STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

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

APPLICATION OF PACIFIC ENTERPRISES OIL COMPANY (USA)

CASE NO. 10249 & 10250

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: JIM MORROW, Hearing Examiner

March 7, 1991

Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Division on March 7, 1991, at 10:11 a.m. at Oil Conservation Division Conference Room, State Land Office Building, 310 Old Santa Fe Trail, Santa Fe, New Mexico, before Freda Donica, RPR, Certified Court Reporter No. 417, for the State of New Mexico.

FOR: OIL CONSERVATION DIVISION

BY: FREDA DONICA, RPR
Certified Court Reporter
CCR No. 417

I N D E X

March 7, 1991
Examiner Hearing
CASE NO. 10249 & 10250

* * *

E X H I B I T S

A P P E A R A N C E S

FOR THE DIVISION: ROBERT G. STOVALL, ESQ.
General Counsel
Oil Conservation Commission
State Land Office Building
310 Old Santa Fe Trail
Santa Fe, New Mexico 87501

FOR THE APPLICANT: KELLAHIN, KELLAHIN & AUBREY
117 N. Guadalupe
Santa Fe, New Mexico
BY: W. THOMAS KELLAHIN, ESQ.

HEARING EXAMINER: Call case 10249.

MR. STOVALL: Application of Pacific Enterprises Oil Company (USA) for a non-standard gas proration unit and an unorthodox gas well location, Eddy County, New Mexico.

HEARING EXAMINER: Call for appearances.

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of the Santa Fe law firm of Kellahin, Kellahin & Aubrey, appearing on behalf of the applicant, and I have three witnesses to be sworn.

HEARING EXAMINER: Witnesses will please be sworn.

(Witnesses sworn.)

HEARING EXAMINER: Go ahead, Mr. Kellahin.

MR. KELLAHIN: Thank you, Mr. Examiner. Have we called both cases?

HEARING EXAMINER: No.

MR. KELLAHIN: We would ask at this time, Mr. Examiner, that you also call case number 10250, and that these matters be consolidated for hearing purposes.

HEARING EXAMINER: Call case 10250.

MR. STOVALL: Application of Pacific Enterprises Oil Company (USA) for the rescission of special pool rules and for two non-standard 640-acre gas proration units or, in the alternative, to amend Division Order No. R-2917, as amended, Eddy County, New Mexico.

HEARING EXAMINER: Use the same witnesses in both

cases?

MR. KELLAHIN: Same appearances and same witnesses, Mr. Examiner.

HEARING EXAMINER: We'll consolidate those two cases for the purposes of the hearing today.

MR. KELLAHIN: Thank you. By way of introduction of this topic, Mr. Examiner, I'd like to direct your attention to the last exhibit in the package. It's Exhibit Number 15; it's called the land data map.

HEARING EXAMINER: Yes, sir.

MR. KELLAHIN: We're dealing with the McMillan-Morrow Gas Pool in Eddy County, New Mexico. And the current outline of that pool is shown in the hashed lines around the outsides of Sections 7, 13, 18, 19 and 24. This pool is spaced on 640 acres. There is a prior division order that froze the special pool rules to areas contained within this boundary, and so the acreage adjacent to but outside this boundary is not subject to the 640 spacing rules either for acreage dedication or well locations.

We are asking you, in what started off to be a shopping list of requests in the combined cases, multiple alternative solutions because we were not sure then, as we are now, whether or not there would be any parties that cared how we handled future development and spacing for the pool. There are now only two producers on 640 gas spacing.

It's the producing gas well in 19. There's a producing gas well in Section 13. None of the other wells within the pool currently produce gas out of the McMillan-Morrow.

Pacific desires to develop the next well in the south half of 18. Our first preference is to change the McMillan-Morrow pool rules back to 320 gas spacing statewide locations, and to grandfather Sections 13 and 19 as exceptions, to leave them on 640 spacing, and leave it up to the operator of those two wells to decide at what point he wants those spacing units to revert. That will allow us the opportunity to go ahead and develop the rest of the acreage within the pool on 320 gas spacing, and our technical presentation, we hope, will persuade you that that is appropriate.

That's our first choice. All the rest of the choices shown in the combination of cases were alternative remedies, none of which is nearly as attractive as simply taking the pool back to statewide rules, grandfathering out the two spacing units now that have producing gas wells and freeing up the balance of the acreage to be treated under statewide rules.

I have three witnesses to present to you. Mr. Paul Lerwick is a petroleum engineer.

HEARING EXAMINER: Before you present those witnesses, I'll ask you, was there any response from the operators of

the tracts in those two sections you mentioned as to what their reaction would be to your request that the field (route) rules be rescinded?

