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

IN THE MATTER OF CASE 9789 BEING REOPENED PURSUANT TO THE PROVISIONS OF DIVISION ORDER NUMBER R-9085, WHICH ORDER PROMULGATED SPECIAL RULES AND REGULATIONS FOR THE BADLAND HILLS-MANCOS OIL POOL IN RIO ARRIBA COUNTY, NEW MEXICO INCLUDING PROVISIONS FOR 640-ACRE SPACING AND PRORATION UNITS AND DESIGNATED WELL LOCATION AND REQUIREMENTS.	)	CASE NO. 9789

REPORTER'S TRANSCRIPT OF PROCEEDINGS
EXAMINER HEARING
BEFORE: MICHAEL E. STOGNER, Hearing Examiner
June 13, 1991
8:45 a.m.
Santa Fe, New Mexico

This matter came for hearing before the Oil Conservation Division on June 13, 1991 at 8:45 a.m. At the Oil Conservation Division Conference Room, State Land office Building, 310 Old Santa Fe Trail, Santa Fe, new mexico, before Linda Bumkens, CCR, Certified Court Reporter No. 3008, for the State of New Mexico.

FOR: OIL CONSERVATION DIVISION
(COPY)

BY: LINDA BUMKENS CCR
Certified Court Reporter
CCR No. 3008

APPEARANCES

FOR THE DIVISION:

ROBERT G. STOVALL, ESQ.
General Counsel
Oil Conservation Division
State Land Office Building
Santa Fe, New Mexico
87504

MR. STOGNER: Call next case number 9789.

MR. STOVALL: In the matter of the case number 9789 being reopened pursuant to the provisions of division order number R-9085, which order promulgated special rules and regulations for the Badland Hills-Mancos Oil Pool in Rio Arriba County, New Mexico including, provisions for 640-acre spacing and proration units and designated well location and requirements.

MR. STOGNER: Call for appearances at this time. There being none, this case will be taken understand advisement

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9789 (Reopened) heard by me on 13 June 1991.

Michael E. Stogner, Examiner
Oil Conservation Division

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

REPORTER'S CERTIFICATE

BE IT KNOWN that the foregoing transcript of the proceedings were taken by me, that I was then and there a Certified Shorthand Reporter and Notary Public in and for the County of Bernalillo, State of New Mexico, and by virtue thereof, authorized to administer an oath; that the witness before testifying was duly sworn to testify to the whole truth and nothing but the truth; that the questions propounded by counsel and the answers of the witness thereto were taken down by me, and that the foregoing pages of typewritten matter contain a true and accurate transcript as requested by counsel of the proceedings and testimony had and adduced upon the taking of said deposition, all to the best of my skill and ability.

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 Bernalillo, New Mexico, this day July 29, 1991.

My commission expires
April 24, 1994

LINDA BUMKENS
CCR No. 3008
Notary Public

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

EXAMINER HEARING

IN THE MATTER OF:

Application of Mobil Producing Texas and New Mexico Inc. for pool creation and special pool rules, or in the alternative for pool extension, Rio Arriba County, New Mexico — Case 9789

TRANSCRIPT OF PROCEEDINGS

BEFORE: DAVID R. CATANACH, EXAMINER

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

November 15, 1989

ORIGINAL

APPEARANCES

FOR THE DIVISION:	ROBERT G. STOVALL Attorney at Law Legal Counsel to the Divison State Land Office Building Santa Fe, New Mexico
FOR THE APPLICANT:	MONTGOMERY & ANDREWS, P.A. Attorneys at Law P.O. Box 2307 Santa Fe, New Mexico 87504-2307 BY: W. PERRY PEARCE, ESQ.
FOR AMOCO PRODUCTION COMPANY:	AMOCO PRODUCTION COMPANY 1670 Broadway P.O. Box 800 Denver Colorado 80201 BY: LARRY N. EMMONS
FOR NASSAU RESOURCES, INC., and JEROME P. McHUGH & ASSOCIATES:	KELLAHIN, KELLAHIN & AUBREY Attorneys at Law 117 N. Guadalupe Santa Fe, New Mexico 87504 BY: W. THOMAS KELLAHIN, ESQ.

I N D E X

E X H I B I T S

HEARING EXAMINER: Call the hearing back to order. At this time we'll call Case 9789.

MR. STOVALL: Application of Mobil Producing Texas and New Mexico Inc. for pool creation and special pool rules, or, in the alternative, for pool extension, Rio Arriba County, New Mexico.

HEARING EXAMINER: Appearances in this case?

MR. PEARCE: May it please the examiner, I'm W. Perry Pearce of the Santa Fe office of the law firm of Montgomery & Andrews, P.A., appearing in this matter on behalf of Mobil. I have four witnesses who need to be sworn.

HEARING EXAMINER: Other appearances.

MR. EMMONS: Larry Emmons of Amoco Production Company, as an appearance. I would like to make a statement at the conclusion of the case.

HEARING EXAMINER: I'm sorry, your last name, sir?

MR. EMMONS: Emmons, E-m-m-o-n-s.

HEARING EXAMINER: Other appearances.

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of the Santa Fe law firm of Kellahin, Kellahin & Aubrey. I'm appearing on behalf of Nassau Resources, Inc., and Jerome P. McHugh & Associates.

HEARING EXAMINER: Any witnesses, Mr. Kellahin?

MR. KELLAHIN: No, sir.

HEARING EXAMINER: Any other appearances?

Can I get the four witnesses to stand and be sworn in?

(Witnesses sworn.)

MR. PEARCE: Thank you. At this time, I would like to call Mr. Roger Lichty to the stand, please.

ROGER LICHTY,

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

DIRECT EXAMINATION

BY PEARCE:

Q. Thank you, sir. For the record, would you please state your name and place of residence.

A. My name is Roger Lichty. My residence is Denver, Colorado.

Q. Would you spell your last name for us please, sir.

A. Yes. L-i-c-h-t-y.

Q. Mr. Lichty, by whom are you employed?

A. I'm employed by Mobil Exploration and Producing US, Inc., in their Denver office.

Q. In what capacity?

A. I'm a land adviser, landman.

Q. Mr. Lichty, have you previously appeared before the New Mexico Oil Conservation Division or one of its hearing examiners and had your qualifications made a matter of record?

A. No, I have not.

Q. At this time briefly would you summarize your educational background and work experience, please.

A. All right. I have an undergraduate degree in English from Princeton University in 1967. I have a law degree from the University of Colorado, 1970. I have an M.B.A. Degree from the University of Denver, 1988. I'm admitted to practice law in Arizona and Colorado. I have seven years of active practice of law with a focus on natural resources law, and I have 11 years of experience as a senior landman, and I have a publishing credit in the natural resources law field.

Q. Mr. Lichty, as part of your work responsibilities, were you assigned the responsibility of the land matters related to Mobil's application in case 9789?

A. Yes, I was.

Q. Are you familiar with what Mobil seeks in that case?

A. Yes, I am.

MR. PEARCE: At this time I would ask that Mr. Lichty be qualified as experienced and an expert in the field of petroleum land matters.

HEARING EXAMINER: He is so qualified.

Q. (BY MR. PEARCE) Mr. Lichty, in pursuing the job responsibility relating to this case, could you describe what you did initially, please.

