from the north, and because there was no production from it, and as I explained before, this 53.4 we believe was reflex pressure reaching the north reservoir because we were experiencing a decrease from the wells while waiting a gas market.

In October, 1968, after the north reservoir commenced to produce, it had an indicated gas in place of 48.6 billion cubic feet and immediately south, the reservoir reflected a decline, 14.4, and we experienced a large pressure drop for this amount of time, indicating a total of 64.2 for the combined areas.

This indicated that the wells tapping the north reservoir were in better contact with larger gas reserves.

In August of 1969, the combined figure had decreased to 43.4. And,in August of 1970, to 42.8. In August of '71, they had increased again to 55.4. I'd like to call your attention to Exhibit Number 5, I believe it is, the north reservoir historical plot, here, and if you will note that the highest production rate in the history of the north dome was occurring when this higher gas in place figure was indicated.

Now, when I say indicated gas in place, here, I'm referring to what would be true if these were strictly volumetric reservoirs operating independently. Several things are occurring here, and most of them bad. The expansion of gas out of this north reservoir is occurring not only to the south reservoir but is occurring outside into an area that is not connected to it, and where the gas and pressure cannot be maintained, you'll notice on the west side of the -- north side of the reservoir on the structure map, there is a large low area that is separating the north reservoir from a high area to the west.

You'll also note on the structure map to the west, there is a thickness of water bearing sand at 26 feet, and a thickness over in this section, Township 23 East, this is a structural high to both of these reservoirs, and is water bearing. So, we have this closure at the

77

gas-water contact at the west side of this field, and the gas that is expanded out of this north reservoir, much of it is going into that water column.

And we also see some of the water, an encroachment into this reservoir, into the perimeter, water going out of these wells. That indicates the pressure in the south reservoir and the expansion of this north reservoir is having some detrimental effects on both reservoirs, at this time.

Q So, what conclusions do you draw, Mr. Henry, with respect to the prevention of waste and protection of correlative rights that would result from granting the Application in this case?

A We believe that the expansion of this gas into the water column is resulting in waste from two zones. One is that the reservoir is at spill point, and it's doubtful that very much of the gas will be recovered even if the pressure differential were reversed. Between 60 and 65 percent of the gas in place would be recoverable if the pressure were reduced and the pressure differential were reversed. Much of the gas that has invaded the water zone would be left in the reservoir, on the order of 35 percent.

Now, if this thing is allowed to continue, the low wells in the south reservoir are going to be prematurely

watered out by this water encroachment that is generated by the expansion, or here to the detriment of these leases to the south that are predominantly federal leases.

Wells producing, Indian Hill Number 6 and 7 are partially or wholly on state acreage. The north reservoir is composed of acreage that is all federal land. Now, I believe that the continued operation of this field in this manner will result in detriment and impairment of correlative rights, and these people will be rooted out prematurely, before they can recover the volumetric gas reserves from the south reservoir. In fact, much of it will never be recovered in either reservoir, so I think the water banks that will be pushed into this reservoir will water these wells out and that the gas will never, in economic time, percolate up and accumulate, but I don't think, in any economic time, I could not consider that would ever provide any beneficial effects to the south reservoir.

Q How would approval of this application alleviate that situation?

A This will alleviate the situation in that the north reservoir, being nonprorated, could be produced at a capacity which would be the maximum remedy available to reverse this pressure differential. To shut-in the south reservoir for the protection of correlative rights

79

is not a practical solution at this time. We would propose the other remedy and no shutting into the south reservoir.

Q Mr. Henry, I'd like to review with you briefly, the history of the rules in this field. When were special rules and regulations first established for this area?

A The Indian Basin rules were established, I believe, in 1963, for the Indian Basin Morrow Gas Pool. The Fasken development in the Ross Federal Number 1 in Section 4 of Township 21 South, Range 24 East, resulted in the formation of a new gas pool known as the North Indian Hills Morrow Gas pool. That well was completed in 1965. Special field rules, for the North Indian Morrow Pool were adopted by Order R-3081, dated June 23, 1966, and subsequent to that time, additional developments occurred being, in effect, the two wells in the north reservoir plus the David Fasken Shell Federal Unit, and David Fasken Indian Hills Unit Number 7, which were drilled and completed prior to the expiration of those temporary field rules that were to be in effect for one year from the date of the first gas sale, and the first gas sale occurred in May of 1968, and the hearing was called for May of 1969, to consider making these rules permanent.

These temporary rules were identical with the field rules in the Indian Basin Morrow Gas Pool. Shortly

80

prior to that hearing, it became obvious that these fields were connected by pressure and that we did not recognize the saddle between the two fields.

Corinne Grace, in Section 8, had not been drilled. We are asking now, that the two F-5 wells, originally in the North Indian Hills Morrow Gas Pool be placed in separate fields, with field rules identical to those now in effect, and with the nonstandard proration units that have been approved, continue to be in effect.

Q Now, as to the David Fasken Ross Federal Well Number 1, located in Section 4, and the David Fasken Shell Federal Number 1 located in Section 5, what size proration units have been established for those two wells?

A 920 to 924 acres.

Q Were those units established by order of the Commission following notice of hearing?

A Yes, they were.

Q And is it your proposal that when these two Sections are excluded from the Indian Basin Morrow Pool, that those units as established by those Orders would continue in effect?

A Yes, sir, these wells are produced slightly in excess of two and one-half billion feet of gas with the proceeds directed on the basis of this pooling provision for this large section, and there are certain rights which have

81

become more or less, invested in the participants of the well.

Q Mr. Henry, were Exhibits 1 through 9 prepared by you or under your direction?

A Yes, they were.

MR. MORRIS: At this time, we would like to offer Exhibits 1 through 9 into evidence.

MR. NUTTER: Applicant's Exhibits 1 through 9 will be admitted into evidence.

Q (By Mr. Morris, continuing) Do you have anything further to add to your testimony?

A I believe, not at this point.

MR. NUTTER: Mr. Henry, I note here on your north reservoir history, production curves, that there has been a decline in production from the north reservoir in the last three months. To what is that attributed?

MR. HENRY: The pipeline has decreased their take.

MR. NUTTER: Why have they done that?

MR. HENRY: I don't know.

MR. NUTTER: Is it the proration formula in the Indian Basin Pool that caused this?

MR. HENRY: No, sir, it's the policy of the gas purchasing company.

MR. NUTTER: Now, Fasken is the gatherer of these as far as these wells are concerned, and makes the nomination?

82

MR. HENRY: Fasken gathers from these five wells and delivers it to the Natural Gas Line Pipe Company of America, and they have decreased their take, and have refused to take additional gas.

MR. NUTTER: What are you going to do in the event the pool produces to capacity; what are you going to do with the gas?

MR. HENRY: We have plans for additional sales of gas.

MR. NUTTER: To another pipeline?

MR. HENRY: Yes, under the terms of the contract which has been offered to the Natural Gas Pipeline, if they refuse to take it, we can tender it to another pipeline.

MR. NUTTER: Can you tender this gas to another pipeline in the absence of a waste factor? Can you separate your contract now?

MR. HENRY: We can separate it if waste or drainage is occurring from the leases.

MR. NUTTER: But, in the absence of waste or drainage, then, you're stuck with this one pipeline connection?

MR. HENRY: Yes. Unfortunately, we have a high allowable, but the pipeline will not take the allowable, because they're not specifically the gatherer and we are in between here, and being the gatherer, and the pipeline has isolated themselves.

MR. NUTTER: Is the well allowable cancelled because of underproduction?

MR. HENRY: No.

MR. NUTTER: So, right now, you're producing the allowable?

MR. HENRY: Yes, sir.

MR. NUTTER: Well, now, you do concede these reservoirs are connected?

MR. HENRY: Yes, sir.

MR. NUTTER: And it's in accordance with your interpretation of the top of the Morrow classification that you have this trough running through here and this trough is full of water?

MR. HENRY: Yes, sir.

MR. NUTTER: So, you don't -- you're theory is that there is no connection of gas from one zone to another; there is interconnection of water in the trough?

MR. HENRY: Yes.

MR. NUTTER: And that, with the pressure differential in favor of the north area, that the expansion of the gas there is going to push this water up the structure into the south dome, causing premature watering of those wells?

MR. HENRY: Yes, sir.

MR. NUTTER: Is there any damage to the wells in the north?

84

MR. HENRY: Gas is leaving that reservoir; it's escaping from the trap because the trap is full to the spill point. The reversing -- the pressure gradient, it's unlikely that gas will return if it percolates through the water.

MR. NUTTER: Well, down at the bottom of the trough, it might become a good well, some day.

MR. HENRY: That's an interesting prospect.

MR. NUTTER: So, in effect, you're asking that the two wells in the reservoir not be prorated?

MR. HENRY: Yes, sir.

MR. NUTTER: Be withdrawn from the pool and separated?

MR. HENRY: That's correct.

MR. NUTTER: If you were allowed to go in here and produce these northern wells at capacity, do you anticipate that this water might turn around and start to migrate into the north reservoir?

MR. HENRY: Yes, sir.

MR. NUTTER: Do you say that there could be any harmful effect of this on either of the reservoirs?

MR. HENRY: I could reverse the exact situation we have here, now, in favor of the north reservoir moving south. However, you'll note this has been occurring here, over a period of sustained production of four years from the north reservoir and six years from the south. I think that

85

the capacity of the wells right now, in the north reservoir, at this time, is 9,000 MCF a day. At those rates, I would predict four years to equalize this pressure differential, and I believe we would like to agree to or stipulate that pressure is being measured each year and being reported on these wells in addition to the regular wells shedding pressures.

I believe we should keep bottomhole pressure each year on these. We have been checking the Fasken wells two or more times a year. We would be glad to furnish information on these wells, for whatever review would be in order to monitor this.

MR. NUTTER: Mr. Henry, I would like to get the potential on the wells involved in these two areas on this collage, up here.

MR. HENRY: Original or present?

MR. NUTTER: What the present potential is of those wells.

MR. HENRY: I could give you daily delivery ability of pipeline pressure, is that sufficient?

MR. NUTTER: Is the pipeline the same for more or less all of the wells?

MR. HENRY: Yes, the delivery ability of Ross Federal Number 1 is 6200 MCF per day.

MR. NUTTER: 1100 pounds pressure?

MR.HENRY: Yes, sir. The Shell Federal Number 1 is

86

2800.

MR. NUTTER: That's the one with the skim problem?

MR. HENRY: Right, we have not remedied that one, because we always had more capacity than daily takes.

Skelly Federal Number 1 is 350 MCF per day. Indian Hills Unit 6 has 1500. Indian Hills Number 7 is produced through a one-stage compressor. It's not producing 750 MCF per day, and I do not have the deliverability. I know approximately what it is selling, monthly, but I do not have any special deliverability figures.

MR. NUTTER: Were the takes back in '71, more or less equal from the two wells in the north area?

MR. HENRY: Yes. The overage and underage was adjusted during that time.

MR. NUTTER: So the one well was producing almost at capacity? The Shell well at capacity and the Ross Federal was pinched back to about half of its capacity?

MR. HENRY: That's correct.

MR. NUTTER: What's your prospective if you get the pipeline connection? What kind of deliverability will you have on the two wells?

MR. HENRY: We expect 9,000 MCF per day.

MR. NUTTER: That, you indicate, is the present capacity of the wells?

MR. HENRY: Yes, sir.

87

MR. NUTTER: Do you plan to do anything to the Shell Federal?

MR. HENRY: Yes, if we're successful in obtaining this Order, we anticipate that we can double its production.

MR. NUTTER: So, then, you may be producing about one million from the two wells per day?

MR. HENRY: Yes, sir.

MR. NUTTER: What's the current allowable in the Indian Basin Morrow Pool?

MR. HENRY: I don't know what it is for this month. It's far above what we're able to sell, and I have not monitored that lately. We are an underproducing well.

MR. NUTTER: That was one of the things we wanted to look up, too, the allowable.

MR. HENRY: During this period of high production of '71, there was some cancelled underage that was reassigned to these wells.

MR. MORRIS: May I have just a moment, Mr. Nutter? I would like to ask a couple more questions.

MR. NUTTER: Sure.

Q (By Mr. Morris, continuing) Mr. Henry, from your analysis of the north-south reservoir, here, in your opinion, are these reservoirs a common source of supply? Will the well -- the two reservoirs, both, all produce from a common source of supply?

A They are not producing from a common source of supply, as we would define it, because the two gas areas are separated. This is not unusual in many zones that are producing in the Permean Basin. Ellberger, for instance, is a continuous ~~band~~ sand formation, and structural traps that have oil in them, produced many years without observed interference. The Indian Hills sand zone is not very wide. There is not sufficient aqua force available to produce a normal water drive. It would take a water accumulation 250 times the size of this field to produce these fields on a volume basis, to produce a natural water drive and there is not that much sand available in the north Indian Hills slope in the area.