MR. KELLAHIN: Yes, sir. In Section 19 Pacific is the operator of that well. They have other interest owners. We specifically notified Lario Oil and Gas Company shown on that tract. We have had no objection and no response from anyone, including Yates, or any other interest owner for whom we've provided notice. So the response has been none, so we're --

HEARING EXAMINER: Was your notice such that they would understand that these two sections would be left out of the request?

MR. KELLAHIN: Yes, sir. We sent them not only my cover letter of notice, but the actual applications themselves in which we detailed the requests of what we were seeking to do.

HEARING EXAMINER: Go ahead.

MR. KELLAHIN: My first witness is Mr. Lerwick. The second witness is Dave Cromwell; he's a geologist. And, finally, Mr. Craig Clark is a landman, talk about the parties that we've notified to make sure we haven't missed anyone.

PAUL LERWICK

the Witness herein, having been first duly sworn, was

examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

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

A. My name is Paul Lerwick, and I'm employed as a reservoir engineer for Pacific Enterprises Oil Company.

Q. Mr. Lerwick, on prior occasions have you testified before the division as a petroleum engineer?

A. I have.

Q. And pursuant to your employment by Pacific, have you made a study of the area drained by the existing wells in the McMillan-Morrow pool?

A. I have.

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

HEARING EXAMINER: He's accepted as an expert.

Q. (By Mr. Kellahin) Let me direct your attention, sir, to what is marked as the drainage area map. It's your first Exhibit Number 1. Would you unfold that in front of you?

A. (Witness responds.)

Q. Describe to the Examiner, Mr. Lerwick, the area shown by the outline in yellow on the display.

A. This area is, again, the area that's designated

as the McMillan Field, Morrow production area. It's the same area that was identified early, hatched on a land map.

Q. The McMillan-Morrow pool has been developed on what kind type of spacing pattern, Mr. Lerwick?

A. 640 acres.

Q. Identify for us the wells that are still classified as producing gas wells with production from the McMillan-Morrow pool.

A. Those are the wells in Section 13 and Section 19.

Q. Have you tabulated information available to you from which you could make calculations to show what area had been actually drained and produced by those wells?

A. I have.

Q. What is the significance of the red dot on the display?

A. The red dot is the proposed location in the south half of Section 18 that we desire to drill.

Q. What's the purpose of the circles shown on the display, contained with the yellow area?

A. The purpose is to show that the existing wells are not effectively and efficiently draining 640 acres.

Q. Show us where the McMillan-Morrow pool is in relation to other Morrow pools that have been established by the division.

A. To the southeast of the McMillan-Morrow pool, the

closest Morrow production is the Avalon Field. And you will see a number of gas symbols on the map.

Q. What's the spacing pattern utilized for the Avalon Field?

A. 320 acres.

Q. When you look at any other areas shown on your display, are there any other gas pools produced out of the Morrow formation?

A. Not on this display.

Q. Where are we in relation to other pools in Eddy County, New Mexico? Where is the McMillan pool in relation to some community, town or --

A. Well, it would be north and west of Carlsbad and -- if I remember correctly, and it's -- primarily would be north and west of the majority of Morrow production in Eddy County in this particular area.

Q. Based upon your engineering studies, Mr. Lerwick, have you reached conclusions about the appropriate spacing pattern to continue to apply for wells to be drilled in this pool?

A. I have.

Q. And what is your conclusion?

A. My conclusion is that the statewide 320-acre spacing is the most effective and efficient spacing for Morrow production.

Q. What is your recommendation to the Examiner concerning how he should handle or how the division should handle the spacing units currently dedicated to the two producing gas wells?

A. My recommendation would be to grandfather those two 640-acre spacing units, and -- at 640 acres, and leave it up to the operators of those wells whether they would pursue smaller spacing back to 320 in the future.

Q. Do you see any potential for the violation of correlative rights if the Examiner adopts your recommendations and conclusions?

A. I don't.

Q. If the rules are changed to allow 320 gas spacing for further development in the pool, what will that allow your company to accomplish?

A. It will allow us to develop and produce commercial quantities of gas that would otherwise not be able to be developed and produced.

Q. Where is the next prospect location for your company within the outline of the pool?

A. Are you speaking --

Q. Where do you want to drill?

A. We'd like to drill the location as indicated by the bright pink dot in the south half of 18.

Q. And that would be a location within a section

that has already had a producing gas well on it?