A. We were to determine operators and working interest owners and royalty owners and overriding royalty interest owners as they needed to be noticed for this hearing regarding Badland Hills Well.

Accordingly, I contracted with an independent landman who has approximately ten years of experience, not only in land work but also in this specific area, to work with me to develop that list of people for us to notice for this hearing.

We used petroleum information maps which designate ownership for the Section 15 acreage, and we also used a nine-section block surrounding that acreage, using the petroleum information maps.

We also developed information from Dwight Well History as to operators around the West Puerto

Chiquito pool area, and we contacted the Oil and Gas Commission where we had concerns regarding current addresses.

We also consulted a current directory of name changes for mergers and acquisitions in the oil industry for various companies to make sure we had right addresses there.

We additionally sent notices to the Bureau of Land Management, the Jicarilla Indian Tribe, and any other parties that would not necessarily strictly be within the realm of the rules but to whom we felt had an interest in this hearing.

It took us about four days to develop those names, and we forwarded them to Mr. Pearce here for mailing.

Q. In regard to that, is that work summarized in what we've marked as Exhibit No. 1 to this proceeding?

A. Yes, it is.

Q. And that is a letter from Mr. Richard Lewis to you; is that correct?

A. Yes, it is.

Q. I notice on the last page of that report, Mr. Lewis has signed it, and you have signed concurring in the conclusions he reached as a result

of his work; is that correct?

A. That is correct.

Q. Let's look very quickly at the last page of Exhibit No. 1. That appears to be a map. Could you describe the areas that are surrounded by colored markings, please.

A. Yes. We're looking at Township 23 North, Range 1 West, a yellow enclosed area being Section 15, which is the location of Badland Hills Well.

Surrounding that in a pink border is an approximate 12-section border zone or buffer area that we checked for operator ownership. And then there is a green line indicating the pool outline for the West Puerto Chiquito Pool.

MR. PEARCE: Mr. Examiner, at this time I would also like to submit what we have marked as Exhibit No. 2 to this proceeding. That is my Certificate of Service, showing service by mail as required by Rule 1207(4) to the individuals described by Mr. Lichty during his testimony. Notice of this hearing was initially sent to those parties on September 28th of 1989.

Q. At this time, Mr. Lichty, I would ask if you have additional matters that you would like to highlight for the examiner?

A. Not that I'm aware of.

MR. PEARCE: I have nothing further of this witness, Mr. Examiner.

I would ask the admission of Mobil Exhibits 1 and 2 to this proceeding.

HEARING EXAMINER: Exhibits No. 1 and 2 will be admitted as evidence.

Any questions of this witness? If not, he may be excused.

RAY JONES,

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

DIRECT EXAMINATION

BY MR. PEARCE:

Q. At this time, Mr. Examiner, I would like to call my next witness, and I would ask him for the record to please state his name and place of residence.

A. My name is Ray Jones. I reside in Lakewood, Colorado.

Q. Mr. Jones, by whom are you employed?

A. I'm employed by the petroleum consulting firm of Jerry R. Bergeson & Associates, Inc.

Q. In what capacity are you employed by Bergeson & Associates?

A. As a senior petroleum engineer.

Q. Mr. Jones, have you previously appeared before the New Mexico Oil Conservation Division and its examiners and had your credentials made a matter of record?

A. I have not.

Q. Would you briefly summarize for us, please, your educational background and work experience.

A. I have a degree, bachelor's of petroleum engineering from the Colorado School of Mines, 1979. I worked for Flow Patrol, 1979 and 1980, in the areas of well testing and operations in the North Sea.

I worked for Texaco North Sea UK, Inc., in be Aberdeen, Scotland, 1980, 81, and 1982. For Texaco, I performed reservoir engineering, production engineering duties. These included well test design and analysis for current producing wells and exploratory wells.

I worked with Chorney Oil Company, 1982 through 1985, as a petroleum engineer, chief petroleum engineer, mainly concerned with reservoir engineering with fields in the Rocky Mountain area.

And since that time, I've been employed by Bergeson & Associates, reservoir engineering, well test analysis, reservoir simulation within the U.S.

and international. And I also teach in the Bergeson industry courses of well testing, reservoir engineering, and reservoir simulation.

Q. Mr. Jones, has Bergeson & Associates been retained by Mobil to study the Badland Hills 15-1 Well?

A. Yes, we have.

Q. And you are the employee at Bergeson who has been charged with that responsibility; is that correct?

A. That is correct.

MR. PEARCE: At this time, Mr. Examiner, I would ask that Mr. Jones be recognized as an expert in the field of petroleum engineering.

HEARING EXAMINER: He is so qualified.

Q. (BY MR. PEARCE) Mr. Jones, during the course of drilling and completing the Badland Hills 15-1 Well, do you know if bottom hole pressure tests were conducted on that well?

A. Yes. Bottom hole pressure tests were conducted in the end of October to test the pressure of the Mancos A-B zones.

Q. Sir, I would ask you to refer to what we've marked as Mobil Exhibit No. 3 in this case, and would you highlight for the examiner and those in attendance

the relevant features on that exhibit?

A. On Exhibit 3, I have shown the pressure information from that case, tool DST. I applied the bottom hole pressure at gauge depth versus time as the elapsed time from the beginning of the test. In the upper left-hand corner, I have included the annotations of "swab" and "shut-in."

The well would not flow naturally, and so it was swabbed for a period of approximately six hours for the flow period to reduce the pressure.

The DST tool was then shut in and left shut in for approximately 70 hours.

The rather erratic pressure at the very beginning of the test is due to swabbing of the well to reduce the pressure.

The pressure ranged from approximately 1,220 pounds to a high of about 1,800 pounds and then was reduced to approximately 1,590 psig at the shut-in of the test or the shut-in of the well.

Q. Then would you describe, please, the pressure performance of the well once it was shut in.

A. The pressure increases and at approximately 41 hours into the test; that would be about 47 hours on the time scale. This gauge recorded a maximum pressure of 1,824 psi. That pressure is constant

throughout the rest of the test.

Q. Let's look, please, at what we've marked as Mobil Exhibit No. 4. Could you describe that exhibit, please.

A. Exhibit No. 4 is a comparison of the recorded pressure from the Badland Hills Well with a graph of regional initial pressures for the Mancos. The base graph is presented before -- and this particular copy came from Case 9525.

I have added the pressure of 1,824 psig and at the gauge depth of 937 feet subsea to this graph.

It shows that the recorded pressure is in line with what we would expect as an initial reservoir pressure for the Mancos in this area.

Q. Other comments on Exhibit No. 4?

A. Not at this time.

Q. All right, sir. Let's look, please, at what we've marked as Exhibit No. 5 to this proceeding. I notice in the bottom, left-hand portion of that graphical display, there are a number of symbols. Could you describe those symbols and the information represented, please.

A. Yes, sir. The symbols represent pressure tests, specific pressure tests for three wells. The well names are noted in the lower left-hand corner of

the figure, Badland Flats, Federal No. 1, the Amoco State CC No. 1, and the Wishing Well 35-7.

These points are shut-in pressure measurements taken at various points in time. The pressures decrease in time because the wells were producing over this time period.

Q. As I understand the caption on this exhibit, those wells are part of what is sometimes referred to as the Schmitz Anticline; is that correct?