MR. NUTTER: How about that Fasken well in Section 32, Mr. Henry? It's shown here as a dry hole, but it's got six feet of pay. Was it really tight or what?

MR. HENRY: Yes, sir, it was very similar to the Indian Hills unit 7 well. The permeability was very, very low. We had a gas volume so small the ~~grim~~ Drill stem test burned a little gas. Six feet of sand would not support commercial production in a wellbore. The well had no other zones that were commercially productive, and so we elected to plug the band, because it was not supporting commercial production. However, I think the six feet of sand is saturated with gas, and in the overall picture, in the very long two or three miles

89

that that contour extends, it would transmit quite a large volume of gas, and this has been indicated in the pressure extrapolated. The buildup on the drill stem test was within a hundred pounds of the field pressure, and occurred indicating, I believe, about 600 pounds below the original pressure, so the drainage had occurred at that location.

The drill stem test was taken in December of 1970, and showed a pressure of 3310 pounds.

MR. NUTTER: That's on that one, up there?

MR. HENRY: Yes, it was slightly below field pressure, probably due to the accuracy of measuring and extrapolating the drill stem pressure.

MR. NUTTER: Mobil Federal Well has 18 feet of pay; was it in the water?

MR. HENRY: Yes, sir.

MR. NUTTER: Any gas at all on DST?

MR. HENRY: They report some ~~gasket~~ gas cut water and ~~gasket~~ gas cut mud and several thousand feet of water. I don't recall exactly, but in the order of seven to eight thousand feet of water.

MR. NUTTER: How about the Corinne Grace well? When it was initially completed, what was it making?

MR. HENRY: It was never perforated in this sand, from the information we have.

MR. NUTTER: Where was it perforated?

MR. HENRY: In some lower sand in the Morrow zone.

MR. NUTTER: I see.

MR. HENRY: I do not have a copy of the log. I have seen a log and it indicated it would produce a hundred percent water, and it has not been perforated, at least the records do not reflect that.

MR. NUTTER: Would you go over the differential pressure under the original conditions and explain why we have 111 pounds differential?

MR. HENRY: At the saddle between these two reservoirs, the pressure should be equal, here. I mean, we're talking about a common point. If you assign a gas column of 198 feet, datum of 5875 and a gas gradient of .075, under original conditions, that's pounds per foot of vertical stance being in effect, the hydrastatic pressure of this column of gas would be subtracted from this gas.

MR. NUTTER: In your opinion, under original pressure data and pressure conditions, was there gas passing under the spill point?

MR. HENRY: It's hard to say. It would appear to have been full at that point and probably when the pressure differential got to the capillary pressure required to move through the area, it would have stopped migration. That could have been going on all the time, or it could have been

91

in some --

MR.NUTTER: Or it could have been stabilized?

MR. HENRY: Could it have been stable? Yes.

MR. NUTTER: Okay, if it was stable, under original pressure conditions, why isn't it stable now?

MR. HENRY: It's going up the structure out of this trap. I might refer to our structure map. The gas is expanding out of this trap. If you superimpose these two maps, the north reservoir on the structure map, the limits in here, the gas expanded out of here past the center of this trough. Then, by its density, it's going to migrate up the structure, percolate through the water, move as a gas slug, depending on how fast it moves, reversing the pressure differential. It may not bring this gas back.

MR. NUTTER: Then it's your contention that you are losing gas from your north reservoir into the water?

MR. HENRY: Yes, sir, and which will probably never percolate out, in economic time.

MR. NUTTER: Is it losing gas to the west?

MR. HENRY: Yes, sir.

MR. NUTTER: For the same reason?

MR. HENRY: Into the water zone, yes, sir. If there's another trap, it's somewhere much further west.

MR. NUTTER: Well, now, wasn't the gas under original conditions exposed to this same water zone?

MR. HENRY: Depending on the direction that the gas moved into these traps and to which direction the gas came from and what the attitude of these beds were at the time the gas accumulated.

MR. NUTTER: Now, is this the original producing zone in the pool that contains water; has a water draft?

MR. HENRY: Yes.

MR. NUTTER: Now, neither of your wells are completed in that zone, at all?

MR. HENRY: Yes, sir, the Skelly Federal is perforated through about 400, and at that time, we reopened the upper zone, here, and both sets of perforations are producing in that well, at this time, but that is in the south reservoir.

MR. NUTTER: How about the two wells in the north reservoir; are they completed in that zone?

MR. HENRY: The Ross Federal was perforated.

MR. NUTTER: So it's your testimony that zone is producing in the Grace wells and the south reservoir. The north reservoir is not productive, at this time?

MR. HENRY: In a small, limited way, it would produce.

MR. NUTTER: Then, am I correct in this statement, that any waste of gas that is occurring and will occur is by saturation of the water?

93

MR. HENRY: Yes, sir, outside the tract.

MR. NUTTER: That's all I have.

Any other questions of the witness? Do you have anything further, Mr. Morris?

MR. MORRIS: Nothing, Mr. Nutter.

MR. NUTTER: Nothing further in Case Number 4733?

(No response.)

MR. NUTTER: We will take the case under advisement.

94

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, ROSALIE E. CLAUSSEN, a Shorthand Reporter, in and for the County of Bernalillo, State of New Mexico, do hereby certify:

That the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me;

That the same is a true and correct record of the said proceedings to the best of my knowledge, skill and ability.

Rosalie E. Claussen

ROSALIE E. CLAUSSEN

Dated at Albuquerque, New Mexico
this 31st day of July, 1972.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 4733 heard by me on 6/7, 1972.

..... Examiner
New Mexico Oil Conservation Commission

95

I N D E X

WITNESS:	PAGE
JAMES B. HENRY	
Direct Examination by Mr. Morris	3

E X H I B I T S

APPLICANT'S	OFFERED	ADMITTED
Exhibit Number 1	4	25
Exhibit Number 2	5	25
Exhibit Number 3	6	25
Exhibit Number 4	9	25
Exhibit Number 5	11	25
Exhibit Number 6	11	25
Exhibit Number 7	13	25
Exhibit Number 8	13	25
Exhibit Number 9	18	25

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE
87501

May 22, 1975

I. R. TRUJILLO
CHAIRMAN

LAND COMMISSIONER
PHIL R. LUCERO
MEMBER

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY – DIRECTOR

Re: CASE NO. 4733 and 4865
ORDER NO. R-4409-B & R-4444-A

Mr. Sumner G. Buell
Montgomery, Federici, Andrews, Hannahs & Buell
Attorneys at Law
Post Office Box 2307
Santa Fe, New Mexico

Applicant:

DAVID FASKEN

Dear Sir:

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

Very truly yours,

A. L. Porter, Jr.

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other Mr. William J. Cooley

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE
87501

May 22, 1975

Re: CASE NO. 4733 and 4865
ORDER NO. R-4409-B & R-4444-A

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Other Mr. William J. Cooley

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 4733
Order No. R-4409-B

APPLICATION OF DAVID FASKEN FOR
POOL CONTRACTION AND CREATION
OF A NEW GAS POOL, EDDY COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing de novo at 9 a.m. on November 21, 1972, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 22nd day of May, 1975, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS:

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

(B) That after an examiner hearing, Commission Order No. R-4409, dated September 27, 1972, was entered in Case No. 4733 denying the application of David Fasken for the contraction of the Indian Basin-Morrow Gas Pool by the deletion therefrom of all of Sections 4 and 5, Township 21 South, Range 24 East, NMPM, Eddy County, New Mexico, and the creation of a new non-prorated gas pool comprising said lands.

(C) That David Fasken requested and was granted a de novo hearing before the Commission on his application in Case No. 4733.

(D) That the application of David Fasken was again denied by the Commission on December 6, 1972.

(E) That Fasken filed an Application for Rehearing of the decision in Case 4733 on December 22, 1972.

(F) That the Commission took no action on the Application for Rehearing thereby denying it.

(G) That David Fasken appealed this decision of the Commission to the District Court of Eddy County.

(H) That the Commission moved for Summary Judgment.

(I) That on November 29, 1973, the Commission's Motion for Summary Judgment was granted by the District Court.

(J) That David Fasken appealed this decision to the Supreme Court of New Mexico in December, 1973.

(K) That the Supreme Court reversed the District Court and remanded the cause back to the Commission on February 28, 1975.

(L) That in reaching its decision, the Supreme Court stated it did not want for theories in this case but that the problem with the theories advanced by counsel was that they were not bolstered by the expertise of the Commission.

(M) That in reversing the District Court, the Supreme Court found that sufficient findings to disclose the reasoning of the Commission were lacking and reversal was thereby required.

(N) That the case was "...remanded to the Commission for the making of additional findings of fact based upon the record as it presently exists, and the entry of new orders."

(O) That pursuant to this decision of the New Mexico Supreme Court and upon further review of the record the Commission finds:

(1) That the Commission is empowered by Subsection (12) of Section 65-3-11 NMSA, 1953 Comp., as amended, "To determine the limits of any pool or pools producing crude petroleum oil or natural gas or both, and from time to time to redetermine such limits;"

(2) That on June 1, 1969, the Commission entered Order No. R-3758 which pursuant to its statutory powers abolished the North Indian Hills-Morrow Gas Pool and extended the Indian Basin-Morrow Gas Pool to include acreage formerly included in said North Indian Hills-Morrow Gas Pool because the Commission concluded that this area comprised a single source of supply.

(3) That Fasken contends that the Indian Basin-Morrow Gas Pool is divided into two separate pools by a water trough.

(4) That the evidence used to support the water trough concept was shown to be incomplete, misleading, and probably inaccurate.

(5) That the evidence showed that the withdrawal of gas from a well in the north part of the Indian Basin-Morrow Gas Pool affects the pressure and gas migration in the south part of the pool and that the withdrawal of gas in the south part of the pool affects pressure and gas migration in the north part of this pool.

(6) That communication therefore exists throughout the pool.

(7) That communication throughout a reservoir is one of the means used to determine that a pool constitutes a single source of gas supply.

(8) That the Indian Basin-Morrow Gas Pool constitutes a single source of gas supply.

(9) That the Commission is empowered by Section 65-3-10 NMSA, 1953 Comp., as amended, to prevent waste and protect correlative rights.

(10) That Fasken is seeking with this application higher rates of production from each of his wells in the northern portion of the Indian Basin-Morrow Gas Pool.

(11) That the wells in the northern portion of the pool could produce at higher rates if they were removed from said pool and their production, thereby, no longer prorated in accordance with the allowables set for the Indian Basin-Morrow Gas Pool.

(12) That the allocation of allowables in the Indian Basin-Morrow Gas Pool is on a straight acreage basis.

(13) That because of variations in the United States Public Lands Surveys, more acreage is dedicated to each of Fasken's wells in the northern portion of the pool than is dedicated to other wells in the pool, and he therefore receives larger allowables for his two wells and is authorized to produce considerably more from each of these wells than are other operators in the pool.

(14) That ten wells produce from the Indian Basin-Morrow Gas Pool.

(15) That the two Fasken wells in the northern portion of said pool constitute 20 percent of the wells producing from the pool.

(16) That the two Fasken wells in the north of said pool have produced almost 40 percent of the gas from the pool.

(17) That Fasken has an opportunity equal to that of other producers in the pool to produce his just and equitable share of gas from said pool.

(18) That granting the application of David Fasken for pool contraction and creation of a new non-prorated gas pool would increase the amount of gas Fasken could withdraw, giving him an advantage over the other operators producing from this single source of supply thereby impairing their correlative rights.

(19) That granting the application of David Fasken would have the same affect as de-prorating the northern portion of the Indian Basin-Morrow Gas Pool but not de-prorating the remainder of the pool and would authorize greater rates of production for the Fasken wells in the north part of the pool than for other wells in the pool.

(20) That granting the application of David Fasken would authorize production practices which would impair the correlative rights of other mineral interest owners and, therefore, is contrary to the duties of the Commission as set out in Section 65-3-10 NMSA, 1953 Comp., as amended.

(21) That in order to protect correlative rights, the application should be denied.

(22) That Section 65-3-3 E NMSA, 1953 Comp., as amended, defines waste as follows:

> "The production in this state of natural gas from any gas well or wells, or from any gas pool, in excess of the reasonable market demand from such source for natural gas of the type produced or in excess of the capacity of gas transportation facilities for such type of natural gas...." (Emphasis added)

(23) That Fasken's witness testified that the entire pool has a greater capacity to produce gas than the producers in said pool are able to sell to the pipeline.

(24) That this limited ability to sell gas from the pool may be termed a "restricted demand."