A. That's correct.

Q. Why would you do that?

A. Because the current wells, in my estimation, and according to my calculations, are not effectively and efficiently draining the areas assigned to the 640 acres.

Q. Let's go to your calculation. Is that shown in part on Exhibit Number 2?

A. Yes, that's in the upper part of the Exhibit Number 2.

Q. What's the caption on Exhibit Number 2?

A. It's entitled "Morrow Volumetric Worksheet," and that upper part is the McMillan Field Morrow wells.

Q. Let me ask you to go from right to left and look at the third column over from the right that's captioned "Estimated Ultimate Recovery."

A. Yes, sir.

Q. And as we go down on each line of that column, what does that represent?

A. That represents the ultimate recovery from each of the five wells existing in the McMillan-Morrow Field.

Q. If we're looking at Exhibit 1 as the display map, how will we find the well location for each well shown on Exhibit Number 2?

A. If you look to the far left-hand column entitled

Well Location, you will note that there are some -- there's a location with the section first, the particular location in the section designated with an alphabetic letter following that, and then the township and range following that.

Q. How did you derive the estimated ultimate recovery for each of those wells that you've shown in the column on the display that shows the estimated ultimate recovery?

A. From decline curve.

Q. Have you attached decline curves to the package of exhibits?

A. I have.

Q. And how are those shown?

A. Those are shown as Exhibits 3 through 7. And you will have an actual decline curve on each of these wells. I'd like to bring to your attention that three of these wells have already been plugged and abandoned, so that the ultimate recovery is certainly established. The remaining two wells -- the well in Section 19 is producing roughly 50 MCFD, which is very near its economic limit. It's operated by Pacific Enterprises at this time. We recently purchased the operating working interest in that well, and it's near the economic limit. The well in Section 13 has been producing at less than 50 MCFD for the past several years

and is certainly a marginally economic well.

Q. To what degree of accuracy then do you find your estimates of ultimate recovery for each of these five wells?

A. They're very accurate. The wells have all produced in excess of 95 percent what they'll ever produce from the Morrow.

Q. Having established ultimate recovery using the decline curves, what then did you do as an engineer to determine the area that had been drained by each of these wells?

A. Using the ultimate recovery for each well, I used standard engineering procedures of using the net perforated, or in some cases open-hole Morrow sand pays, having established the net pay and using a porosity cutoff and a water saturation cutoff, I backed into an area of drainage that would be consistent with the ultimate recovery that we've established through the decline curve on these wells.

Q. When you looked at the possible area of ultimate drainage for the well in 13 as compared to 18, did you make any adjustment in the area in which those two wells are competing?

A. I did.

Q. And how did you make that adjustment?

A. That adjustment was made based on the performance of the individual wells.

Q. In establishing the circles then for Exhibit Number 1, you have established an area of no-flow boundary between those two wells?

A. That's correct.

Q. And then adjusted the drainage area to accommodate the area required to hold the ultimate reserves to be recovered by each of those wells?

A. That is correct.

Q. Show us in the tabulation the column that demonstrates the area depleted by each of the wells.

A. That would be the second column from the left.

Q. Second column from the right?

A. Excuse me, second column from the right.

Q. What does it show you?

A. And it shows you the area that would be drained to recover the reserves that we know each well will recover, based on the net feet of pay that was calculated for each of those wells.

Q. Based upon that analysis, do you find any support for continuing 640 spacing within the interior boundaries of the McMillan-Morrow pool?

A. I do not.

Q. Go on the bottom half of the display and identify and describe the purposes of that information.

A. The bottom half of the display is the same

tabulation and represents the same engineering work as the top half for the Avalon Field Morrow wells that are identified on this exhibit. What it demonstrates, I think very positively, that even wells that were drilled on 320-acre spacing in this part of the Avalon Morrow field are not competing with each other for reserves even on statewide 320-acre spacing.

Q. What are the points of comparison between the McMillan pool and the Avalon pool?

A. They're both completed in Morrow sands, a very similar type of depositional environment, which I'm sure Dave will address, and represent similar producing intervals.

Q. Let's go to the final two small displays in your package. I think they're described as Exhibits 8 and 9.

A. That's right.

Q. Do you have those?

A. Yes.

Q. Let's turn first to Exhibit 8.

Ignore the caption, Mr. Examiner. The caption is wrong. It says the Northwest Spring Prospect. It is not properly identified.

The rest of the information is correct, is it not?

A. That's correct.

Q. Tell us what you're showing.

A. What I'm showing is the pressure data of the five wells in the McMillan-Morrow pool. We had -- for the wells that had significant amount of production, we have the pressure data that's required to be reported to the state on an annual basis. And what I'm attempting to show here is whether or not these wells that were drilled to 640-acre spacing were in communication with one another, which would help establish whether or not they were draining large areas.