A. That is correct.

Q. Is that the producing area in closest proximity to the Badland Hills Well?

A. Yes, it is. The Schmitz Anticline is a term of reference I have used. It begins at an area approximately the Amoco Schmitz Anticline Federal No. 1 Well, continues south to the southern edge of the West Puerto Chiquito-Mancos Pool.

Q. Looking at the information displayed in the bottom, left-hand portion of this exhibit, based on the latest recorded pressures from the Schmitz Anticline area, which occurred in late 1988, and based upon the production since that time, do you have an estimate of the pressure you would expect to be recorded in the Schmitz Anticline at this time?

A. Yes. I would expect the pressure for this

group of wells shown to be approximately 1,000 psi or less.

Q. In the upper right-hand portion of this exhibit, there is a data point marked "Mobil Badland Hills 15-1." What does that point represent?

A. That is the pressure shown on the previous figure for the Mobil Badland Hills 15-1 Well. An adjustment has been made to correct the pressure from gauge depth to a depth of 750 feet subsea.

Q. Based upon your study and the information you have reviewed, as I understand it, it's your opinion that in late 1989 when the Badland Hills Well was pressure tested, there was between an 800- and 900-pound pressure difference between the Schmitz Anticline wells and the Mobil well; is that correct?

A. That is correct. That would indicate that the Mobil Badland Hills 15-1 is not in communication with the wells that have been termed Schmitz Anticline wells.

Q. Let's move on to some further study that you did, and I'd ask you to refer to Exhibit No. 6 to this proceeding and describe the information reflected on that exhibit, please.

A. Exhibit No. 6 is a well list of those wells that were included in what I term the "Schmitz

Anticline area," and it is the list of wells for which I had production information.

Q. All right, sir. Let's look at what we've marked as Exhibit No. 7, and you mentioned that you had production information from the five wells shown on Exhibit No. 6. How was that information utilized in Exhibit 7?

A. Exhibit No. 7 is a plot of the total production from those wells. It is a plot of oil production in barrels per calendar day. Water rate and gas flow ratio is also included. The oil production is the solid diamond symbol and is a curve in the top cycle of the graph.

I have shown on here a dashed line as an extrapolation of expected future performance from this group of wells, and that is annotated with a value of 32 percent. The line drawn in is approximately 32 percent per year effective decline.

Q. Based upon the analysis of production from those Schmitz Anticline wells and the decline which you have extrapolated, have you made an estimate of the expected ultimate recovery from the Schmitz Anticline well?

A. Yes, I have. With the cumulative production and expected decline, the estimated

ultimate recovery for the five wells is 558,000 barrels of oil.

Q. That is up to the point of --

A. The economic limit.

Q. How have you utilized that 558,000-barrel number, please. I'm referring to Exhibit No. 8.

A. On Exhibit No. 8, I have estimated aerial extent or aerial drainage areas, if you like, for these five wells. I have used the 558,000-barrel estimated ultimate recovery, and I have used recovery factors from two fields in the area.

The recovery factors are on the second entry labeled, "Range of Estimated Ultimate Recoveries Per Acre," 199 to 161 barrels per acre.

Q. Based upon your study of various fractured Mancos reservoirs, do you believe that a range of 161 to 199 barrels per acre is a reasonable expectation of production from the fractured Mancos formation underlying the Badland Hills well?

A. Yes, I do. These numbers were from the two fields nearest to the north.

Q. All right, sir, I apologize for interrupting. Please go to the next step in your analysis.

A. With the estimated ultimate recovery and an

estimate of recovery per acre, I have estimated the aerial extent that the five wells are draining. This ranges from 2,800 to 3,500 acres, and I have converted that to sections. And that ranges from approximately 4.4 to 5.4 sections for this group of wells.

Q. Based upon that analysis, do you have an opinion upon the appropriate spacing and drainage area of wells such as the Badland Hills 15-1?

A. Yes, I do. I have concluded that, from this information, 640 acres is a reasonable spacing unit for these wells and for the Badland Hills 15-1.

Q. At this time I would ask you to refer to what we've marked as Exhibit No. 9. I would ask you to describe for the examiner the information reflected.

A. I made some economic calculations for comparisons of 640-acre spacing versus 320-acre spacing. In order to do that, I needed projections of the oil production in time.

There are two curves shown on this figure. The one that's annotated 32 percent, that would be the expected production profile for a typical well based upon the information that we've just reviewed.

The second line, the solid line, that would be for a case of two wells on the section. As I

expect the well to drain approximately 640 acres, I would not anticipate that a second well would add any reserves.

A second well may increase initial production, temporarily. And so I have used an initial rate that's twice that of the single well case for the 320-acre spacing. However, that case would have a steeper decline. And I have calculated that decline at the same reserves to be 53 percent per year.

Q. How have you utilized those two calculations of decline rates in your analysis?

A. I used these two decline rates, the initial rates, with typical economic parameters to estimate the recovery for a 640-acre case and 32-acre case.

Q. Let's look, please, at Exhibit No. 10. I would ask you if that exhibit reflects the result of the analysis you've just described?

A. Yes, it does.

Q. What information is reflected on the first page of Exhibit 10, please.

A. That is a plot of discounted cash flow in thousands of dollars with discount factor in percent.

I have shown the results for the 640-acre economic case as a solid line. That's the line at the

top of the stippled band.

I have shown the results for the 320-acre case with a dashed line, which is at the base of that stippled band.

The stippled band represents the economic loss from drilling the second well on the section.

Q. Is it your opinion that based upon the production history of wells in the fractured Mancos reservoir that the drilling of a second well to accomplish 320-acre spacing would cause the drilling of unnecessary wells and therefore cause waste?

A. Yes, sir, it is.

Q. I notice that attached behind the initial page of Exhibit 10 are two data pages. What's reflected on those sheets, please.

A. The two data pages are the economic calculations for the one-well and the two-well cases, or 640-acre and 320-acre cases.

Q. And those pages set forth the parameters utilized in your economic calculation; is that right?

A. That's correct, they do.

Q. Mr. Jones, I would ask you if you have reached a conclusion on the basis of your analysis of whether the Badland Hills 15-1 Well is in a petroleum reservoir separate from other producing reservoirs in

the area?

A. It is my opinion that the Badland Hills 15-1 is separate from other wells in the area.

Q. And based upon your study, have you reached a conclusion of the appropriate spacing for wells at least for the Badland Hills Well?

A. I have concluded that 640-acres would be appropriate for this well.

Q. You have stated your conclusion that spacing with greater density such as 320-acre spacing would cause the drilling of unnecessary wells; is that correct?

A. That is correct.

Q. Do you have anything further to highlight for the examiner at this time?

A. No, I do not.

MR. PEARCE: I have nothing further of this witness, Mr. Examiner.

I would ask the admission of Mobil Exhibits 3 through 10, and I would pass the witness for questioning.

HEARING EXAMINER: Exhibits 3 through 10 will be admitted as evidence.

Questions of this witness? Mr. Kellahin?

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Jones, perhaps by way of reference, we might use the plat that was attached to the information that identified the various participants.

A. Okay. I have it.

Q. My client is Mr. McHugh. His operations in this area include the Nassau Resources Laguna Colorado No. 2 Well?

A. Yes, sir.

Q. Which is in Section 2. When I look at the area outlined in pink on this page 5 of Exhibit No. 1, we have the Mobil 15-1 well in Section 15 that's in the fractured Mancos. In Section 2, we have the Nassau Resources Laguna Colorado No. 2 Well in the fractured Mancos.