(25) That this restricted demand for gas from the pool must logically be concluded to result from either:

(a) a limited demand for gas from the pool because of market conditions; or

(b) a limited demand for gas from the pool because of limited physical facilities to handle and transport the gas.

(26) That this restricted demand may be considered the "reasonable market demand" for gas from the pool.

(27) That production of gas from the pool in excess of the reasonable market demand imposed by either of the conditions described in Finding No. (24) above would cause waste. (See Finding No. (21) above.)

(28) That the other producers in the pool are entitled to produce their just and equitable share of the gas in the pool and to be permitted their just and equitable share of the reasonable market demand for gas from the pool.

(29) That granting the application of Fasken for pool contraction and creation of a new non-prorated gas pool would authorize production from his two wells in the northern portion of the pool in excess of his share of the reasonable market demand for gas from the pool and would by definition (Section 65-3-3 E NMSA 1953 Comp.) cause waste.

(30) That in order to prevent waste, the application should be denied.

IT IS THEREFORE ORDERED:

(1) That the application of David Fasken for pool contraction and creation of a new non-prorated gas pool be and the same is hereby denied.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

I. R. TRUJILLO, Chairman

A. L. PORTER, Jr., Member & Secretary

S E A L

jr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 4733
Order No. R-4409-A

APPLICATION OF DAVID FASKEN FOR
POOL CONTRACTION AND CREATION
OF A NEW GAS POOL, EDDY COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing de novo at 9 a.m. on November 21, 1972, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 6th day of December, 1972, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS:

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

(2) That after an examiner hearing, Commission Order No. R-4409, dated September 27, 1972, was entered in Case No. 4733 denying the application of David Fasken for the contraction of the Indian Basin-Morrow Gas Pool by the deletion therefrom of all of Sections 4 and 5, Township 21 South, Range 24 East, NMPM, Eddy County, New Mexico, and the creation of a new gas pool comprising said lands.

(3) That David Fasken requested and was granted a hearing de novo of Case No. 4733.

(4) That the evidence presented at the hearing de novo clearly establishes that there is communication within the Morrow formation between the aforesaid Sections 4 and 5 and the remainder of the Indian Basin-Morrow Gas Pool.

(5) That the Morrow formation underlying said Sections 4 and 5 and the Morrow formation underlying the remainder of the Indian Basin-Morrow Gas Pool constitute a single common source of gas supply.

(6) That to separate the Indian Basin-Morrow Gas Pool into two parts and to permit the wells in said Sections 4 and 5 to produce at unrestricted rates would afford said wells an undue share of the recoverable gas reserves in the pool and would result in unratable take and would violate the correlative rights of other mineral interest owners in the pool.

(7) That in order to prevent unratable take and protect correlative rights and prevent waste, the Indian Basin-Morrow Gas Pool should not be contracted, a separate pool should not be created, and Order No. R-4409 should be reaffirmed.

IT IS THEREFORE ORDERED:

(1) That Commission Order No. R-4409, dated September 27, 1972, be and the same is hereby reaffirmed in its entirety.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

BRUCE KING, Chairman

ALEX J. ARMIJO, Member

A. L. PORTER, Jr., Member & Secretary

S E A L

dr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 4733
Order No. R-4409

APPLICATION OF DAVID FASKEN FOR
POOL CONTRACTION AND CREATION
OF A NEW GAS POOL, EDDY COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on June 7, 1972, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 27th day of September, 1972, the Commission, a quorum being present, 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 Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, David Fasken, seeks the contraction of the horizontal limits of the Indian Basin-Morrow Gas Pool, by the deletion therefrom of all of Sections 4 and 5, Township 21 South, Range 24 East, NMPM, Eddy County, New Mexico.

(3) That the applicant further seeks the creation of a new non-prorated gas pool comprising all of said Sections 4 and 5 for the production of gas from the Morrow formation.

(4) That by Order No. R-2441, dated February 28, 1963, the Commission created the Indian Basin-Morrow Gas Pool, Eddy County, New Mexico, for the production of gas from the Morrow formation.

(5) That the horizontal limits of the Indian Basin-Morrow Gas Pool have been extended from time to time by order of the Commission.

(6) That while the evidence presented does indicate the presence of a trough existing in the area of the proposed separation, the evidence does not indicate that it is an effective barrier.

(7) That there is substantial evidence that there is communication between the areas to the north and south of the trough.

(8) That the areas proposed to be separated constitute a single source of supply and should not be separated.

(9) That the applicant has failed to prove that the Indian Basin-Morrow Gas Pool should be contracted and that a new Morrow Gas Pool should be created.

(10) That in order to prevent waste and protect correlative rights, the application should be denied.

IT IS THEREFORE ORDERED:

(1) That the application of David Fasken for the contraction of the Indian Basin-Morrow Gas Pool and for the creation of a new gas pool for Morrow production is hereby denied.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

BRUCE KING, Chairman

ALEX J. ARMIJO, Member

A. L. PORTER, Jr., Member & Secretary

S E A L

dr/

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE
87501

GOVERNOR
BRUCE KING
CHAIRMAN

LAND COMMISSIONER
ALEX J. ARMIJO
MEMBER

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

September 27, 1972

Mr. Richard S. Morris
Montgomery, Federici, Andrews, Hannahs
& Morris
Attorneys at Law
Post Office Box 2307
Santa Fe, New Mexico

Re: Case No. 4733
Order No. R-4409
Applicant:
DAVID FASKEN

Dear Sir:

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

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF DAVID FASKEN FOR POOL CONTRACTION AND CREATION OF A NEW GAS POOL, EDDY COUNTY, NEW MEXICO. CASE NO. 4733

APPLICATION FOR REHEARING

COMES NOW DAVID FASKEN, and makes application to the New Mexico Oil Conservation Commission for rehearing in respect to all matters determined by Order No. R-4409-B entered by this Commission in this case on May 22, 1975, and in support thereof, states:

1. Petitioner is the assignee of oil and gas leases covering all of Sections 4 and 5, Township 21 South, Range 24 East, Eddy County, New Mexico, and is the owner and operator of the following described wells which are completed in the Morrow formation and which presently are designated by the Respondent Commission as being within the Indian Basin-Morrow Gas Pool:

> David Fasken Ross Federal Well No. 1, located 1980 feet from the South line and 1980 feet from the West line of Section 4, Township 21 South, Range 24 East, Eddy County, New Mexico.
>
> David Fasken Shell Federal Well No. 1, located 1980 feet from the South line and 1980 feet from the West line of Section 5, Township 21 South, Range 24 East, Eddy County, New Mexico.

2. At the time Petitioner drilled and completed the above-described wells, the lands upon which they were located were designated by the Commission as being within the North Indian Basin-Morrow Gas Pool; however, by Order No. R-3758 effective June 1, 1969, the said lands and the Petitioner's above-described wells were redesignated by the Commission as being within the Indian Basin-Morrow Gas Pool.

3. The drilling and completion of additional wells in the Morrow formation since the time the Petitioner's above-described lands and wells were redesignated in the Indian Basin-Morrow Gas Pool has provided information which establishes that the Petitioner's said wells are completed in a source of supply separate and distinct from the source of supply for all other wells in the Indian Basin-Morrow Gas Pool.

4. By reason of being administered and prorated under the special rules and regulations applicable to the Indian Basin-Morrow Gas Pool, the production from the Petitioner's said wells has been restricted and a pressure imbalance has been created which has caused, is causing and, unless this Petition is granted, will continue to cause migration of gas from beneath the Petitioner's lands, thereby causing waste and violating the Petitioner's correlative rights. In addition, the pressure differential that exists between the Petitioner's said wells and wells to the South thereof is causing water encroachment into those wells and lands, including the State of New Mexico as the owner of a royalty interest therein.

5. On May 1, 1972, Petitioner applied to the Commission for an order establishing Sections 4 and 5, Township 21 South, Range 24 East, Eddy County, New Mexico, as a separate gas pool for production from the Morrow formation and deleting the said acreage from the Indian Basin-Morrow Gas Pool. By such Application, the Petitioner sought to remove his said acreage from administration and proration under the special rules and regulations applicable to the Indian Basin-Morrow Gas Pool and thereby be enabled to produce his said wells in such a manner as to prevent the migration of gas from beneath his lands and the encroachment of water into the wells lying South thereof.

Hearing was held upon the said Application on June 7, 1972, before Daniel S. Nutter, an examiner appointed by the Commission and on September 27, 1972, the Commission entered its Order No. R-4409 denying the application. On October 24, 1972, Petitioner applied to the Commission for hearing de novo upon his original Application; hearing de novo was held before the Commission on November 21, 1972, and on December 6, 1972, the Commission entered its order No. R-4409-A again denying the Application. On December 22, 1972, Petitioner made Application for Rehearing to the Commission with respect to its Order No. 4409-A, and the Commission having failed to act thereon within ten days after filing, the Application for Rehearing is deemed to have been refused, pursuant to §65-3-22A, N.M.S.A., 1953.

6. After the entry of Order No. R-4409-A, this matter was reviewed by the District Court of Eddy County, as Cause No. 28482 on that Court's Docket, and from an adverse decision to your Applicant, the matter then was appealed to the Supreme Court of the State of New Mexico. Mandate of the Supreme Court has been issued, directing this Commission to make additional findings based upon the record as it presently exists in those additional findings, which have been made in ¶0. of the above-referred to Order. Applicant is adversely affected by those findings and the entry of the Order, and believes it to be erroneous and invalid for the following reasons:

A. Findings 4, 5, 6, 7 and 8 are not supported by substantial evidence and are contrary to the evidence that exists and appears in the record. The uncontradicted evidence shows that the Morrow formation underlying Sections 4 and 5 is effectively separated by waterfill structural troughs from the Morrow formation underlying the remainder of the Indian Basin-Morrow Gas Pool.

B. Finding No. 18 is not supported by substantial evidence and is again contrary to the uncontradicted testimony as appearing in the record.

C. Findings 23, 24, 25 and 26 are not supported by substantial evidence and indeed are contrary to the evidence that there is the necessary facilities, demand and market available for any gas that would be produced.

D. Findings 29 and 30 are not supported by substantial evidence and are contrary to the evidence as appears in the record.

E. The said Order is erroneous, invalid and void in that the effect of said order will be to cause waste and violate correlative rights of the Applicant and of other mineral interest owners, contrary to the duties imposed upon the Commission by the laws of the State of New Mexico.

WHEREFORE, the Commission should enter its order granting this Application for Rehearing, superseding Order No. R-4409-B, and establishing Sections 4 and 5 of Township 21 South, Range 24 East, Eddy County, New Mexico, as a separate gas pool for production from the Morrow formation.

MONTGOMERY, FEDERICI, ANDREWS,
HANNAHS & BUELL

By _____
Attorneys for Applicant
Post Office Box 2307
Santa Fe, New Mexico 87501
(Telephone [505] 982-3875)

CERTIFIED, that I mailed a true and correct copy of the foregoing Application for Rehearing to: Jack Cooley, Esq., Petroleum Center Building, Farmington, New Mexico 87401, this 11th day of June, 1975.

_____
Attorney for Applicant

BEFORE THE NEW MEXICO OIL CONSERVATION COMMISSION

APPLICATION OF DAVID FASKEN)
FOR AN ORDER CONTRACTING THE)
HORIZONTAL LIMITS OF THE) Case No. 4733
INDIAN BASIN-MORROW GAS POOL,)
EDDY COUNTY, NEW MEXICO)

APPLICATION

Comes now David Fasken, by his attorneys, and applies to the New Mexico Oil Conservation Commission for an order contracting the horizontal limits of the Indian Basin-Morrow Gas Pool, Eddy County, New Mexico, and in support of his application states:

1. Applicant is the owner and operator of the following described wells which are completed in the Morrow Formation and which presently are designated as lying within the Indian Basin-Morrow Gas Pool:

> David Fasken Ross Federal Well No. 1, located 1980 feet from the South line and 1980 feet from the West line of Section 4, Township 21 South, Range 24 East, Eddy County, New Mexico.
>
> David Fasken Shell Federal Well No. 1, located 1980 feet from the South line and 1980 feet from the West line of Section 5, Township 21 South, Range 24 East, Eddy County, New Mexico.

2. The above described wells originally were included within the North Indian Basin-Morrow Gas Pool, but were included within the Indian Basin-Morrow Gas Pool at the time the temporary Special Rules and Regulations for the North Indian Basin-Morrow Gas Pool expired.

3. The drilling of additional wells to the Morrow formation since the time the above described wells were included in the Indian Basin-Morrow Gas Pool has provided information which proves that the above described wells are completed in a source of supply separate and apart from the source of supply for wells located in the Indian basin-Morrow Gas Pool.