What the conclusions that I can draw from these curves follow, if you'll note the two curves, one being curve -- let's see 13H, which is the one with the squares, and the other curve being 18F, which is the one with the diamonds -- and, again, these on your map would represent the wells in Section 13 and 18 -- are the only two wells that indicated that they may be in communication with one another. They're essentially effectively drilled. Although they're on 640 acre spacing, if you note the location of the wells, they're effectively on 320 acres or less. And those two wells, I think there's some evidence, looking at the pressure data, that they may be in communication. Those are also the two wells that with our volumetric drainage calculations indicated that there may be some overlap in drainage.

HEARING EXAMINER: Looking at this exhibit, you can see communication. Is that what you said?

THE WITNESS: Yes. If you note those two curves, they at least tend to track each other. It isn't a positive indication of communication, but it's certainly an indication that there may have been. Some may have been draining the same pool.

Q. (By Mr. Kellahin) And those wells are on effective 320 gas spacing?

A. Yes. I think just a cursory look at the map would show that.

Q. When we make the comparison of the well in 19F on your pressure display and compare that to the pressure information from the other wells, what conclusion do you draw?

A. You have to conclude that that well wasn't being drained by any other wells at the time it was drilled. If you -- it's shown with the rectangles, and you note that the original pressure on that well was actually as high or higher than any of the other wells drilled, indicating that by the time it was drilled and put on production it was draining an undrained reservoir.

Q. The information shows pressure depletion occurring in the reservoir with the other three wells, when this one comes on, its initial pressure is higher than the

depleted pressure in the reservoir --

A. Yes.

Q. -- Established by the first three wells?

A. Yes.

Q. And if you look where the well 19F is in relation to the other wells, that is on more conventional 640 gas spacing.

A. That's correct.

Q. If you're going to draw a comparison, for example, in the Section 19 well versus the Section 18 well.

A. Right. The spacing would be -- it's much farther away than, say, the well in Section 13 is from the well in Section 18.

Q. In summary then, what's your conclusion about the pressure information?

A. The pressure information supports our case that on -- 320-acre spacing probably is efficient, effective in draining the Morrow, but 640 is not, that the wells don't appear to drain an area that would be anywhere approaching that large of an area and neither does any pressure data support that there's been any communication over larger areas.

Q. By comparison, do you have the pressure information from the Avalon pool to show the Examiner?

A. Yes, I do, and it's shown as Exhibit Number 9.

Q. Summarize for us your conclusions about the pressure information in Avalon.

A. In this part of the Avalon Field pool that's shown on the map here, I think looking at the three wells that we had pressure data on, with their appreciates that were reported versus time, that none of the three curves tend to track each other at all, which would indicate that they're draining separate sand lenses or sand bodies and are not in pressure communication, which is also supported by the volumetric drainage calculation.

Q. In terms of well spacing for the Avalon as compared to the McMillan, what conclusion do you reach?

A. I reach that -- the conclusion that the spacing in Avalon, which is on 320 acres, is not drilled too closely, but 320 is certainly a reasonable spacing, and that McMillan Field, to effectively produce Morrow reserves, the 320 acreage spacing would be a more efficient and effective spacing as well.

MR. KELLAHIN: That concludes my direct examination of Mr. Lerwick. We would move the introduction of his Exhibits 1 through 9.

HEARING EXAMINER: Exhibits 1 through 9 are admitted.

In Section 18 where you propose to drill a well, what would prevent you from assigning the 640 to that well at this time?

THE WITNESS: The location that we've chosen is consistent with 320-acre spacing, which puts it almost equally spaced between the well in Section 18 and 19. If we were to drill another well on 640 acre spacing, it would -- the standard distance from lease lines would push the location to an undesirable from the standpoint of location between other wells and from drainage, or else we'd have to go to a rule non-standard type location.

HEARING EXAMINER: The 640 would be available to assign to it now if you wanted to; is that correct or not?

THE WITNESS: Yes. We would -- on 320 acre spacing, we would have the opportunity, if indeed our case for smaller than 640 acre drainage, if the well turned out good, if we get the 320 acre spacing, we would have an opportunity to drill a well, let's say, in the north half of 18, maybe 1980 from the east end as opposed to the west end, if we felt subsequent to the proposed well that there were still reserves up there that were not effectively and efficiently being drained. We wouldn't have that opportunity under a 640.

HEARING EXAMINER: Why do you propose this well at a non-standard location?