Are there any other wells currently completed in this interval within the area identified by the pink outline?

A. There is an Amoco well in Section 3, Badland Flats Federal No. 1. It's located in the northwest quarter of Section 3.

Q. When I look at your Exhibit No. 6, the Laguna Colorado and then the Amoco Badlands Flats Federal No. 1 and three other wells were included in your analysis of production plots for the Schmitz

Anticline area?

A. That's correct.

Q. Exhibit No. 5 was a pressure plot versus time on the Schmitz Anticline wells, but I don't find the wells plotted to include the Laguna Colorado No. 2 Well.

A. That's correct.

Q. Did I miss something?

A. No. The Laguna Colorado 2-6 is not included. As I recall, the pressures for the Laguna Colorado were less than some of the other wells in this general area.

The recorded pressures I believe were on the order of 1,000 pounds or less, and at least two of the pressures that were reported for the Laguna Colorado well would be off the scale of this plot. They would show an even larger separation with the Mobil Badland Hills 15-1, a larger pressure separation.

Q. In making your study, did you review the case file and the commission order in Case 9451, which was Order R-6469-G, by which the Division extended the West Puerto Chiquito-Mancos Pool and picked up the McHugh acreage in Section 2?

A. I'm familiar with it.

Q. Did you look at the technical presentation and the testimony in that case?

A. I had reviewed that before, yes.

Q. What's your recommendation about where to put Section 2? Do we leave it in the pool to the north, which is the West Puerto-Chiquito Mancos Pool, or are we going to put that well in the Mobil proposed pool today?

MR. PEARCE: For clarification, the pink outline on the exhibit dealt only with the notice question. The pool being proposed is the yellow outline, a Section 15 pool only.

MR. KELLAHIN: I'm sorry. I've been confused by all the pretty colors. Okay.

Q. The advertisement talks about creating then Section 15 as its own pool, and that's what we're talking about here?

MR. PEARCE: Yes.

THE WITNESS: Yes.

Q. (BY MR. KELLAHIN) In the alternative, it talks about extending the West Puerto-Chiquito Mancos Pool to include Sections 3, 10, and 15. That's not something you want to do?

MR. PEARCE: That alternative has now been dropped based on the well test data that's been

presented, yes.

Q. (BY MR. KELLAHIN) Based upon your analysis, Mr. Jones, can you determine whether you see pressure information that makes the McHugh Laguna Colorado No. 2 more typical of wells that ought to be included within the area that you propose for the pool to be created for Section 15?

A. I did not study the Laguna Colorado well in Section 2 specifically to see -- specifically for that well. Based upon the pressure information, the well in Section 2 is in the reservoir that is separate from the well in Section 15 and should not be included with the well in Section 15.

Q. When we look at the Amoco well in Section 3, was it?

A. Yes.

Q. That Badlands Flats Federal No. 1 in Section 3, my understanding of the existing West Puerto-Chiquito Mancos Pool is that Section 3 would be included in that pool. Do you know?

A. I do not know specifically. I should defer that to Perry.

MR. KELLAHIN: Let me withdraw the question and state it this way.

Q. When we look at the Amoco well in Section

3, is that part of the same reservoir with the McHugh well in 2, or is the Amoco well in 3 going to be part of the pool in Section 15, or can you tell?

A. The Amoco well is not part of the pool for Section 15. That I can tell.

Q. Have you studied sufficiently the engineering information to draw any conclusions about whether the Amoco well in 3 ought to be part of the Section 2 Nassau Colorado Laguna Well?

A. I have not studied that. That was not a requirement for this analysis.

Q. I understand. I'm just trying to see where we're going to go with your pool. One of the difficulties when we have two pools, even though they're on the same spacing, is at some point there may be a need to draw a distinction.

A. I understand.

Q. I'm trying to decide how we set this up.

Your comparison of the Schmitz Anticline area includes what geographic area on page 5 so that I understand how you have separated out the 15-1 well from the Schmitz Anticline area?

A. The Schmitz Anticline area, as I said, was a term of convenience. I included the well information, the wells -- I had Amoco's well in 25,

26; the Nassau Resources well in 35. We have the Laguna Colorado well in Section 2, and the Amoco well in Section 3.

I picked these wells because they were close producers to the well in Section 15. In fact, the wells in Section 2 and Section 3 are, as far as I know, the closest Mancos producers to the new well in Section 15.

Q. Based upon a comparison of pressure information from four of those Schmitz area wells with the pressure from the 15-1 well, do you see a differential of about 900 pounds?

A. That's correct.

Q. Adjusted to the same database and the same point in time?

A. Yes, approximately 800 to 900 pounds.

Q. Is there any other data that supports your conclusion about the separation of Section 15 from those Schmitz Anticline area wells?

A. Any other engineering information?

Q. Sure. The pressure is obviously an important differential. Did you look and find any other distinctions?

A. Not outside of the pressure. The initial pressure does, however, match with the regional

initial pressures for fields and would be the pressure that we would expect for this area as an initial pressure and one for a field or area that was not yet drained.

Q. Have you satisfied yourself that there has been a sufficient long enough period of time for production out of the Schmitz Anticline that if the Schmitz Anticline was communicating with Section 15, you would have seen pressure depletion in your section?

A. I have.

Q. How long a period of time was that?

A. The communication between, for example, Amoco State CC No. 1 in Section 26 and the Wishing Well 35-7 in Section 35, without reviewing notes, I will say that is on the order of one day or less. So if the well -- if this area was in pressure communication, we would have observed a pressure similar to those for the Schmitz Anticline well area.

Q. When you look at the Schmitz Anticline area in terms of pressure analysis, can you conclude as a reservoir engineer that those wells are in fact in the same common source of supply?

A. I don't think there's any question about the State CC No. 1 and the Wishing Well. I have not

evaluated the other wells to accurately determine the degree of communication.

Q. Let's see if I understand your ultimate conclusion that the pressure in 15 that you've experienced in your 15-1 well is significantly different from the pressure that you see in the Amoco well in 3, and that there has been a sufficient enough period of time elapsed during which the Amoco well in 3 has been produced, that had there been communication between the two sections, you would have seen pressure depletion in 15?

A. That's correct.

Q. And absence that pressure depletion and showing 900 pounds pressure differential, you don't need to look any further, do you, to establish separation between Section 3 and 15?

A. No.

MR. KELLAHIN: Thank you. Nothing else.

HEARING EXAMINER: Any other questions of this witness?

CROSS-EXAMINATION

BY HEARING EXAMINER:

Q. Mr. Jones, besides the engineering evidence, do you have geologic evidence which might show separation?

MR. PEARCE: If I may, Mr. Examiner, my next witness is a geologist.

Q. (BY HEARING EXAMINER) Mr. Jones, where are the other Mancos pools in relation to Section 15?

A. If we refer back to page 5 of 5, Exhibit No. 1, the green line would be the southern boundary of the West Puerto Chiquito-Mancos Pool.

There is a small, one-well pool in Section 36. That would be Range 1 East, Township 24 North, I believe, called the Regina Gallup? Is that the correct pronunciation?

MR. PEARCE: Yes.

THE WITNESS: Then there's the Gavilan Mancos Pool which would be to the north and the west of this area.