4. In order to protect the correlative rights of the applicant and in order properly to define the Morrow production in the

area of the above described wells, the Commission should enter an order deleting Sections 4 and 5, Township 21 South, Range 24 East, Eddy County, New Mexico, from the Indian Basin-Morrow Gas Pool and establishing those Sections as a separate gas pool for Morrow production.

WHEREFORE, applicant requests that this application be set for hearing before the Commission, or one of its examiners, and that the Commission enter its order contracting the Indian Basin-Morrow Gas Pool in accordance with this application.

MONTGOMERY, FEDERICI, ANDREWS, HANNAHS & MORRIS

By _____

P.O. Box 2307
Santa Fe, N.M. 87501
Attorneys for Applicant, David Fasken.

BEFORE THE OIL CONSERVATION COMMISSION
OF THE
STATE OF NEW MEXICO

APPLICATION OF DAVID FASKEN FOR CONTRACTION OF THE HORIZONTAL LIMITS OF THE INDIAN BASIN-MORROW GAS POOL AND FOR CREATION OF A NEW GAS POOL, EDDY COUNTY, NEW MEXICO	)	Case No. 4733

APPLICATION FOR HEARING DE NOVO

Comes now David Fasken, by his attorneys, and applies to the New Mexico Oil Conservation Commission for an Order contracting the horizontal limits of the Indian Basin-Morrow Gas Pool and for the creation of a new gas pool, Eddy County, New Mexico, and for a hearing de novo in connection with this Application, and in support thereof states:

1. Applicant is the owner and operator of the following described wells which are completed in the Morrow Formation and which presently are designated by the Commission as being within the Indian Basin-Morrow Gas Pool:

> David Fasken Ross Federal Well No. 1, located 1980 feet from the South line and 1980 feet from the West line of Section 4, Township 21 South, Range 24 East, Eddy County, New Mexico.
>
> David Fasken Shell Federal Well No. 1, located 1980 feet from the South line and 1980 feet from the West line of Section 5, Township 21 South, Range 24 East, Eddy County, New Mexico.

2. The above described wells originally were included within the North Indian Basin-Morrow Gas Pool, but were included within the Indian Basin-Morrow Gas Pool at the time the temporary Special Rules and Regulations for the North Indian Basin-Morrow Gas Pool expired.

3. The drilling of additional wells to the Morrow formation since the time the above described wells were included in the

Indian Basin-Morrow Gas Pool has provided information which proves that the above described wells are completed in a source of supply separate and apart from the source of supply for wells located in the Indian Basin-Morrow Gas Pool.

4. In order to protect the correlative rights of the Applicant and in order properly to define the Morrow production in the area of the above described wells, the Commission should enter an order deleting Sections 4 and 5, Township 21 South, Range 24 East, Eddy County, New Mexico, from the Indian Basin-Morrow Gas Pool and establishing those Sections as a separate gas pool for Morrow production.

5. On or about May 1, 1972, the applicant made Application to the Commission as set forth in paragraphs 1 through 4 above. Hearing was held upon the said Application on June 7, 1972 before Daniel S. Nutter, an Examiner duly appointed by the Commission, and on September 27, 1972, the Commission entered its Order No. R-4409 denying the Application.

6. Contrary to Finding No. 10 of the said Order No. R-4409 denial of the Application has caused waste and has impaired the correlative rights of the Applicant, and will continue to do so unless this Application is granted.

7. David Fasken is a party adversely affected by the said Order No. R-4409 and hereby makes Application for hearing de novo pursuant to Section 65-3-11.1 New Mexico Statutes Annotated and Commission Rule 1220.

8. Approval of this Application will prevent waste and protect correlative rights.

WHEREFORE, the Applicant requests that this Application for hearing de novo be set for hearing before the Commission at its

next regular hearing date and that the Commission enter its Order contracting the horizontal limits of the Indian Basin-Morrow Gas Pool and creating a new gas pool for Morrow production, all as set forth herein.

MONTGOMERY, FEDERICI, ANDREWS,
HANNAHS & MORRIS

By Richard S. Morris
P.O. Box 2307
Santa Fe, N.M. 87501
Attorneys for David Fasken.

PHONE MUtual 3-1893

HENRY ENGINEERING
Petroleum Engineers
807 FIRST NATIONAL BANK BUILDING
MIDLAND, TEXAS 79701

June 12, 1972

Mr. Dan Nutter
New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico 87501

Re: Case No. 4733
Application David Fasken
for Pool Contraction -
Creation of a New Gas
Pool, Eddy County,
New Mexico

Dear Mr. Nutter:

I am enclosing herewith the additional exhibits you requested in reference to the subject case. I have enclosed:

(1) A structural cross section with Gamma-Ray Sonic log.

(2) Small scale electric logs of all wells in the area with perforations and test data.

(3) A map showing the trace of Exhibit 3 previously presented and shows the trace of the structural cross section enclosed.

Please advise if you need any additional information in regards to this matter.

Yours very truly,

HENRY ENGINEERING

James B. Henry

Encl.
JBH:bh
cc: Mr. Richard Morris
Montgomery, Federici, Andrews, Hannahs
& Morris
Santa Fe, New Mexico

BEFORE THE OIL CONSERVATION COMMISSION
OF THE
STATE OF NEW MEXICO

APPLICATION OF DAVID FASKEN FOR EXEMPTION OF WELLS FROM PRORATIONING OR, IN THE ALTERNATIVE, FOR SPECIAL ALLOWABLES, INDIAN BASIN-MORROW GAS POOL, EDDY COUNTY, NEW MEXICO

Case No. 4865

APPLICATION

Comes now David Fasken, by his attorneys, and applies to the New Mexico Oil Conservation Commission for an Order exempting wells from prorationing or, in the alternative, for special allowables, Indian Basin-Morrow Gas Pool, Eddy County, New Mexico, and in support of his Application states:

1. Applicant is the owner and operator of the following described wells which are completed in the Morrow Formation and which presently are designated by the Commission as being within the Indian Basin-Morrow Gas Pool:

David Fasken Ross Federal Well No. 1, located 1980 feet from the South line and 1980 feet from the West line of Section 4, Township 21 South, Range 24 East, Eddy County, New Mexico.

David Fasken Shell Federal Well No. 1, located 1980 feet from the South line and 1980 feet from the West line of Section 5, Township 21 South, Range 24 East, Eddy County, New Mexico.

2. By Application for Hearing De Novo in Case No. 4733, the Applicant seeks the contraction of the horizontal limits of the Indian Basin-Morrow Gas Pool by the deletion therefrom of all of Sections 4 and 5, Township 21 South, Range 24 East, Eddy County, New Mexico, and the creation of a new Morrow Gas Pool containing those lands. This Application is submitted as an alternative to the relief requested in Case No. 4733 and should be considered only in the event relief is denied in that case. Due to the identity of the subject matter involved in this

DOCKET MAILED

Date 11-10-72

Application and the Application for Hearing De Novo in Case No. 4733, Applicant requests that this Application be heard by the Commission at the same time as the Hearing De Novo in Case No. 4733.

3. All wells in the Indian Basin-Morrow Gas Pool, as presently defined, are subject to prorationing pursuant to the provisions of Commission Order No. R-1670-F. Although prorationing was instituted in the Indian Basin-Morrow Gas Pool in order to prevent waste and protect correlative rights, the effect of prorationing upon the Applicant's above described wells has been to cause waste and impair the Applicant's correlative rights, which situation will continue unless the Commission affords the Applicant relief in this case or in Case No. 4733.

4. In order to avoid aggravation of the pressure differential that exists between the Applicant's above described wells and the wells located South thereof, the Commission should enter an Order granting one of the following alternatives:

A. The Commission should recognize the existence of the structural saddle between the Applicant's wells and other wells to the South thereof, and should permit the Applicant's wells to be produced at capacity. This result may be accomplished by deleting the Applicant's wells from the Indian Basin-Morrow Gas Pool as requested in Case No. 4733 or by granting the Applicant an exception to the allowable provisions of Order No. R-1670-F.

B. In the alternative, the Commission should permit the Applicant's wells to produce at a rate sufficient to offset the decline in pressure due to production from wells South of the structural saddle and, in order to achieve this result, should assign the Applicant's wells a special allowable as an exception

to the allowable provisions of Order No. R-1670-F.

C. Further, in the alternative, the Commission should enter such Order or Orders as may be necessary to prevent waste and protect correlative rights.

WHEREFORE, the Applicant requests that this case be set for hearing before the Commission at the same time as the Application for Hearing De Novo in Case No. 4733, that this case be consolidated with Case No. 4733, and that the Commission enter an Order permitting the Applicant to produce his wells at capacity or at such a rate as will prevent waste and protect correlative rights.

MONTGOMERY, FEDERICI, ANDREWS, HANNAHS & MORRIS

By Richard S. Morris

P.O. Box 2307
Santa Fe, N.M. 87501
Attorneys for David Fasken.

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION
OF DAVID FASKEN FOR SPECIAL ALLOW-
ABLES, EDDY COUNTY, NEW MEXICO. CASE NO. 4865

APPLICATION FOR REHEARING

Comes now David Fasken and makes application to the New Mexico Oil Conservation Commission for rehearing in respect of all matters determined by Order No. R-4444 entered by the Commission in this case on December 6, 1972 and in support thereof states:

1. That David Fasken is the assignee of oil and gas leases covering all of Sections 4 and 5, Township 21 South, Range 24 East, Eddy County, New Mexico and is the owner and operator of the following-described wells which are completed in the Morrow formation and which presently are designated by the Commission as being within the Indian Basin-Morrow Gas Pool:

> David Fasken Ross Federal Well No. 1, located 1980 feet from the South line and 1980 feet from the West line of Section 4, Township 21 South, Range 24 East, Eddy County, New Mexico.
>
> David Fasken Shell Federal Well No. 1, located 1980 feet from the South line and 1980 feet from the West line of Section 5, Township 21 South, Range 24 East, Eddy County, New Mexico.

2. At the time David Fasken drilled and completed the above-described wells the lands upon which they were located were designated by the Commission as being within the North Indian Basin-Morrow Gas Pool; however, by Order No. R-3758, effective June 1, 1969, the said lands and the applicant's above-described wells were redesignated by the Commission as being within the Indian Basin-Morrow Gas Pool.

3. The drilling and completion of additional wells in the Morrow formation since the time the applicant's above-described lands and wells were redesignated in the Indian Basin-Morrow Gas Pool has provided information which establishes that the applicant's said wells are completed in a source of supply separate and distinct from the source of supply for all other wells in the Indian Basin-Morrow Gas Pool.

4. By reason of being administered and prorated under the special rules and regulations applicable to the Indian Basin-Morrow Gas Pool, the production from the applicant's said wells has been restricted and a pressure imbalance has been created which has caused, is causing, and, unless this application is granted, will continue to cause migration of gas from beneath the applicant's lands, thereby causing waste and violating the applicant's correlative rights. In addition, the pressure differential that exists between the applicant's said wells and wells to the South thereof is causing water encroachment into those wells thereby causing waste and impairing the correlative rights of the various owners of interest in those wells and lands, including the State of New Mexico as the owner of a royalty interest therein.

5. On October 25, 1972 David Fasken applied to the New Mexico Oil Conservation Commission for an order exempting its said wells from prorationing or, in the alternative, for the assignment of special allowables to the said wells in order to avoid aggravation of the pressure differential that existed, and continues to exist, between the applicant's said wells and the wells located South thereof in the Indian Basin-Morrow Gas Pool. Hearing on this application was held before the Commission on November 21, 1972 and on December 6, 1972 the Commission

entered its Order R-4444 denying the application.

6. David Fasken is adversely affected by the said Commission Order No. R-4444 and believes it to be erroneous and invalid for the following reasons:

A. The said order is invalid in that it contains no findings to explain, support or indicate the reasoning of the Commission in concluding that the application should be denied in order to prevent waste.

B. Finding Nos. 6, 7 and 8 of the said order are not supported by substantial evidence.

C. The said order is erroneous and invalid as a matter of law. Finding No. 5 of the said order recognizes the existence of the pressure differential between the area in which the applicant's wells are located and that area of the Indian Basin-Morrow Gas Pool to the South of the applicant's said wells and recognizes that gas migration is occurring due to the said pressure differential; however, on the spurious grounds that the applicant could drill additional wells (at considerable additional expense to the applicant) the Commission refused to afford relief which would prevent the occurrence of waste as well as the protection of the applicant's correlative rights and the correlative rights of other mineral interest owners.

D. The said order is erroneous, invalid and void in that the effect of the said order will be to cause waste and violate the correlative rights of the applicant and of other mineral interest owners, contrary to the duties imposed upon the Commission by the oil and gas statutes of the State of New Mexico.