THE WITNESS: It is a standard location for the 320 that we're asking for. It would be a non-standard if we had to maintain a 640-acre spacing.

HEARING EXAMINER: Then it would be standard on --

THE WITNESS: Yes, 1980 from the west and 660 from the south.

HEARING EXAMINER: The witness may be excused.

MR. KELLAHIN: Mr. Examiner, for your reference, there are two division orders of importance to the McMillan pool. One is the order R-2917 which established 640 spacing in June of '65. The 2917 was changed by order R-5829 entered October 6th of 1978 in which the limits of the pool rules were established to be the interior boundaries of that pool, and it deleted the one-mile provisions.

I'd like to call Mr. Dave Cromwell at this time.

DAVE CROMWELL

the Witness herein, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Cromwell, would you please state your name and occupation?

A. Dave Cromwell, consulting geologist for Pacific Enterprises.

Q. Mr. Cromwell, have you testified on prior occasions before the division?

A. Yes, sir.

Q. Pursuant to your employment as a geologic

consultant to Pacific, have you made a geologic study of the McMillan-Morrow gas pool in Eddy County, New Mexico?

A. Yes, sir.

Q. Based upon that study, were you able to reach certain conclusions about the geology of that pool?

A. Yes, sir. I prepared several exhibits which I had planned to show the commission to delineate the sand bodies within that, and also have three cross-sections which will illustrate the wells that are producing in the field and some of the adjacent wells to that field.

Q. What are your ultimate geologic conclusions with regards to future well spacing in the pool?

A. It is my opinion that the field could adequately be developed on 320-acre spacing based on the lenticular nature of sand distribution within the field area.

Q. Do you see any reason to treat the McMillan-Morrow pool differently than we do Morrow production on a statewide basis?

A. No. My experience has been that the 320 acres is an adequate development procedure for the Morrow sand throughout most of Eddy and Lea county.

Q. Let me direct your attention, sir, to the structure map. Is this the structure map that you prepared?

A. Yes, sir, it is.

Q. In addition, you have also prepared an isopach

and the three cross-sections?

A. Yes, sir, I have.

MR. KELLAHIN: At this time, Mr. Examiner, I tender Mr. Cromwell as an expert petroleum geologist.

HEARING EXAMINER: We'll accept his qualifications.

Q. (By Mr. Kellahin) Let me have you identify the structure map for us, Mr. Cromwell.

A. This structure map is a map that I made on the top of the "A" --

HEARING EXAMINER: Have we got one of those?

MR. KELLAHIN: Yes, sir.

THE WITNESS: This should be Exhibit Number 10, sir.

HEARING EXAMINER: Go ahead.

A. I have outlined the five-section Morrow -- McMillan-Morrow Field for your reference there in the pink outline. And then I have also delineated the three cross-sections that I have prepared for the exhibit as well on this cross-section. And once again, the pink dot is the location 1980-660 from the south of Section 18, which is the proposed location that we would plan to drill our initial test.

This structure map is a structure map, as I said, on the "A" Middle Morrow sand, which is the sand that's developed in the Morrow clastic interval which the cross-sections will depict when I show them, that shows that

we've got homoclinal dip to the southeast.

Q. (By Mr. Kellahin) What conclusions, as a geologist, can you reach about the relationship of the geology to the boundaries of the pool? Is there any logic to the fact that development hasn't continued to occur to the south and east in the pool?

A. Yes, sir. What I've found geologically is that there are a couple of wells, namely in Section 17 and 20, which have tested the Middle Morrow -- some of the sands in the Middle Morrow, being salt water bearing. And then on the northwestern limits of the field, I have found wells that show that the sand is non-permeable in type. In essence, what we're looking at here is a stratigraphic entrapment in the Middle Morrow clastic interval.

Q. Turn now to the isopach that you prepared, Exhibit Number 11.

A. Yes, sir.

Q. Would you identify that display for us?

A. This is an isopach map of the "A" Middle Morrow sand in the McMillan Field. This is a clean sand development, being with a gamma ray of less than 50 units API. Contour interval is on two feet.

Q. Why have you selected the "A" Middle Morrow sand on which to make your isopach?

A. This sand I've delineated out of a package of

about five or six sands that are within the Middle Morrow clastic interval because I've got fairly good data that support that -- the instance that the sand is wet downdip and tight updip.

Q. What's your judgment about how the deposition of this isopach of the "A" Middle Morrow might compare to the deposition of the other Morrow stringers?