Q. (BY HEARING EXAMINER) Are the West Puerto Chiquito and the Gavilan Mancos -- those are spaced on 640; is that correct?

A. Yes.

Q. Mr. Jones, the application requests a special depth bracket allowable. Can you elaborate on that?

Do you have another witness, Mr. Pearce.

MR. PEARCE: Another witness will address that.

Q. (BY HEARING EXAMINER) Mr. Jones, if you indeed did have communication from the well in Section 15 with the other wells in Section 2, what kind of pressure might you expect at this point in that well?

A. I would expect a pressure that would be very similar to the pressure observed for these other wells.

Q. It would have drawn down that much?

A. Yes, sir.

Q. Being as far away as it was?

A. Yes. We have observed in the Gavilan field, where it's generally accepted, that within the confines of the Gavilan field, the wells are in pressure communication. And as new wells were brought on, they were, say, within a range of about 100 pounds to other wells in the area. And so I would expect similar pressure measurements or pressure observations if this well was in communication with the area to the north.

HEARING EXAMINER: I have no further questions of the witness. He may be excused.

LARRY CRUNCLETON,

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

DIRECT EXAMINATION

BY MR. PEARCE:

Q. At this time, Mr. Examiner, I would like to call my next witness, and I would ask him for the record to please state his name and place of residence.

A. My name is Larry Cruncleton, and I reside in Bailey, Colorado.

Q. Mr. Cruncleton, would you please spell your last name for the examiner.

A. Last name is C-r-u-n-c-l-e-t-o-n.

Q. Mr. Cruncleton, by whom are you employed?

A. I'm employed by Mobil Exploration and Producing U.S. in the Denver Division.

Q. In what capacity are you employed?

A. I am a staff geophysicist in charge of the of the Rocky Mountain District.

Q. Mr. Cruncleton, have you appeared before the examiner or one of the examiners and had your credentials made a matter of record before?

A. No, I haven't.

Q. At this time would you briefly summarize your educational background and work experience, please.

A. Yes. I graduated from the University of Texas at El Paso with a Bachelor of Science Degree in

Geophysics. That was in December of 1980. Upon graduation, I started with Mobil at the beginning of 1981. I've since worked with them in exploration and production throughout that time.

Q. Has the majority of that time or perhaps all of that time been in the Denver office?

A. With the exception of the first year, which was a training program, which they have in the Dallas program; upon completion of that, I moved to the Denver Division.

MR. PEARCE: At this time, Mr. Examiner, I would ask that Mr. Cruncleton's qualifications be accepted and made a matter of record, and that he be qualified as an expert in the field of petroleum geology.

HEARING EXAMINER: He is so qualified.

Q. (BY MR. PEARCE) Mr. Cruncleton, as part of your work responsibilities, were you asked to do a geological study of the area surrounding the Badlands Hill 15-1 Well?

A. Yes, I was. I was originally assigned to look at the wells in the area and to integrate the well data with seismic, which we have recently acquired within the area.

Q. Let me interrupt for just a second. Based

on the review of the well data which was available and the geophysical data which has been developed, have you prepared a structure map of the Gallup?

A. Yes, I have.

Q. Is that reflected as Mobil Exhibit No. 11 to this proceeding?

A. Yes, it is.

Q. I'd ask you to look at that exhibit, please, and point out the items which you would like to highlight for the examiner.

A. Okay. This is a structure map constructed on the top of the Gallup zone. The map is a scale of 1 to 4,000. The contour interval is 50 feet. The broad, dashed line on that map is the boundary of the West Puerto Chiquito Pool.

The dashed lines with the X's through them, that represents where our seismic control is that we have acquired in this area.

In the southwest corner, I have highlighted the Badland Hills No. 15-1 Well. It has a box around it.

Q. I notice there are also a couple of solid lines on the exhibit, some of which have graphical symbols on one side or the other. What do those lines represent?

A. Right. Those represent faults which have been distinguished, using our seismic. As you notice, several of the faults represent several different styles of faulting and in several different directions.

Q. Very briefly, summarize what you mean by different styles of faulting and how they're represented, please.

A. Essentially, what that represents is relative motion of throws across these faults and type of faultings, whether it be normal faulting, listrick faults.

In addition to that, I've marked on here in red a line of cross-section connecting four wells, including the Badland Hills and two wells within the Schmitz Anticline area and another well to the north.

Q. Let's turn now to what we've marked as Exhibit No. 12. While you're discussing that cross-section, could you describe that for the examiner, please.

A. Exhibit 12 is a structural cross-section. What I've used in this cross-section is the dual induction logs for the wells listed along that line. This cross-section was hung on a structural datum of 500 feet.

And what this cross-section essentially shows, it represents the structural relationship of these wells with each other. And I've drawn in here the faults which we have delineated on seismic.

I've shown across this section the relative throws which we see, vertical throws that we see along this section here, delineating some of the separation of these wells with each other of the faults.

Q. You have reviewed the well data which has been available; is that correct?

A. Yes, sir.

Q. And the seismic data that you have described; is that correct?

A. Yes, sir.

Q. Have you formed a broad opinion on the geology and structure of the Gallup formation in this area?

A. Yes, I have.

Q. What is that opinion, please.

A. One of the first things that struck me in doing this study was the complexity. Using the seismic, it was obvious that the structure was much more complex than what could be derived just using well control within the area.

Mainly, in addition to that, the seismic is

used to delineate these faults which we see, which we probably would not be able to put in solely using just well control.

Q. You have defined this as a highly complex area. When a previous witness was on the stand, there was some questioning about whether or not there was geologic evidence of separation.

I would ask you to refer to what we've marked as Exhibit No. 11. Based upon the data that is available to us today, are you able to conclude that there is structural separation between the Badland Hills Well and the Schmitz Anticline Well which would account for the pressure differentials we've seen?

A. Strictly off of a structural point of view, it does not show any reason for separation between the two such as closed highs, but what is evident is the multidirections of these faults that we see in the area.

The faults in the Schmitz Anticline area, particularly the Wishing Well, appears to be associated with the fracture zone. In associating with the fault we see up there, in the Badland Hills, appears to have penetrated a different fault in its associated fracture zone down there.

Q. And looking at this exhibit, it appears

that just south of the Badland Hills wells and the vicinity of the well you just addressed to the north, and I've forgotten the name --

A. The Wishing Well.

Q. -- the Wishing Well, there doesn't appear to be seismic data between those two points?

A. No. We do not have the control to actually define whether we have more faults in that area or not.

Q. Based upon your study of the area and the data that is available to you, referring back to Exhibits 11 and 12, do you have other items of information which you believe might be helpful to the examiner in this matter?

A. No, I don't.

MR. PEARCE: Mr. Examiner, I have nothing further of this witness at this time.

I would move the admission of Mobil Exhibits 11 and 12 to this proceeding, and I would pass the witness.

HEARING EXAMINER: Exhibits 11 and 12 will be admitted as evidence.

Questions?

MR. KELLAHIN: Thank you, Mr. Examiner.

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Cruncleton, when I look at the seismic structure map on top of the Gallup, Exhibit No. 11, and I focus in on the extent of the reservoir in Section 15 from which the 15-1 well produces, what, in your opinion, is the likely geologic extent of that reservoir as we move to the east?