WHEREFORE, the Commission should enter its order granting this Application for Rehearing, superseding Order No. R-4444,

and either exempting the applicant's said wells from prorationing or establishing special allowables for the said wells in accordance with the application in this case.

MONTGOMERY, FEDERICI, ANDREWS,
HANNAHS & MORRIS

BY: Richard S. Morris
P. O. Box 2307
Santa Fe, New Mexico 87501
Attorneys for David Fasken

CERTIFICATE OF MAILING

I hereby certify that I caused a true and correct copy of the foregoing Application for Rehearing to be mailed to Jack Cooley, Petroleum Center Building, Farmington, New Mexico 87401 on this 22 day of December, 1972.

Richard S. Morris

DRAFT

GMH/dr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 4733

Order No. R-4409

APPLICATION OF DAVID FASKEN FOR
POOL CONTRACTION AND CREATION OF
A NEW GAS POOL, EDDY COUNTY, NEW
MEXICO.

9-27-72

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on June 7, 1972, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this _____ day of _____, 1972, the Commission, a quorum being present, 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 Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, David Fasken, seeks the contraction of the horizontal limits of the Indian Basin-Morrow Gas Pool, by the deletion therefrom of all of Sections 4 and 5, Township 21 South, Range 24 East, NMPM, Eddy County, New Mexico.

(3) That the applicant further seeks the creation of a new non-prorated gas pool comprising all of said Sections 4 and 5 for the production of gas from the Morrow formation.

(4) That by Order No. R-2441, dated February 28, 1963, the Commission created the Indian Basin-Morrow Gas Pool, Eddy County, New Mexico, for the production of gas from the Morrow formation.

(5) That the horizontal limits of the Indian Basin-Morrow Gas Pool have been extended from time to time by order of the Commission.

(6) That while the evidence presented does indicate the presence of a trough existing in the area of the proposed separation, the evidence does not indicate that it is an effective barrier.

(7) That there is substantial evidence that there is communication between the areas to the north and south of the trough.

(8) That the areas proposed to be separated constitute a single source of supply and should not be separated.

(9) That the applicant has failed to prove that the Indian Basin-Morrow Gas Pool should be contracted and that a new Morrow Gas Pool should be created.

(10) That in order to prevent waste and protect correlative rights, the application should be denied.

IT IS THEREFORE ORDERED:

(1) That the application of David Fasken for the contraction of the Indian Basin-Morrow Gas Pool and for the creation of a new gas pool for Morrow production is hereby denied.

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

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

DRAFT

DSN/dr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 4733
Order No. R-4409-A

APPLICATION OF DAVID FASKEN FOR
POOL CONTRACTION AND CREATION
OF A NEW GAS POOL, EDDY COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing de novo at 9 a.m. on November 21, 1972, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this_____day of December, 1972, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS:

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

(2) That after an examiner hearing, Commission Order No. R-4409, dated September 27, 1972, was entered in Case No. 4733 denying the application of David Fasken for the contraction of the Indian Basin-Morrow Gas Pool by the deletion therefrom of all of Sections 4 and 5, Township 21 South, Range 24 East, NMPM, Eddy County, New Mexico, and the creation of a new gas pool comprising said lands.

(3) That David Fasken requested and was granted a hearing de novo of Case No. 4733.

(4) That the evidence presented at the hearing de novo clearly establishes that there is communication within the Morrow formation between the aforesaid Sections 4 and 5 and the remainder of the Indian Basin-Morrow Gas Pool.

(5) That the Morrow formation underlying said Sections 4 and 5 and the Morrow formation underlying the remainder of the Indian Basin-Morrow Gas Pool constitute a single common source of gas supply.

(6) That to separate the Indian Basin-Morrow Gas Pool into two parts and to permit the wells in said Sections 4 and 5 to produce at unrestricted rates would afford said wells an undue share of the recoverable gas reserves in the pool and would result in unratable take and would violate the correlative rights of other mineral interest owners in the pool.

(7) That in order to prevent unratable take and protect correlative rights and prevent waste, the Indian Basin-Morrow Gas Pool should not be contracted, a separate pool should not be created, and Order No. R-4409 should be reaffirmed.

IT IS THEREFORE ORDERED:

(1) That Commission Order No. R-4409, dated September 27, 1972, be and the same is hereby reaffirmed in its entirety.

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

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

DRAFT 2

dr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 4733
Order No. R-4409-B

APPLICATION OF DAVID FASKEN FOR
POOL CONTRACTION AND CREATION
OF A NEW GAS POOL, EDDY COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing de novo at 9 a.m. on November 21, 1972, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this _____ day of May, 1975, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS:

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

(B) That after an examiner hearing, Commission Order No. R-4409, dated September 27, 1972, was entered in Case No. 4733 denying the application of David Fasken for the contraction of the Indian Basin-Morrow Gas Pool by the deletion therefrom of all of Sections 4 and 5, Township 21 South, Range 24 East, NMPM, Eddy County, New Mexico, and the creation of a new non-prorated gas pool comprising said lands.

(C) That David Fasken requested and was granted a de novo hearing before the Commission on his application in Case No. 4733.

(D) That the application of David Fasken was again denied by the Commission on December 6, 1972.

(G) That David Fasken appealed this decision of the Commission to the District Court of Eddy County.

(E) That Fasken filed an application for rehearing of the decision in case 4733 on December 22, 1972.

(F) That the Commission took no action on the Application for Rehearing thereby denying it.

(H) That the Commission moved for Summary Judgment.

(I) That on November 29, 1973, the Commission's Motion for Summary Judgment was granted by the District Court.

(J) That David Fasken appealed this decision to the Supreme Court of New Mexico in December, 1973.

(K) That the Supreme Court reversed the District Court and remanded the cause back to the Commission on February 28, 1975.

(L) That in reaching its decision, the Supreme Court stated it did not want for theories in this case but that the problem with the theories advanced by counsel was that they were not bolstered by the expertise of the Commission.

(M) That in reversing the District Court, the Supreme Court found that sufficient findings to disclose the reasoning of the Commission were lacking and reversal was thereby required.

(N) That the case was "...remanded to the Commission for the making of additional findings of fact based upon the record as it presently exists, and the entry of new orders."

(O) That pursuant to this decision of the New Mexico Supreme Court and upon further review of the record the Commission finds:

(1) That the Commission is empowered by Subsection (12) of Section 65-3-11 NMSA, 1953 Comp., as amended, "To determine the limits of any pool or pools producing crude petroleum oil or natural gas or both, and from time to time to redetermine such limits;"

(2) That on June 1, 1969, the Commission entered Order No. R-3758 which pursuant to its statutory powers abolished the North Indian Hills-Morrow Gas Pool and extended the Indian Basin-Morrow Gas Pool to include acreage formerly included in said ~~from the~~ North Indian Hills-Morrow Gas Pool because the Commission concluded that this area comprised a single source of supply.

(3) That Fasken contends that the Indian Basin-Morrow Gas Pool ~~pool~~ is divided into two separate pools by a water trough.

4 ~~(8)~~ That the evidence used to support the water trough concept ~~this concept~~ was shown to be incomplete, misleading, and probably inaccurate.

5 ~~(9)~~ That the evidence showed that the withdrawal of ~~withdrawing~~ gas from a well in the northern part ~~north~~ of the Indian Basin-Morrow Gas Pool affects the pressure and gas migration in the south part ~~of this~~ pool and that the withdrawal of ~~withdrawing~~ gas in the south part of the pool affects pressure and gas migration in the north part of this pool.

6 ~~(10)~~ That communication therefore exists throughout the pool.

7 ~~(11)~~ That communication throughout a reservoir is one of the means used to determine that ~~whether or not~~ a pool constitutes a single source of gas supply.

8 ~~(12)~~ That the Indian Basin-Morrow Gas Pool constitutes a single source of gas supply.

(9) That the Commission is empowered by Section 65-3-10 NMSA, 1953 Comp., as amended, to prevent waste and protect correlative rights.

(10) That Fasken is seeking with this application higher rates of production from each of his wells in the northern portion of the Indian Basin-Morrow Gas Pool.

(11) That the wells in the northern portion of the pool could ~~may~~ produce at higher rates if they

were
~~are~~ removed from said pool and their production, thereby, no longer prorated in accordance with the allowables set for the Indian Basin-Morrow Gas Pool.

(12) That the allocation of allowables in the Indian Basin-Morrow Gas Pool is on a straight acreage basis.

(13) That because of variations in the United States Public Lands surveys, more acreage is dedicated to each of Fasken's wells in the northern portion of the pool than is dedicated to other wells in the pool, and he therefore receives larger allowables for his two wells and is authorized to produce considerably more from each of these wells than are other operators in the pool.

(14) That ten wells produce from the Indian Basin-Morrow ~~Sands~~ Gas Pool.

(15) That the two Fasken wells in the northern portion of ~~the~~ said pool constitute 20 percent of the wells producing from the pool.

(16) That the two Fasken wells in the north of ~~the~~ said pool have produced almost 40 percent of the gas from the pool.

(17) That Fasken has an ~~equal~~ opportunity equal to that of other producers in the pool to produce his just and equitable share of gas from ~~the~~ said pool.

(18) That granting the application of David Fasken for pool contraction and creation of a new non-prorated gas pool would increase the amount of gas Fasken could withdraw, giving him an advantage over the other operators producing from this single source of supply thereby impairing their correlative rights.

(19) That granting the application of David Fasken would have the same affect as de-prorating the northern portion of the Indian Basin-Morrow Gas Pool but not de-prorating the remainder of the pool and would authorize greater rates of production for the Fasken wells in the north part of the pool than for other wells ~~similarly located.~~ in the pool.

(20) That granting the application of David Fasken would authorize production practices which would impair the correlative rights of other mineral interest owners and, therefore, is contrary to the duties of the Commission as set out in Section 65-3-10 NMSA, 1953 Comp., as amended.

(21) That in order to protect correlative rights, the application should be denied.

(22) That Section 65-3-3(E) NMSA, 1953 Comp., as amended, defines waste as follows:

"The production in this state of natural gas from any gas well or wells, or from any gas pool, in excess of the reasonable market demand from such source for natural gas of the type produced or in excess of the capacity of gas transportation facilities for such type of natural gas...." (Emphasis added)

(23) That the Indian Basin-Morrow Gas Pool is capable of producing gas in excess of the capacity of the gas transportation facilities for such type of natural gas in said pool.

(24) That Fasken's witness testified that the two Fasken wells in the ~~North~~ northern portion of the Indian Basin-Morrow Gas Pool are capable of producing more gas than they can sell

(22) That Section 65-3-3 E NMSA, 1953 Comp., as amended, defines waste as follows:

"The production in this state of natural gas from any gas well or wells, or from any gas pool, in excess of the reasonable market demand from such source for natural gas of the type produced or in excess of the capacity of gas transportation facilities for such type of natural gas. . . ." (Emphasis added)

(23) That Fasken's witness testified that the entire pool has a greater capacity to produce gas than the producers in said pool are able to sell to the pipeline.

(24) That this limited ability to sell gas from the pool may be termed a "restricted demand."

(25) That this restricted demand for gas from the pool must logically be concluded to result from either:

(a) a limited demand for gas from the pool because of market conditions; or

(b) a limited demand for gas from the pool because of limited physical facilities to handle and transport the gas.

(26) That this restricted demand may be considered the "reasonable market demand" for gas from the pool.

(27) That production of gas from the pool in excess of the reasonable market demand imposed by either of the conditions described in Finding No. (24) above would cause waste. (see Finding No. (21) above.)

(28) That the other producers in the pool are entitled to produce their just and equitable share of the gas in the pool and to ~~have~~ be permitted their just and equitable share of the reasonable market demand for gas from the pool.

Case No. ~~4865~~ 4933
Order No. R-~~1441-A~~ 4409-B

(29) That granting the application of Fasken for ~~special~~ for pool contraction and creation of a new non-prorated gas pool ~~allowables~~, would authorize production in excess of his share from his two wells in the northern portion of the pool of the reasonable market demand for gas from the pool and would by definition (Section 65-3-3 E NMSA 1953 Comp.) cause waste.

(30) That in order to prevent waste, the application should be denied!

IT IS THEREFORE ORDERED:

(1) That the application of David Fasken for pool contraction and creation of a new non-prorated gas pool ~~special allowables for his Ross Federal Well No. 1 and his Shell Federal Well No. 1, both in the Indian Basin Morrow Gas Pool, Eddy County, New Mexico,~~ be and the same is hereby denied.