A. This illustration indicates that this sand is mostly a strike-oriented sand, that it is probably a shallow marine origin, probably a sand bar/barrier bar sequence. This sand is slightly different, as my cross-sections will illustrate, in that the trend from the fluvial system of the Morrow where the sands are coming in along the dip section, in other words, downdip oriented 90 degrees to this one.

Q. Without going through each of the cross-sections, let's perhaps pick the one that you find, in your own judgment, is most illustrative of the fact of the discontinuity, both vertically and horizontally, of the Morrow pool in the McMillan-Morrow gas pool. Which one would you select?

A. Well, we could take a look at Section Q-Q', which is the Exhibit Number 12.

Q. All right, let's do that.

A. What I've done on this cross-section is a five-well cross-section constructurally on the datum of

minus 7,000 feet to illustrate that the wells downdip, namely the wells in Sections 20 and 17 are gas water or salt water bearing, as delineated by the drill stem test. And I've noted the drill test stem data by the stretched Z configuration in the center column of the well bores, sir. I'm looking at the well on the extreme right-hand side of the cross-section right now.

Here we have -- as the data is written on the right hand of each log, you see that the drill stem test interval from 10,308 to 60, recovered gas to surface at 45 MCF and one MCF a day to recover the water blanket, and also recovered some mud cut salt water. And then the drill stem test interval from 10,398 to 413 had gas to surface 35 minutes at too small to measure. It also recovered mud, gas cut water blanket and then some slightly gas cut salt water, namely 7,840 feet of salt water.

And this sand is what I have identified as the "A" sand. And you move updip to that to the well in Section 17. They also ran a drill stem test in this interval, and they recovered 3,720 feet of gas cut salt water.

Moving further to the north into the pay section, this is a well that blew out at 10,355. It subsequently made six MCF, but it was completed open hole, so we do not have a lot of data for which of the sands completed, but

essentially the entire section was open-hole completed. It is my feeling that the majority of the gas is coming from the zone that the well blew out, which is this thick zone at the bottom, 40 to 50 feet of the well.

And then moving further updip, you have production in the sand in the second well on the left. And then moving even further towards the northwest, the well on extreme left-hand side of the cross-section where they tested the sand is tested in swab dry, which to me means that the sand was fairly tight. In addition to that, the sand -- total sand package is thinning, and I don't believe that the quote, unquote, A sand is present in that well. So the sand is absent by non-deposition up there.

Q. Can you approximate for us on this cross-section the likely position of the well Pacific proposes to drill in the south half of Section 18?

A. Well, I'd like to do that with this other cross-section I've prepared. And let's look at cross-section O-O', which is Exhibit Number 14. This is, once again, a structural cross-section in more or less a dip configuration that would include the well to the north of our location and the well to the south of our location. Those two wells are the well second from the right and the third well from the right, Mr. Examiner.

The well that -- the good well that's to the

north of our proposed location has the thick sand in it. As you move south, that sand diminishes in thickness and in character and is not as well developed geologically and according to the electric log configuration as that well. And plus the fact that -- that we feel that there are several other sands that have tested gas as the drill stem test indicates, but have not been productive in the well to the south of us.

So for those two reasons, I believe that the lenticular of the sands in between the two wells shows that there may be some continuity, but the reservoir potential is not as good in between the two wells, and we feel that they are not in communication as the pressure data had indicated. In fact, if you look at the well that was completed in 1968, the Sohio well, you will see that when they ran the drill stem test that the pressures -- the gas to surface went from 600 MCF a day to 175 MCF a day, and they ended up having to frack that sand in order to produce it. That, to me, is an indication that that sand is fairly non-porous and is probably very heterogeneous in its development and it probably does not extend too far.

Q. Where will the Pacific well in the south half of 18 be on your structure map?

A. It will be in between the second and the third wells on the cross-section, and on the structure map I have

indicated it with that -- I believe you're back to Exhibit Number 10, shows the structure map, and the proposed location is the pink dot. So it's approximately half a mile in between the two wells.

MR. KELLAHIN: That completes my examination of Mr. Cromwell, Mr. Examiner. We would move the introduction of his exhibits -- let me figure out the numbers here -- Exhibits 10 through 14.

HEARING EXAMINER: Exhibits 10 through 14 are admitted.

THE WITNESS: Did you have any questions of me, sir?

HEARING EXAMINER: Let me think just a moment before you step down, Mr. Cromwell. What section -- the good well, was that the one that blew out?

THE WITNESS: Yes, sir, in Section 18.

HEARING EXAMINER: So it was shown on both cross-sections.

THE WITNESS: Yes, sir.