A. To the east?

Q. Yes, sir.

A. As we move to the east, it appears we would be moving out of the fracture zone associated with that fault, and production of the wells, I would assume, would fall off as we move to the east.

Q. Geologically then, when you examine that information, the eastern limits of the reservoir is going to be controlled by the top of the Gallup 8 outcrop, or is it going to be controlled by this -- I guess it's a fault line --

A. That is.

Q. -- through the east side of Section 15?

A. Yes. Production at most would go as far to that last fault that we see that I've listed on there that the contours -- they end up against that fault. We wouldn't assume any production on the other side of that fault.

Q. I don't have an east-west cross-section to look at; so I was trying to determine what your opinion was with regards to the likely eastern boundary of that reservoir.

When you look to the west, do you have any geologic information from which you can conclude what the likely western boundary is for the reservoir being produced by the 15-1 well?

A. No. We are not able to determine how far out the fracture system would extend.

Q. When I look at your cross-section, am I correct in understanding that the magnitude of fault displacement for the Mancos reservoir is not sufficient to totally separate the Mancos formation from the 15-1 well and, say, the Laguna Colorado No. 2 well?

A. That's correct. Across the faults there is not enough separation to separate the total interval of the Gallup there.

Q. Is there any reason that you didn't run your A-A' cross-section through the Amoco well in Section 3?

A. No. The reason I ran the cross-section between the Badland Hills up to the Laguna Colorado No. 6 is so I could represent on this cross-section

where that fault is in association with the Badland Hills.

Q. In placing the fault then, you have placed the Amoco well in Section 3 west of the fault?

A. The Amoco well? I have on my structural section -- I have represented the fault as dying out just at the bottom of Section 3.

Q. I'm sorry, yes, you have.

Have you examined the geologic relationship between the Amoco Badlands well in 3 versus the Nassau Resources Laguna Colorado Well in Section 2?

A. No, I haven't.

MR. KELLAHIN: Thank you. I have nothing further.

CROSS-EXAMINATION

BY HEARING EXAMINER:

Q. Mr. Cruncleton, is there any other geologic factor which might explain the separation of the two areas besides the faulting?

A. Not that I'm aware of.

Q. None that you've found?

A. Yes.

Q. Is this whole interval correlatable across the two areas?

A. Yes, it is. On the cross-section, what

we've depicted as our A, B, and C is relatively easy to correlate across the whole area.

Q. Do the fractures in the Mancos generally have a preferential direction?

A. Our belief in this area is that the fractures are oriented parallel to the faulting that we see in this area.

We did run a fracture log within the Badland Hills which does show the fractures do appear to be running in the direction that I had the fault depicted on the map.

Q. So, really, the two areas should be in communication, but they aren't? It all points that they should be in communication; is that correct?

A. Well, no. The wells up to the north really aren't associated with the fault that we see at the Badland Hills.

Q. Fractures go towards the wells in Sections 2 and 3?

A. In that direction, but we can't determine the extent of how far those fractures would run.

HEARING EXAMINER: That's all the questions we have at this time.

CRAIG EGGERMAN,

the witness herein, after having been first duly sworn

upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. PEARCE:

Q. May it please the examiner, I would ask the witness to please state his name and place of residence for the record.

A. Craig Eggerman, and I reside in Lakeland, Colorado.

Q. Mr. Eggerman, by whom are you employed?

A. Mobil Producing and Exploration U.S., Inc.

Q. What's your capacity with Mobil?

A. Mobil employs me as a senior regulatory engineering adviser.

Q. As part of your responsibilities, have you reviewed the application filed by Mobil in this case?

A. I have.

Q. I would ask you, sir, if you have appeared before the New Mexico Oil Conservation Division or its examiners previously and had your credentials made a matter of record?

A. I have not.

Q. Would you please, sir, for us at this time summarize your educational background and work experience.

A. I received a Bachelor of Science Degree

from South Dakota School of Mines and Technology in 1973. I was subsequently employed by Shell Oil Company for two-and-a-half years, two years, approximately.

I worked as an on-site engineer, worked in the capacity of well log evaluations, cementing and casing operations, drill stem test testing, and other related drilling activities. I served in the capacity as a completion supervisor and operations engineer.

In 1975, I was employed by Mobil Oil Corporation and subsequently worked in positions as an operations engineer, a drilling engineer, a drilling engineering supervisor. And in 1984, I was employed as a regulatory engineer.

My areas of responsibilities are all of the Rocky Mountain states, Nevada, and California.

MR. PEARCE: At this time, Mr. Examiner, I would ask that the witness be qualified as an expert in the field of petroleum engineering and regulatory management?

HEARING EXAMINER: He is so qualified.

Q. (BY MR. PEARCE) Mr. Eggerman, at this time, I would ask you as part of your responsibilities with Mobil, if you have followed certain committee meetings relating to proposed basinwide rules for

fractured Mancos reservoirs in northwestern New Mexico?

A. I have. We have one individual that was designated to serve on that particular subcommittee.

Q. And he reported regularly to you about those proceedings; is that correct?

A. That is correct.

Q. How come he's not here?

A. Because Mr. Paul Haber, who was that individual, now resides in Saudi Arabia, working for Aramco at the present time.

Q. Thank you, sir. I ask you, please, to refer to what we've marked as Exhibit 13 to this proceeding, and I'd ask you to describe what those are for the examiner.

A. What we have attempted to do here is to prepare some special rules for the Badland Hills-Gallup Oil Pool. And this particular set of special rules is drafted along the lines of, from what I understand, would be the general committee recommendations for the proposed basinwide Mancos Pool rules that they would have established in this area.

We've also examined the West Puerto Chiquito-Mancos Pool rules and the Gavilan-Mancos Pool rules and tried to incorporate some of the good things

that are in both of those.

Q. Let's run through these proposed rules very briefly, and I want to highlight a couple of items for the record, if I may.

First of all, I'd ask you to look at Rule No. 2. What does that proposed rule provide?

A. Rule No. 2 provides for 640-acre spacing.

Q. Based upon the evidence presented and the materials that you have reviewed, do you believe that 640-acre spacing would be the appropriate spacing?

A. I do.

Q. Let's look, please, at Rule No. 4 on the second page of this draft and highlight for the examiner the location rules set forth.

A. Rule No. 4 calls for a regular location to be basically in the center of the section but no nearer than 990 feet to the outer boundary of the section of the proration unit, nor closer than 10 feet to the interior quarter-quarter section lines in that pool.

The ten-foot rule is in there so that we don't have problems with computer records as far as the location of wells.

Q. And it's your understanding that the 990-foot location requirement was being discussed by

the committee; is that correct?

A. That's my understanding, yes.

Q. If the committee's recommendation ultimately is a location requirement other than 990 feet and is more restrictive, would you ask that the location for the Badland Hills 15-1 Well be grandfathered to avoid the necessity of further proceedings to approve the location?

A. We would.

Q. Let's look, please, at Rule No. 6 on the third page. The examiner, I believe, earlier in the day asked about a special pool rule with an allowable. Does this rule address that?

A. Rule No. 6 makes an effort to assign an allowable to this particular pool. We chose 800 barrels of oil per day and 2,000 GOR limitation for that particular pool.

It's my recollection that that matches the allowable for the Gavilan-Mancos Pool, but it is slightly less than what is provided for in the West Puerto Chiquito-Mancos Pool.