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

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

only reflect signatures
from
I R TRUJILLO
and
A.L. Porter

(do not put blank's
name on the order)

(Case 4765 continued from page 1)

mineral interests underlying the W/2 of Section 3, Township 26 South, Range 24 East, adjacent to the Washington Ranch-Morrow Gas Pool, Eddy County, New Mexico, comprising, approximately, a 407.20-acre non-standard proration unit. Said acreage to be dedicated to a well located 1980 feet from the North line and 1980 feet from the West line of said Section 3.

Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.

Upon application of Rutter and Wilbanks Corporation this case will be heard De Novo under the provisions of Rule 1220.

CASE 4771: (De Novo)

Application of Black River Corporation for a non-standard gas unit, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 402.22-acre, more or less, non-standard gas unit adjacent to the Washington Ranch-Morrow Gas Pool, comprising the W/2 of Section 4, Township 26 South, Range 24 East, Eddy County, New Mexico, to be dedicated to a well to be located at an unorthodox location 1985 feet from the North line and 2087 feet from the West line of said Section 4.

Upon application of Michael P. Grace II and Corinne Grace this case will be heard De Novo under the provisions of Rule 1220.

CASE 4772: (De Novo)

Application of Black River Corporation for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all leasehold, mineral, and royalty interests underlying the W/2 of Section 4, Township 26 South, Range 24 East, adjacent to the Washington Ranch-Morrow Gas Pool, Eddy County, New Mexico, comprising a 402.22-acre, more or less, non-standard gas unit. Said acreage to be dedicated to a well to be located at an unorthodox location 1985 feet from the North line and 2087 feet from the West line of said Section 4.

Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.

Upon application of Michael P. Grace II and Corinne Grace this case will be heard De Novo under the provisions of Rule 1220.

Docket No. 27-72

DOCKET: REGULAR HEARING - TUESDAY - NOVEMBER 21, 1972

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

CASE 4763: (De Novo) (Continued from the October 18, 1972 Regular Hearing)

Application of Black River Corporation for compulsory pooling and non-standard proration unit, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Morrow formation underlying the E/2 of Section 3, Township 26 South, Range 24 East, adjacent to the Washington Ranch-Morrow Gas Pool, Eddy County, New Mexico, comprising, approximately, a 409.22-acre non-standard proration unit. Said acreage to be dedicated to its Cities "3" Federal Well No. 2 located 2212 feet from the North line and 1998 feet from the East line of said Section 3.

Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.

Upon application of Rutter and Wilbanks Corporation this case will be heard De Novo under the provisions of Rule 1220.

CASE 4764: (De Novo) (Continued from the October 18, 1972, Regular Hearing)

Application of Black River Corporation for compulsory pooling, and non-standard proration unit, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Morrow formation underlying the W/2 of Section 3, Township 26 South, Range 24 East, adjacent to the Washington Ranch-Morrow Gas Pool, Eddy County, New Mexico, comprising, approximately, a 407.20-acre non-standard proration unit. Said acreage to be dedicated to its Cities "3" Federal Well No. 1 located 1980 feet from the North line and 1980 feet from the West line of said Section 3.

Also to be considered will be costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.

Upon application of Rutter and Wilbanks Corporation this case will be heard De Novo under the provisions of Rule 1220.

CASE 4765: (De Novo) (Continued from the October 18, 1972 Regular Hearing)

Application of Michael P. Grace and Corinne Grace for compulsory pooling and non-standard proration unit, Eddy County, New Mexico. Applicants, in the above-styled cause, seek an order pooling all

(Case 4865 continued from page 3)

in Township 21 South, Range 24 East, Indian Basin-Morrow Gas Pool, Eddy County, New Mexico, at the capacity of the wells to produce, or in the alternative, to permit the production of the wells at a rate in excess of the allowable sufficient to offset the alleged decline in pressure due to production from wells to the south.

CASE 4766: (De Novo)

Application of Michael P. Grace and Corinne Grace for compulsory pooling and a non-standard unit, Eddy County, New Mexico. Applicants, in the above-styled cause, seek an order pooling all mineral interests underlying the W/2 of Section 4, Township 26 South, Range 24 East, adjacent to the Washington Ranch-Morrow Gas Pool, Eddy County, New Mexico, comprising approximately a 402-acre non-standard proration unit. Said acreage to be dedicated to a well to be drilled 1980 feet from the North line and 1980 feet from the West line of said Section 4. Also to be considered will be the costs of drilling said well, a charge for the risk involved, and a provision for the allocation of charges for supervision of said well.

Upon application of Michael P. Grace II and Corinne Grace this case will be heard De Novo under the provisions of Rule 1220.

CASE 4796: (Continued from the August 16, 1972 Regular Hearing and October 18, 1972 Regular Hearing)

Application of Michael P. Grace II and Corinne Grace for capacity allowable, Eddy County, New Mexico. Applicants, in the above-styled cause, seek an exception to the General Rules and Regulations governing the prorated gas pools of Southeast New Mexico, promulgated by Order No. R-1670, as amended, to produce their City of Carlsbad "COM" Well No. 1, located in Unit O of Section 25, Township 22 South, Range 26 East, South Carlsbad-Morrow Gas Pool, Eddy County, New Mexico, at full capacity.

CASE 4733: (De Novo)

Application of David Fasken for pool contraction and creation of a new gas pool, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the contraction of the horizontal limits of the Indian Basin-Morrow Gas Pool, Eddy County, New Mexico, by the deletion therefrom of all of Sections 4 and 5, Township 21 South, Range 24 East. Applicant further seeks the creation of a new gas pool with horizontal limits comprising all of said Sections 4 and 5 for the production of gas from the Morrow formation.

Upon application of David Fasken, this case will be heard De Novo under the provisions of Rule 1220.

CASE 4865: Application of David Fasken for special allowables, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the general rules and regulations governing the prorated gas pools of Southeast New Mexico, promulgated by Order No. R-1670, as amended, to produce his Ross Federal Well No. 1 located 1980 feet from the South and West lines of Section 4 and his Shell Federal Well No. 1 located 1980 feet from the South and West lines of Section 5, both

Rough Draft.

STATE OF NEW MEXICO COUNTY OF EDDY

IN THE DISTRICT COURT

DAVID FASKEN, Petitioner,	)	
vs.	)	Cause Nos. 28482 & 28483
OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO, Respondent.	)	

RESPONDENT'S [redacted] BRIEF

STATEMENT OF THE CASE

This case is a statutory petition for judicial review of an action of the Oil Conservation Commission of New Mexico under Section 65-3-22(b), NMSA 1953. The action in question involves motions for summary judgment filed by both Petitioner and Respondent in the appeal of David Fasken from Oil Conservation Commission Orders Nos. R-4409-A and R-4444, which issued pursuant to a hearing before the Oil Conservation Commission on November 21, 1972.

Order R-4409-A denied Petitioner's request to [redacted] Sections 4 and 5, Township 21 South, Range 24 East, NMPM, Eddy County, New Mexico, declared a gas pool separate from the rest of the Indian Basin-Morrow Gas Pool. In issuing this order the Commission found:

1. Communication existed between said Sections 4 and 5 and the rest of the pool (Finding 4);

2. That those sections were part of a single common source of supply with the rest of the Indian Basin-Morrow Gas Pool (Finding 5);

3. That granting said application would cause [redacted] unratable take and would violate the correlative rights of other mineral interest owners in the pool (Finding 6).

Order R-4444 denied Petitioner's alternative request for

a capacity allowable for both of Petitioner's wells in said Sections 4 and 5. The Commission found that both the David Fasken-Ross Federal Well No. 1 and the David Fasken-Shell Federal Well No. 1 were completed in the same single source of supply as other wells in the Indian Basin-Morrow Gas Pool (Finding 6) and that increasing their allowables would permit them to take an undue share of the recoverable gas reserves in the pool (Finding 7). This would have resulted in ~~waste~~ unratable take and would have violated the correlative rights of the other mineral interest owners in the pool (Finding 7). The Commission further found in this Order that the area in which the aforesaid two wells are located contains a substantial amount of productive acreage not dedicated to any well (Finding 4) and that the Petitioner might provide his own relief to any gas migration by further development of the gas reserves in this part of the Indian Basin-Morrow Gas Pool (Finding 5).

On December 22, 1972, the Petitioner made application for rehearing to the Commission with respect to Orders Nos. R-4409-A and R-4444. Pursuant to Section 65-3-22(a), NMSA 1953, the Commission took no action on the application for rehearing thereby denying it.

SCOPE OF REVIEW

This hearing involves motions for summary judgment filed by both the Petitioner and Respondent in this action. As such, the court may only decide if there are ~~reasonable grounds upon which either side may proceed in this matter and it has gone to trial~~ any genuine issues as to any material fact and if either party is entitled to judgment as a matter of law (Rule 56(c) N.M.R.C.P.). The court may only grant or deny these motions. It may neither modify the orders nor grant alternative relief.

The scope of review is further limited by the fact that this is an appeal from administrative orders issued pursuant to

hearings before the Oil Conservation Commission.

The court, therefore, may only look at the record made in the administrative hearing. {Continental Oil Co. v. Oil Conservation Commission 70 NM 310, 373 P.2d 809}. It should determine if the Commission acted arbitrarily, capriciously or unreasonably; acted outside the scope of its statutory responsibilities; or issued orders not supported by substantial evidence. In the absence of a determination that the Petitioner can reasonably show that the Commission acted in one of the above ways, the motion of the Respondent, Oil Conservation Commission, for summary judgment should be granted. OTERO v. N.M. STATE POLICE BOARD, 495 P.2d 374, 85 N.M. 594 (1972).

There is conflict in the technical evidence in these cases but in this proceeding, the real question is whether or not there is substantial evidence which supports the orders of the Commission.

Since this case must be decided by the Court solely on the basis of the record made before the Oil Conservation Commission without the aid of additional evidence, a review of that evidence is ~~important~~ essential.

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THE EVIDENCE

The evidence presented in this case consists of the testimony of Mr. Henry and twelve exhibits offered by the Petitioner, brief testimony of Ms. Nutter and one exhibit for the and the Respondent, Oil Conservation Commission. Petitioner's primary contention is set forth in Exhibit 1 (Tr. 10) which is a structure map of the Morrow formation that shows the possible presence of a water trough through the Indian Basin-Morrow Gas Pool. In support of this hypothesis the Petitioner offered Exhibit 2 (Tr. 13) which is a cross section of a series of gama ray neutron logs through this portion of the Morrow formation and Exhibit 3 (Tr. 18) which is a map showing the thickness of the Indian Hills Sand interval in this area. Exhibit 4 (Tr. 20) is an expanded

vertical view of the Indian Hills Sand cut along a trace portrayed on Exhibit 1.

In addition to this information on the structure of the Indian Hills Sand interval, the Petitioner offered six exhibits that demonstrated pressure variations over a period of time in this formation. These exhibits indicated that originally between what Petitioner calls the North and South basins there was a pressure differential of 111 pounds (Tr. 30). The testimony further indicates that the pressure had varied and increased between these portions of the pool during the time records had been kept on wells in the pool.

Exhibit 10 (Tr. 40) is a comparison of the total gas in place in the North and South portions of this gas pool and is based on information drawn from Exhibits 8 and 9. The Petitioner showed that the indications of how much gas was in place fluctuated greatly over a period of time in the reservoirs and claimed that to correct the situation a capacity allowable was needed for the wells in the northern portion of this gas pool (Tr.38-41). Exhibit 11 (Tr. 43) is the initial findings from bottom hole pressure build-up tests being conducted on certain wells in the area.

Although the Oil Conservation Commission offered little testimony of its own, on the cross-examination of Mr. Henry serious questions were raised as to these basic issues on which the Petitioner's applications rest: First, is there a trough running through this gas field which divides it into two separate sources of supply. Second, are the correlative rights of the Petitioner violated by reason of prorating and administering his two northern most wells in this pool under the special rules and regulations applicable to the Indian Basin-Morrow Gas Pool. Third, is any alleged waste a result of the policy of the Oil Conservation Commission or is it the result of operating practices of the Petitioner.

These are the basic issues in this case and will be discussed separately below.

SEPARATE SOURCE OF SUPPLY ISSUE

The powers of the Oil Conservation Commission are enumerated in Section 65-3-11, NMSA 1953. Subsection 12 of this statute confers on the Commission the following power:

> To determine the limits of any pool or pools producing crude petroleum oil or natural gas or both, and from time to time to redetermine such limits.

On June 1, 1969, the Oil Conservation Commission issued Order No. R-3758, which pursuant to its statutory powers set out in Section 65-3-11 declared that the north and south Indian Basin-Morrow Gas Pools were one single source of supply and therefore one pool. This case represents a challenge to that order as well as to Orders No. R-4409-A and No. R-4444. It is important, therefore, to look at the basic weaknesses in the evidence presented by the Petitioner to establish the existence of a trough which separates the north and south portions of the Indian Basin-Morrow Gas Pool into separate sources of supply.