HEARING EXAMINER: I don't have anything further. The witness may be excused. HM

CRAIG CLARK

the Witness herein, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

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

A. My name is Craig Clark. I'm a landman for Pacific Enterprises.

Q. Mr. Clark, on prior occasions have you qualified as an expert landman before the division?

A. Yes, I have.

Q. Pursuant to your employment, have you made an investigation to determine the ownership of the oil and gas minerals in the McMillan pool within the pool boundaries of that pool?

A. Yes, I have.

MR. KELLAHIN: We tender Mr. Clark as an expert petroleum landman.

HEARING EXAMINER: Mr. Clark's qualification are accepted.

Q. (By Mr. Kellahin) Let me turn you back to Exhibit Number 15 that we started with, Mr. Examiner. Would you identify and describe that exhibit for us?

A. Exhibit 15 is a called a land data map, and it is gone through and -- for the McMillan-Morrow Field and for one mile around this field, I went and checked through records and also through various maps, notifying either the operator -- or some of these tracts were unleased -- and did notify both the state and the Bureau of Land Management,

they own the minerals that have been unleased over in the far west portion and the other offsetting owners from the McMillan-Morrow Field.

Q. Have you satisfied yourself that you prepared a complete and accurate tabulation of the owners and operators of any well in the pool?

A. Yes, I have.

Q. And that that list also included the working interest and mineral ownership in the absence of an operator?

A. Yes.

Q. Let me ask you to identify Exhibit Number 16 as being a complete list of those parties for which notice was provided.

A. This list was furnished -- we prepared it off the information we had, as shown on our map of all the offsetting owners.

Q. In response to sending out notification of this hearing identifying the issues to all those parties, have you received any inquiries or objections to what Pacific seeks to accomplish in this hearing?

A. No, we have not.

MR. KELLAHIN: That concludes my examination of Mr. Clark. We move the introduction of Exhibits 15 and 16.

HEARING EXAMINER: Tell me again about who you notified

outside the boundaries of the pool, Mr. Clark.

THE WITNESS: Well, I notified either -- the wells -- we had done take-offs, the stuff up to the north for Harvey E. Yates, I put "et al" there. It is broken up; there's probably about 25 owners. We notified all of them. And we went through, and just whoever -- if the minerals were leased, we notified the lessee; if they were unleased, then we notified the mineral owners. And that's --

HEARING EXAMINER: I guess that was --

THE WITNESS: That was within a mile of the McMillan-Morrow pool.

HEARING EXAMINER: The witness may be excused.

MR. KELLAHIN: That concludes our presentation in this case, Mr. Examiner.

HEARING EXAMINER: I think we said we would accept 15 and 16 into the record. If we didn't, we'll say it now.

What was involved in case 10250? Did we talk about that any, Tom, where your proposed locations were in that case?

MR. STOVALL: That was the rescission of the special pool rules and the two -- that's the basic case, isn't it, Mr. Kellahin?

MR. KELLAHIN: Yes, Mr. Examiner, that's the basic case that the witnesses have described, and that is their first choice of a solution.

HEARING EXAMINER: So both cases talk about the same single well location that you --

MR. KELLAHIN: That's correct. The solution in case 10249 is not our first choice. And if you decide 10250, you may simply dismiss case 10249.

HEARING EXAMINER: All right. Cases 10249 and 10250 will be taken under advisement.

(The foregoing hearing was adjourned at the approximate hour of 10:58 a.m.)

STATE OF NEW MEXICO)
:
COUNTY OF SANTA FE)

I, FREDA DONICA, RPR, a Certified Court Reporter, DO HEREBY CERTIFY that I stenographically reported these proceedings before the Oil Conservation Division; and that the foregoing is a true, complete and accurate transcript of the proceedings of said hearing as appears from my stenographic notes so taken and transcribed under my personal supervision.

I FURTHER CERTIFY that I am not related to nor employed by any of the parties hereto, and have no interest in the outcome hereof.

DATED at Santa Fe, New Mexico, this 5th day of April, 1991.

Freda Donica
Certified Court Reporter
CCR No. 417

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case Nos. 10249 + 10250 heard by me on March 7 1991.

Oil Conservation Division, Examiner

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

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

CASES NOS. 10249 AND 10250
Order No. R-9475

APPLICATION OF PACIFIC ENTERPRISES
OIL COMPANY (USA) FOR A NON-STANDARD GAS
PRORATION UNIT AND AN UNORTHODOX GAS WELL
LOCATION, EDDY COUNTY, NEW MEXICO.

APPLICATION OF PACIFIC ENTERPRISES OIL
COMPANY (USA) TO RESCIND OR AMEND SPECIAL
POOL RULES, EDDY COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on March 7, 1991, at Santa Fe, New Mexico, before Examiner Jim Morrow.