There is no standard depth bracket allowable, at least according to Rule 505, for wells at this depth for 640-acre spacing.

It's my understanding that 160-acre spacing

at this depth would be 347 barrels of oil per day, and you could take that times four, and you would have a value of something like 1,340 barrels of oil a day, which this is less than that amount.

Q. Let's look at proposed Rule No. 7, please, which addresses the vertical limits. And could you describe the proposed vertical limits of the Badland Hills-Gallup Pool?

A. Rule No. 7 was developed by examining the other pool rules in this general area. I believe it was the subject of discussion in some of the committee meetings and the geologists that are employed by Mobil were advised that this probably was one of the best ways to describe the particular section that we would have in this pool.

Q. And that is the Gallup member of the Mancos?

A. Correct.

Q. Let's look at proposed Rule No. 8. What does that proposed rule provide?

A. Rule No. 8 provides for the drilling of a second well in this particular -- in any particular proration unit, as long as it's not located in the same quarter section as the original well.

Q. What was the allowable for the section if a

second well is drilled?

A. These two wells would share the allowable that would be established for that particular proration unit.

Q. At this time, Mr. Eggerman, do you have anything further to highlight for the examiner?

A. I do not.

MR. PEARCE: Mr. Examiner, at this time I would move the admission of Mobil Exhibit No. 13 to this proceeding, and I would pass the witness for further questioning.

HEARING EXAMINER: Exhibit No. 13 will be admitted as evidence.

Questions? Mr. Kellahin?

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Eggerman, again on Rule No. 8, what's the basis for the recommendation of a second well on the 640 spacing unit when the engineering proof is that one well is sufficient?

A. This would allow the operator the opportunity to drill a second well if they in fact were not able to encounter the fracturing in that particular location from the first well.

In other words, if you ended up with a well

that only made 20 barrels a day, this would provide you with an opportunity to drill a second well.

Q. What does the Section 15-1 well produce now on a daily basis? What's the general range of production?

A. I'm going to try to recall, and this is subject to check, but I believe that we filed yesterday a completion report that indicated that the well is capable -- it currently was testing somewhere around 80 to 100 barrels of oil a day. It still was making some water back, and we're hopeful that that will drop off and that the oil rate will increase.

Q. Refresh my memory; do the West Puerto Chiquito rules provide for a second well in the 640?

A. I am going to have to defer on that. I don't have all of those orders present, and I would have to examine those to see whether they allow for a second well in there.

MR. KELLAHIN: Thank you. No further questions.

CROSS-EXAMINATION

BY HEARING EXAMINER:

Q. Mr. Eggerman, are there any significant differences between these pool rules and the West Puerto Chiquito rules? Are the well locations the

same, the requirements?

A. I believe that the allowable in West Puerto Chiquito-Mancos is higher than this. It's my understanding it's 1,340. Set-back requirements for West Puerto Chiquito, I am not quite sure what that is at the present time. I would have to examine those orders.

MR. STOVALL: Mr. Examiner, just speaking for the Division, to get it into the record -- this, again, would be subject to check, but it's my understanding that the rules in that pool are for 1,320 feet from the outer boundaries, but I'm not sure if that's across the pool or if that's on the border proration units.

I believe it's 1,320, but if none of counsel has any objection, I believe we can review those orders and take administrative notice of them as necessary.

MR. PEARCE: I think that's appropriate.

Q. (BY HEARING EXAMINER) Mr. Eggerman, is it your understanding that the 990 feet was a committee recommendation?

A. That's correct.

Q. Also the 10 feet interior setback. Do you know if there's topographical problems out there in

this area?

A. There certainly are in some parts. Are you referring to the area in general, not specifically to Section 15?

Q. Well, yes, to Section 15.

A. Section 15 has a state highway that intersects it on a diagonal. I guess you would call that a topographical consideration. I have had some discussions with members of the Commission, and it's my understanding that that's kind of a broad definition. When they say "topographical," that also means archeological considerations, as well as structural. And the road -- I'm not sure just exactly what you would call that, but it, I think, fits that general description.

MR. STOVALL: Mr. Examiner, let me ask just a couple of questions to clarify the record.

CROSS-EXAMINATION

BY MR. STOVALL:

Q. You have referred to committee recommendations. Would you identify what committee you were talking about?

A. The committee, and pardon me if I don't get the name correctly, but there was a committee formed to study basinwide Mancos Pool rules to establish

proper spacing for the Mancos formation in the northwest, or generally in the northwestern part of New Mexico, in the San Juan Basin.

Q. Specifically looking at the fractured Mancos structure; is that correct?

A. That's correct.

Q. To the best of your knowledge, has there been any official action taken on those rules? Has there been a hearing on those or anything that you know of?

A. There has not been.

Q. Did you participate, or have you participated, or has your company participate in that committee work?

A. Our company has participated in that work.

Q. And you are then familiar with that through your company's participation? You've had the opportunity to review it so that you have some personal knowledge that your proposals here are consistent with those?

A. I have.

HEARING EXAMINER: That's all the questions I have of the witness.

Mr. Pearce, is it your request that these pools be permanent pools?

MR. PEARCE: Mr. Examiner, I discussed this matter with my client. I don't think we feel strongly. Certainly, if the Division prefers to have a two-year limited effectiveness of these rules, we certainly don't object to that. Whether or not the pool will grow, I do not know at this time.

We are confident that, if it remains a one-well pool, that there is not any particular jeopardy in making the rules permanent at this time, but I suppose we don't know whether or not that will occur.

MR. STOVALL: Mr. Examiner, in response to that along that line, I would like to recall the geological witness to just ask him a couple of questions, if you don't mind.

MR. PEARCE: That's fine.

MR. STOVALL: And, I'm sorry, I forget his name, but if you could --

MR. PEARCE: Cruncleton.

MR. STOVALL: I'll remind you just for the record that you are still under oath.

LARRY CRUNCLETON,

the witness herein, after having been previously called as a witness, examination and testimony continued as follows:

FURTHER EXAMINATION

BY MR. STOVALL:

Q. I believe you testified that the Mobil well in Section 15 is not in fracture communication with wells in Section 2 and 3 or any of the other West Puerto Chiquito-Mancos wells; is that correct?

A. I would say we cannot tell from geological or geophysical evidence whether it's in communication or not.

Q. Are you fairly familiar with the fractured Mancos formation out there? And I'm not a geologist, so pardon me if my terminology is off, but with the nature of the fractured structure out in that area?

A. In this particular area, yes.

Q. Is there a reasonable possibility that if, for example, a second well were drilled in Section 15, say in the east half somewhere, that it might possibly tap into a fracture network that extended two or three sections to the north?

A. That's possible.

Q. And, similarly, could a well perhaps be drilled in Section 10 which could create a fracture communication either to the north or to the south or both?

A. That's possible too.

Q. If that were so, would that, in your opinion, indicate that perhaps there was a common reservoir in the sense that there was fracture communication along there? You just happened to not hit it with the 15 well?

A. Could you restate that question again?

Q. I'll try. I'll restate it by prefacing with a comment that perhaps due to the nature of the fractures in that area, it is possible that there is in fact fracture communication from, say, Sections 2 and 3 or even further north into the West Puerto Chiquito-Mancos to the south, and that the Mobil well has not hit that fracture system, and, therefore, that particular well doesn't show any signs of being in communication, but in fact the proration unit might be?