On the cross-examination by Mr. Nutter of Mr. Henry (Tr. 50), the sufficiency of the evidence establishing the existence of this trough was challenged. The transcript reads:

"Q Well, it's indeed necessary to do quite a bit of extrapolating to draw an abatement there between them, the Number 1 Well and the Marathon-North Indian Basin Number 2 Well, when they are three miles apart, is that not true?

"A That's not entirely true--That's not true. It did require some extrapolation, and I believe it is a reasonable engineering and geological extrapolation with the data we had at hand. Certainly the control is not complete, and not as good as where we have greater density of the wells. (emphasis added).

"Q As a matter of fact, you don't have any well that actually shows you the gas-water contact for the north reservoir, as you call it, with the exception of the Mobil dry hole over there, is that correct?

"A That's correct...."

We therefore can see that the conclusions the Petitioner drew were based on somewhat sketchy information.

Mr. Nutter then inquired if the information might not just indicate that the formation merely sloped to the east.

At Page 50 the transcript reads:

"Q Whether the abatement is there, that [redacted] Mobil Well isn't necessarily evidence of it, is it? I mean, it could be a low well on the east side of the structure whether the abatement was present or not, isn't that true?

"A That was our interpretation until the drilling of the Corinne Grace-Indian Hills Well in Township 21, 24 and that well indicated a substantial north dip over and above what we had seen between the David Fasken-Indian Hills Well No. 7 in Section 16, and the David Fasken-Skelly Federal Well in Section 9...."

It is apparent that the concept of a trough was devised based on information derived from the Corinne Grace-Indian Hills Well.

A question was raised as to the accuracy of this information on cross-examination by Mr. Cooley (Tr. 69).

Mr. Henry testified as follows:

"Q Mr. Henry, are you aware of all the perforations and the completion that was made with respect to the Grace Well?

"A I was aware of those that are on file with the New Mexico Oil Conservation Commission office in Artesia, New Mexico, prior to May 15th.

"Q Are you aware that the highest perforations in the Grace well would be in the same producing zone that you referred to here in most of your testimony if that zone is at least ten feet thick? Do I make myself clear?

"A No, would you say that again?

"Q The highest perforations for the Grace well would be, sir, in what you call the Indian Hills Zone if that zone is as much as ten feet thick.

"A I went through the Commission records and they have the perforations as of May 15th, and they had on file a log of the Grace well, and from the data that I had, this zone at that time was not perforated. <u>If it has been perforated subsequent to May 15th when I checked the records, then I have no knowledge of that.</u>" (emphasis added).

At Page 71 the transcript continues:

(By Mr. Cooley)

"Q Are you aware of the fact that the Grace well initially produced a substantial quantity of gas?

"A No, sir.

"Q They tested the capability of it producing a substantial quantity of gas.

"A They tested gas, but I would not call it substantial.

"Q Whatever gas it is capable of producing, where would it be coming from in your opinion?

"A It is coming out of the Avalon Zone. Under the first set of perforations, it was gas and water coming from the Avalon Zone, that is, from the first set of perforations reported to the Commission."

It is apparent that the conclusions drawn by the Petitioner as to the existence of a trough in this pool were based on information from the Corinne Grace-Indian Hills well. The problem is that the Petitioner relied on information that was not complete and may have been inaccurate. Further doubts were raised as to whether or not a trough exists in this formation on cross-examination by Mr. Nutter (Tr. 57):

(By Mr. Nutter)

"Q But when you draw a straight line from the Skelly Federal Well Number 1 to the Ross Federal Number 1, we simply see a dipping generally from the south to the north, and we don't have this tremendous sincline in between the wells, is that correct?

"A (By Mr. Henry) If you ignore the Corinne Grace Well, but--

"Q I said if we went from the Skelly Federal Number 1 to the Ross Federal Number 1, just straight across.

"A That's right...."

It is apparent that in attempting to show a trough through the Indian Hills Morrow Gas Pool the Petitioner relied upon certain information which was incomplete and in the case of the Grace well probably incorrect. If Petitioner's evidence is correct, it still fails to establish the existence of a trough for on cross-examination by Mr. Stamets (Tr. 67) it was revealed that the evidence submitted by Petitioner could be interpreted in many different ways:

"Q This map (structure map, Petitioner Exhibit No. 1) could be interpreted in a number of different ways. We could accentuate this saddle, or we could of sort of diminish the effect of the saddle just by the interpretation of these points, and for the interpretation to be one hundred percent cooperated by the pressure data, you would have to place this thing about fifty feet deeper, isn't that right?

"A (Mr. Henry) Or you would have to place the gas-water contact above the Skelly-Federal Well.

"Q Just ignoring the water-gas contact, isn't it a matter of connecting the geological points on the map and by doing this, we could interpret it in a variety of ways?

"A Well, as I mentioned earlier, we have included in this isopack map and the structure map all of the data we have accumulated.

isopach

"Q Mr. Henry, I realize that--

"A You will notice the zero limit of the sand.

"Q --You mentioned that several times. I would just like to ask you a question, and I would just like you to answer whether or not we could interpret this structural map in different ways?

"A Different people would draw different maps with the same points." (emphasis added).

It should be noted at this point, that when the Petitioner appeared before the Commission with the original applications in this case, the burden of proof was on him to establish that a trough ran through this formation which was an effective barrier between the north and south portions of the pool. In view of the fact that Petitioner relied on information that was inaccurate and incomplete, and further that Petitioner reached one of a variety of conclusions that could be drawn from this information, the Commission could not, based on the evidence, reach the conclusion that the northern portion of the pool was a separate source of supply.

In support of Petitioner's theorized trough, Exhibit 4 was offered which is an expanded vertical view of the Indian Hills Sand. Plotted on this cross-section are various wells. Petitioner's Exhibit No. 1, the structure map, has a red line or

trace across it. This trace shows where the vertical cut reflected in Exhibit 4 would lie. Now if Oil Conservation Commission Exhibit 1 is examined, it reflects the actual line connecting the wells which are plotted on Petitioner's Exhibit 4. It is important to look at Petitioner's Exhibit 1 and pay special attention to the wells which lie close to the suggested water trough. First we should look at the David Fasken-Skelly Federal Well No. 1 in Section 9, Township 21 South, Range 24 East, which is on the trace on Petitioner's Exhibit No. 1. To get to the next well plotted on Petitioner's Exhibit 4 we would have to move to the west on the structure map more than ~~one-quarter~~ one-half of a mile to the Corinne Grace-Indian Hills Well in Section 8 of said Township 21 South, Range 24 East. To get to the next well we would then have to move east ~~in excess of a mile and a half~~ almost two miles to the Mobil Federal No. 1 in Section 10, and then we must go more than two miles to the west to the next well which is the David Fasken-Shell Federal Well No. 1 in Section 5, and finally to the east again about a mile to the David Fasken-Ross Federal Well No. 1 in Section 4. It is apparent that Petitioner had to resort to a considerable amount of zig-zagging in preparing this exhibit. The Transcript on Pages 54 and 55 reveals that without this zig-zagging pattern quite a different picture would be portrayed. It reads as follows:

"Q (By Mr. Nutter) Now, Mr. Henry, if we look at your straight line that you have drawn between the Skelly Federal Number 1 and the Ross Federal Number 1, and if we ignored the zig-zagging back and forth, and we connected those two wells on Exhibit Number Four, I believe we would go from this point on the Skelly Federal Number 1 to this point on the Ross Federal Number 1, is that correct?

"A That's correct.

"Q And we wouldn't show the big U-tube connecting the two wells?

"A Not if you are on the structure map."

In view of the fact there was considerable manipulating of the information in the preparation of the Exhibit 4, the Oil

Conservation Commission found that it could give it little weight for it did not, in the opinion of the Commission, indicate the existence of a water trough in the Indian Basin-Morrow Gas Pool.

THE CORRELATIVE RIGHTS ISSUE

The power of the Oil Conservation Commission to protect the correlative rights of all operators in any oil or gas pool is set forth in Section 65-3-10, NMSA 1953, which reads:

> 65-3-10. POWER OF COMMISSION TO PREVENT WASTE AND PROTECT CORRELATIVE RIGHTS.--The Commission is hereby empowered, and it is its duty, to prevent the waste prohibited by this act and to protect correlative rights, as in this act provided. To that end, the Commission is empowered to make and enforce rules, regulations and orders, and to do whatever may be reasonably necessary to carry out the purposes of this act, whether or not indicated or specified in any section hereof.

Correlative rights is defined on Page A-2 of the Commission Rules as follows:

> CORRELATIVE RIGHTS shall mean the opportunity afforded, as far as it is practicable to do so, to the owner of each property in a pool to produce without waste his just and equitable share of the oil or gas, or both, in the pool, being an amount, so far as can be practicably determined, and so far as can be practicably obtained without waste, substantially in the proportion that the quantity of recoverable oil or gas, or both, under such property bears to the total recoverable oil or gas, or both, in the pool, and for such purpose to use his just and equitable share of the reservoir energy.

The wells in the Indian Basin-Morrow Gas Pool are on 640-acre spacing. An exception has been made, however, for the two David Fasken wells in the northern portion of this pool, and these wells have over 920 acres in each proration unit. It should be noted that the allocations of allowables in this pool are on a straight acreage basis, and therefore ~~the~~ Fasken ~~wells are~~ 15 able to produce considerably more from each of ~~their~~ these wells than are other operators in the pool. Ten wells produce from the Indian Hills Morrow Sand in this pool. The two Fasken wells in the Northern portion of this pool constitute 20 percent of the

wells producing from the Indian Basin-Morrow Gas Pool (Tr. 58). These wells ~~are currently producing in excess of~~ have produced almost 40 percent of the gas from this pool (Tr. 59). As has been noted earlier in this brief, the Petitioner is seeking a capacity allowable for the two Fasken wells in the northern portion of the pool. The present allowable for each of the David Fasken wells in the northern portion of the Indian Basin-Morrow Gas Pool is approximately 3,000,000 cubic feet of gas per day (Tr. 76-77). What Mr. Fasken is attempting to do with the applications in these cases is to increase production from each of the subject wells to approximately 9,000,000 cubic feet of gas per day and then to eventually to as much as 11,000,000 cubic feet of gas per day (Tr. 76). Mr. Henry testified (Tr. 76-77) that the Petitioner, Mr. Fasken, could increase the allowable and thereby the amount of gas he could produce in the northern portion of the Indian Hills-Morrow Gas Pool by reasonably developing that portion of the pool. The transcript reads as follows:

"Q (By Mr. Utz) Mr. Stamets asked you about drilling another well up in Section 31. What is the reason you don't want to develop that acreage?

"A (By Mr. Henry) Well, to date, my client has not provided the money to do it with, he maintains very strict budgetary control on what I drill and don't drill, and he's not provided the money. We have recommended it and discussed it from time to time, and he does own the lease on that acreage.

"Q Do you think it is productive?

"A Yes, sir.

"Q And that would increase your allowable by almost a third, wouldn't it?

"A I would hope so."

It is apparent that if Mr. Fasken would reasonably develop the acreage which he leases in this pool, his allowable would be increased and he could substantially correct the problem of which he complains in these cases. It is also apparent that

being impaired, it is not

his correlative rights are ~~not being impaired as~~ a result of Commission policy but as a result of his unwillingness to adequately develop the acreage he has under lease.

ISSUE OF WASTE

Section 65-3-2, NMSA 1953, reads as follows:

> 65-3-2. WASTE PROHIBITED.--The production or handling of crude petroleum oil or natural gas of any type or in any form, or the handling of products thereof, in such manner or under such conditions or in such amounts as to constitute or result in waste is each hereby prohibited.

Waste is defined in Section 65-3-3, NMSA 1953. The portion of this definition relevant to this case is quoted below:

> 65-3-3. WASTE--DEFINITIONS.--As used in this act the term "waste," in addition to its ordinary meaning, shall include:
>
> A. "Underground waste" as those words are generally understood in the oil and gas business, and in any event to embrace the inefficient, excessive, or improper, use or dissipation of the reservoir energy, including gas energy and water drive, of any pool, and the locating, spacing, drilling, equipping, operating, or producing, of any well or wells in a manner to reduce or tend to reduce the total quantity of crude petroleum oil or natural gas ultimately recovered from any pool, and the use of inefficient underground storage of natural gas.
>
> E. The production in this state of natural gas from any gas well or wells, or from any gas pool, in excess of the reasonable market demand from such source for natural gas of the type produced or in excess of the capacity of gas transportation facilities for such type of natural gas. The words "reasonable market demand," as used herein with respect to natural gas, shall be construed to mean the demand for natural gas for reasonable current requirements, for current consumption and for use within or outside the state, together with the demand for such amounts as are necessary for building up or maintaining reasonable storage reserves of natural gas or products thereof, or both such natural gas and products.