NOW, on this 27th day of March, 1991, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

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

(2) In Case No. 10249, the applicant seeks an exception to the current Special Rules and Regulations for the McMillan-Morrow Gas Pool, as promulgated by Division Order No. R-2917, as amended, and to establish a non-standard 320-acre gas spacing and proration unit comprising the S/2 of Section 18, Township 20 South, Range 27 East, NMPM, Eddy County, New Mexico, to be dedicated to a well to be drilled at an unorthodox gas well location 660 feet from the South line and 1980 feet from the West line (Unit N) of said Section 18.

(3) In Case No. 10250, the applicant seeks the rescission of Special Rules and Regulations for the spacing and location of wells in the McMillan-Morrow Gas Pool, comprising Sections 13 and 14, Township 20 South, Range

26 East and Sections 7, 18 and 19, Township 20 South, Range 27 East, NMPM, Eddy County, New Mexico, and seeks to have said pool governed by the provisions of General Rule 104.C.11(a) for gas pools of Pennsylvanian age. Further, the applicant requests the concomitant creation of two non-standard 640-acre gas spacing and proration units for the McMillan-Morrow Gas Pool in Section 13, Township 20 South, Range 26 East for the existing Yates Drilling Company Pecos River Deep Unit Well No. 3 located in Unit H of said Section 13 and in Section 19, Township 20 South, Range 27 East for the existing Presidio Exploration Inc. State "I" Com Well No. 1 located in Unit F of said Section 19.

(4) In the alternative, in Case No. 10250 the applicant seeks to amend the current Rules and Regulations for the McMillan-Morrow Gas Pool, as promulgated by Division Order No. R-2917, as amended, to permit the optional drilling of an additional well on each 640-acre proration unit.

(5) OCD approval of the applicant's request in Case No. 10249 or approval of either alternative proposed in Case No. 10250 would enable the applicant to obtain authorization to establish the 320-acre gas spacing and proration unit described in Finding No. (2) above and to dedicate the spacing and proration unit to a well to be drilled at the location described in Finding No. (2).

(6) Cases Nos. 10249 and 10250 were consolidated for purpose of the hearing and should be consolidated for purpose of issuing an order.

(7) The McMillan-Morrow Gas Pool was established on June 8, 1965 by Order No. R-2917. Spacing of 640 acres was established at that time.

(8) OCD General Rules of Statewide application provide for 320-acre spacing for Morrow (Pennsylvanian) gas wells in Eddy County, New Mexico.

(9) Applicant's witness presented drainage calculations for the five well completions in the McMillan-Morrow Gas Pool. The calculations show drainage areas of 31, 219, 225, 258 and 393 acres, indicating that wells in the pool may not drain 640 acres.

(10) Cross sections and structure maps presented by the applicant indicate that the S/2 of said Section 18 is productive in the Morrow formation.

(11) The two wells described in Finding No. (3) above are the only wells currently producing from the McMillan-Morrow Gas Pool.

(12) Production from the two currently producing wells is marginal. Data submitted by the applicant and verified by OCD records shows that the

two wells had recovered a combined total of 3 BCF of gas through December 1989. Average production from the two wells during 1989 was 50 MCF per well per day. December 1990 production averaged 44 MCF per well per day.

(13) No operator or interested party appeared at the hearing in opposition to these applications.

(14) The applicant's request in Case 10249 for a non-standard gas proration unit and an unorthodox gas well location as set out in Finding No. (3) above should be approved to enable the applicant to recover the remaining gas reserves underlying the S/2 of said Section 18 to prevent waste and protect correlative rights. Applicant's requests in Case No. 10250 as set out in Findings (3) and (4) above should be denied.

IT IS THEREFORE ORDERED THAT:

(1) The application of Pacific Enterprises Oil Company for an exception to the current Special Rules and Regulations for the McMillan-Morrow Gas Pool, as promulgated by Division Order No. R-2917, as amended, and to establish a non-standard 320-acre gas spacing and proration unit comprising the S/2 of Section 18, Township 20 South, Range 27 East, NMPM, Eddy County, New Mexico, to be dedicated to a well to be drilled at an unorthodox gas well location 660 feet from the South line and 1980 feet from the West line (Unit N) of said Section 18, is hereby approved.

(2) Applicant's requests in Case 10250 to rescind or amend Special Pool Rules as described in Findings (3) and (4) of this order are hereby denied.

(3) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

WILLIAM J. LEMAY,
Director

dr/