These statutory provisions are recited again in the rules and regulations of the Oil Conservation Commission.

The Petitioner in this case alleges that underground waste is occurring due to underground gas migration and a loss

of gas into the alleged water trough. The Petitioner alleges that this waste is caused by administering and regulating the pool in accordance with the Rules and Regulations of the New Mexico Oil Conservation Commission which prorate the pool. A close review of the evidence reveals, however, that:

1. Petitioner failed to establish that waste is occurring in this pool and

2. if waste is occurring, it is not the result of regulation by the Oil Conservation Commission, but instead is a result of imprudent operating procedures.

First, we will recall that serious questions have been raised as to whether or not a water trough runs through the Indian Basin-Morrow Gas Pool. If it does not, it is very doubtful that the theories advanced by the Petitioner on the issue of waste are valid.

A change in the rules of the New Mexico Oil Conservation Commission in relationship to this pool will not provide real relief to the operator for at the time of the hearing the operator was producing in excess of market demand. On cross-examination by Mr. Cooley, Mr. Henry testified (Tr. 72):

"Q (By Mr. Cooley) Referring to your testimony on cross-examination, it came out that you have certain gas purchase contract problems with respect to what you describe as the north pool, is that correct?

"A We have them with respect to all of the connections in the Indian Basin.

"Q The entire pool has a greater capacity to produce than Mr. Fasken is able to pass on to the pipe line company?

"A We have an excess capacity to produce, yes.

"Q If the present capacity under the present allowable is in excess of your present market, what is to be gained by giving capacity allowables or increasing the allowable for any well in the field or giving the capacity allowable as you suggest?

"A (No response)

"Q Are you already capable of producing more gas than you can sell?

"A That's right."

The testimony also shows (Tr. 74) that certain allowables have already been cancelled and reallocated in the pool because of the contract problems Mr. Fasken has had with the purchaser. It would appear from the record, therefore, that the Commission could not and cannot offer any real relief to the Petitioner for he is already producing more than the market demand and already allowables have had to be cancelled in this pool.

As was noted earlier in this brief, Mr. Fasken could provide his own relief in this situation by reasonably developing the northern portion of the Indian Basin-Morrow Gas Pool.

Not only has the Petitioner not properly developed the field, he is, in fact, aggravating the very problem of which he complains. It should be recalled that the Petitioner alleges that there is migration of gas from the northern reservoir toward the southern reservoir caused by greater pressure in the northern reservoir. He further alleges that this pressure differential is caused by the fact that there is greater production in the southern than in the northern.

If we assume these alleged facts to be true, it appears that the Petitioner in this case is practicing imprudent operating procedures for he is overproducing a well in the southern portion of the pool (Tr. 60) and at the same time, due to contract problems, has reduced production on certain wells in the northern portion of the pool, as reflected on Petitioner's Exhibit No. 6. Certainly it is not the duty of the Oil Conservation Commission to protect imprudent operators from their own operating practices. And if waste is occurring, it is not a result of the reasonable standards imposed by the Commission on operators in this gas pool.

SUFFICIENCY OF FINDINGS

Petitioner alleges that Orders R-4409-A and R-4444 are invalid in that they contain no findings to explain, support or indicate the reasoning of the Commission in concluding that Petitioner's applications should be denied in order to prevent waste.

If Petitioner's reasoning that there must be findings on the issue of waste is carried to its logical conclusion, it would appear that he should insist that all other considerations recited in statute be made findings of fact as a condition precedent to the validity of any Commission order.

It should be further observed that the New Mexico statutes relating to oil and gas (with an exception for underground storage reservoirs) make no requirement that the Commission make any findings whatever.

In entering Orders R-4409-A and R-4444, the Commission made general findings which effectively show that the Commission concluded that it would be contrary to the statutory responsibilities of the Commission to grant either the Petitioner's application for capacity allowable for his wells in the Indian Basin-Morrow Gas Pool or his application to declare the northern portion of this pool to be a separate source of supply.

The United States Supreme Court held in United States et al. v. Louisiana et al., 290 U.S. 70 (1933), that findings were not essential to the validity of an administrative order where an agency was operating under a statute which was indefinite on the question of findings of fact and did not require them.

In Truck Insurance Exchange v. Industrial Accident Commission, 226 P.2d 583 (1951), the Supreme Court of California found that where an ultimate finding has been made a subordinate

finding results by necessary implication.

Where the scope of the review of the District Court encompasses the entire record as it does under the Oil Conservation Commission statutes, findings are not necessary to sustain the order of the Commission and are not binding on the reviewing court. Seward v. Denver and Rio Grande Railroad Co., 131 P. 980, 17 N.M. 557 (1913); Harris v. State Corporation Commission, 129 P.2d 323, 46 N.M. 352 (1942).

If the Petitioner had requested a finding on the question of waste, it could then raise objection to the absence of such finding. Ferguson-Steere Motor Co. v. State Corporation Commission, 288 P.2d 440, 60 N.M. 114 (1955).

In Ferguson-Steere Motor Co. v. State Corporation Commission, the New Mexico Supreme Court cited with approval Railroad Commission v. Great Southern Railway Co., 185 Ala. 354, 64 So. 15, where it was stated that the Court accepts the making of an order by the Commission as a finding by the Commission that the circumstances are such as to justify the order.

It appears, therefore, that there is no statutory requirement that the Commission make any particular finding of fact in denying either of Petitioner's applications. Since the Petitioner did not request any specific findings when this matter was heard, under New Mexico law, he cannot object to the order on appeal to the District Court on the grounds of insufficient findings of fact.

CONCLUSION

Respondent, Oil Conservation Commission, respectfully submits that the record sustains each of the findings upon which the orders in question rest. The evidence shows that Petitioner's conclusion that a trough exists in this gas pool may in fact be erroneous. Close review of the evidence further shows that

As to the issue of correlative rights, the clearly record shows that the two Tubin wells in the northern portion of this pool, through August of 1972, had produced 40% of the total production from this pool. This is more than twice as much production as the average of the remaining wells in the pool.

Petitioner failed to establish that this trough, if it exists, is an effective barrier. If it is not, the Fasken wells in the northern portion of the Indian Basin-Morrow Gas Pool are not completed in a separate source of supply.

~~As to the issue of correlative rights, the record clearly shows that the Fasken wells in the northern portion of this gas pool are producing 50 percent more of the total production from this pool than the average well and~~ The record further shows that the allowable attributable to the land leased by Mr. Fasken could be increased if the Petitioner was only willing to drill enough wells, reasonably develop the area and dedicate the acreage that he leases to these wells. It is clear from the record that if any waste is occurring it is not the result of the prorationing of the pool under the Commission Rules and Regulations but the result of imprudent operating procedures by the Petitioner.

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There are sufficient findings to support the orders. The allegations of Petitioner in Paragraph 6-C of the Petition for Review of Order R-4444 are simply erroneous. For on careful reading, the findings challenged do not recognize a pressure differential as alleged in the Petition for Review.

In Paragraph 6-C of the Petition for Review challenging Order R-4409-A, the Petitioner notes that the original order (R-4409) finds that a water trough, in fact, does exist. Careful reading here again is required. The finding recognizes that there may be a water trough but says it does not constitute an effective barrier and that the real question in this case is whether or not there is a barrier which causes the northern portion of this pool to in fact be a separate source of supply.

The Petition for Review alleges that the Commission has not carried out its statutory responsibilities in this case. It should be noted that the Commission is a statutory body vested with jurisdiction over matters relating to the conservation of

crude oil and natural gas in New Mexico, the prevention of waste, the protection of correlative rights and the enforcement of the Conservation Act of the State of New Mexico. Pursuant to these responsibilities, the Commission promulgates rules and regulations. When an applicant appears before the Commission and requests a change in the rules and regulations applying to an oil or gas field, the burden is on the applicant to prove their case. When they fail to do so, they cannot hope to compensate for it by going to the district court. For in court, the burden of proof is again on the applicant. He must show that what he seeks is in fact justified by the facts and that the Commission acted contrary thereto at the administrative hearing.

It is important to remember in closing that this case involves motions for Summary Judgment. The question is, therefore, are there any genuine issues as to any material fact and is either party entitled to judgment as a matter of law.

For Petitioner to succeed on his motion, he must show that the Orders in question of the Oil Conservation Commission are not supported by substantial evidence, are arbitrary, capricious, or unreasonable, or involve matters outside the scope of the statutory responsibilities of the Commission.

The Commission is convinced that there is no such reasonable chance and there are no reasonable grounds on which the Petitioner can succeed on its motion. The Commission is further convinced that it is entitled to judgment as a matter of law and, therefore, the Respondent, Oil Conservation Commission, prays this Court to grant its motion for Summary Judgment and to deny the motion for Summary Judgment of the Petitioner.

WILLIAM F. CARR
General Counsel
Oil Conservation Commission

NORTH RESERVOIR
PRESSURE

2979 psia

ΔP
AT DATUM

843 psia

2431
2991

2410
2966

5873

0'

1667
2051

5700

822
1012

1633
2009

0'

0'

1215
1495

2017
2482

1544
2000

0'

SOUTH RESERVOIR
PRESSURE

2136 psia

SIWP PSIA

Calculated BHP AT -5675 DATUM

IN THE DISTRICT COURT OF EDDY COUNTY

STATE OF NEW MEXICO

DAVID FASKEN,

Petitioner No. 28483

vs.

OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO,

Respondent.

ANSWER TO PETITION FOR REVIEW

Respondent, Oil Conservation Commission of New Mexico, answering the Petition for Review states:

1. Respondent admits the allegations contained in Paragraphs 1 and 2 of the Petition for Review.

2. Respondent denies each and every allegation in Paragraph 3 of the Petition for Review.

3. Respondent admits the allegation in Paragraph 4 that production from Petitioner's said wells has been restricted by reason of being administered and prorated under the special rules and regulations applicable to the Indian Basin-Morrow Gas Pool. Respondent denies all other allegations contained in Paragraph 4 of the Petition for Review.

4. Respondent denies the allegation in Paragraph 5 that a pressure differential exists and states that Petitioner's application for an order exempting its said wells from prorationing or, in the alternative, for the assignment of special allowables to said wells was made on October 24, 1972. Respondent admits all other allegations contained in Paragraph 5 of the Petition for Review.

5. Respondent denies each and every allegation contained in Paragraph 6 of the Petition for Review.

6. Respondent admits Paragraph 7 of the Petition for Review.

WHEREFORE, Respondent prays:

1. That the Petition for Review be dismissed.

2. That Commission Order No. R-4444 be affirmed.

3. That the Court grant Respondent such other and further relief as the Court deems just.

/s/ William F. Carr

WILLIAM F. CARR
Special Assistant Attorney General
representing the Oil Conservation
Commission of New Mexico, P. O.
Box 2088, Santa Fe, New Mexico 87501

I hereby certify that on the 26th day of FEBRUARY, 1973, a copy of the foregoing pleading was mailed to opposing counsel of record.

William F. Carr

IN THE DISTRICT COURT OF EDDY COUNTY

STATE OF NEW MEXICO

DAVID FASKEN,

Petitioner,

vs. Cause No. 28482

OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO,

Respondent.

ANSWER TO PETITION FOR REVIEW

Respondent, Oil Conservation Commission of New Mexico, answering the Petition for Review states:

1. Respondent admits the allegations contained in Paragraphs 1 and 2 of the Petition for Review.

2. Respondent denies each and every allegation in Paragraph 3 of the Petition for Review.

3. Respondent admits the allegation in Paragraph 4 that production from Petitioner's said wells has been restricted by reason of being administered and prorated under the special rules and regulations applicable to the Indian Basin-Morrow Gas Pool. Respondent denies all other allegations contained in Paragraph 4 of the Petition for Review.

4. Respondent admits the allegations in Paragraph 5 of the Petition for Review.

5. Respondent denies each and every allegation contained in Paragraph 6 of the Petition for Review.

6. Respondent admits Paragraph 7 of the Petition for Review.

WHEREFORE, Respondent prays:

1. That the Petition for Review be dismissed.

2. That Commission Order No. R-4409-A be affirmed.

3. That the Court grant Respondent such other and further relief as the Court deems just.

/s/ William F. Carr

WILLIAM F. CARR
Special Assistant Attorney General
representing the Oil Conservation
Commission of New Mexico, P. O.
Box 2088, Santa Fe, New Mexico 87501

I hereby certify that on the 26TH day of FEBRUARY, 19 73, a copy of the foregoing pleading was mailed to opposing counsel of record.

William F. Carr