A. That's possible.

Q. Do you anticipate additional exploration in that area?

A. At this time, yes.

Q. If additional exploration indicated that there was a fracture system extending and bringing the West Puerto Chiquito-Mancos area, or what you're calling the Schmitz Anticline area into communication with, say, with Section 15, would Mobil reconsider its

thinking as to whether it should be a separate pool or whether it should become part of the West Puerto Chiquito-Mancos Pool?

A. I don't know if I can answer that question at this time.

Q. The reason I'm asking that question is I'm thinking in terms of whether the rules should be permanent or temporary. And speaking for myself and just off the top, it would appear that perhaps temporary rules might give us the time to make that determination. Would you agree?

A. Yes.

MR. STOVALL: I have no further questions.

MR. PEARCE: I would like to revisit the subject with the witness, if I may, Mr. Examiner.

HEARING EXAMINER: Yes, sir.

FURTHER EXAMINATION

BY MR. PEARCE:

Q. Mr. Cruncleton, we've had some questioning about fracture communication between the 15-1 well and wells to the north. Do you find geological evidence that those wells are in communication?

A. We have no direct geological or geophysical evidence that it is in communication with that.

MR. PEARCE: I think that's all. Thank

you.

HEARING EXAMINER: Mr. Pearce, can I get Ray Jones back on the stand for a couple of minutes?

MR. PEARCE: Certainly.

RAY JONES,

the witness herein, after having been previously called as a witness, examination and testimony continued as follows:

FURTHER EXAMINATION

BY HEARING EXAMINER:

Q. Mr. Jones, your assumption that the Badlands well will drain 640 acres is solely based at this time on an analogy to the wells to the north; is that correct?

A. That is correct.

Q. We have no evidence at this point on actually what that well will drain? We don't have any production data or other evidence?

A. That is correct. We have analogy from wells to the north and from evaluations of the fields to the north. And the information of the Schmitz Anticline is consistent with other information in the area that we have.

Q. Do you feel that the reservoir properties are that similar between the two areas that you can

make that analogy?

A. Yes, within the local variations of the Mancos, I do.

HEARING EXAMINER: That's all I have.

MR. PEARCE: Nothing further.

HEARING EXAMINER: Mr. Emmons, I believe you want to make a statement?

MR. EMMONS: Amoco Production Company has reviewed the exhibits, the application, and testimony presented by Mobil, and specifically the engineering testimony. We think it clearly supports that a separate pool should be established. Therefore, Amoco recommends, agrees with, and supports Mobil's application.

HEARING EXAMINER: Is there anything further in this case?

Case 9789 will be taken under advisement.

CERTIFICATE OF REPORTER

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

I, Deborah O'Bine, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I caused my notes to be transcribed under my personal supervision; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL November 25, 1989.

Deborah O'Bine

DEBORAH O'BINE
CSR No. 127

My commission expires: August 10, 1990

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9789, heard by me on November 15 1989.

David R. Catanach, Examiner
Oil Conservation Division

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

EXAMINER HEARING

IN THE MATTER OF:

Application of Mobil Producing Texas and New Mexico Inc. for pool creation and special pool rules, or in the alternative for pool extension, Rio Arriba County, New Mexico — Case 9789

TRANSCRIPT OF PROCEEDINGS

BEFORE: DAVID R. CATANACH, EXAMINER

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

November 15, 1989

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FOR AMOCO PRODUCTION COMPANY:	AMOCO PRODUCTION COMPANY 1670 Broadway P.O. Box 800 Denver Colorado 80201 BY: LARRY N. EMMONS
FOR NASSAU RESOURCES, INC., and JEROME P. McHUGH & ASSOCIATES:	KELLAHIN, KELLAHIN & AUBREY Attorneys at Law 117 N. Guadalupe Santa Fe, New Mexico 87504 BY: W. THOMAS KELLAHIN, ESQ.

I N D E X

E X H I B I T S

HEARING EXAMINER: Call the hearing back to order. At this time we'll call Case 9789.

MR. STOVALL: Application of Mobil Producing Texas and New Mexico Inc. for pool creation and special pool rules, or, in the alternative, for pool extension, Rio Arriba County, New Mexico.

HEARING EXAMINER: Appearances in this case?

MR. PEARCE: May it please the examiner, I'm W. Perry Pearce of the Santa Fe office of the law firm of Montgomery & Andrews, P.A., appearing in this matter on behalf of Mobil. I have four witnesses who need to be sworn.

HEARING EXAMINER: Other appearances.

MR. EMMONS: Larry Emmons of Amoco Production Company, as an appearance. I would like to make a statement at the conclusion of the case.

HEARING EXAMINER: I'm sorry, your last name, sir?

MR. EMMONS: Emmons, E-m-m-o-n-s.

HEARING EXAMINER: Other appearances.

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of the Santa Fe law firm of Kellahin, Kellahin & Aubrey. I'm appearing on behalf of Nassau Resources, Inc., and Jerome P. McHugh & Associates.

HEARING EXAMINER: Any witnesses, Mr. Kellahin?

MR. KELLAHIN: No, sir.

HEARING EXAMINER: Any other appearances?

Can I get the four witnesses to stand and be sworn in?

(Witnesses sworn.)

MR. PEARCE: Thank you. At this time, I would like to call Mr. Roger Lichty to the stand, please.

ROGER LICHTY,

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

DIRECT EXAMINATION

BY PEARCE:

Q. Thank you, sir. For the record, would you please state your name and place of residence.

A. My name is Roger Lichty. My residence is Denver, Colorado.

Q. Would you spell your last name for us please, sir.

A. Yes. L-i-c-h-t-y.

Q. Mr. Lichty, by whom are you employed?

A. I'm employed by Mobil Exploration and Producing US, Inc., in their Denver office.

Q. In what capacity?

A. I'm a land adviser, landman.

Q. Mr. Lichty, have you previously appeared before the New Mexico Oil Conservation Division or one of its hearing examiners and had your qualifications made a matter of record?

A. No, I have not.

Q. At this time briefly would you summarize your educational background and work experience, please.

A. All right. I have an undergraduate degree in English from Princeton University in 1967. I have a law degree from the University of Colorado, 1970. I have an M.B.A. Degree from the University of Denver, 1988. I'm admitted to practice law in Arizona and Colorado. I have seven years of active practice of law with a focus on natural resources law, and I have 11 years of experience as a senior landman, and I have a publishing credit in the natural resources law field.

Q. Mr. Lichty, as part of your work responsibilities, were you assigned the responsibility of the land matters related to Mobil's application in case 9789?

A. Yes, I was.

Q. Are you familiar with what Mobil seeks in that case?

A. Yes, I am.

MR. PEARCE: At this time I would ask that Mr. Lichty be qualified as experienced and an expert in the field of petroleum land matters.

HEARING EXAMINER: He is so qualified.

Q. (BY MR. PEARCE) Mr. Lichty, in pursuing the job responsibility relating to this case, could you describe what you did initially, please.

A. We were to determine operators and working interest owners and royalty owners and overriding royalty interest owners as they needed to be noticed for this hearing regarding Badland Hills Well.

Accordingly, I contracted with an independent landman who has approximately ten years of experience, not only in land work but also in this specific area, to work with me to develop that list of people for us to notice for this hearing.

We used petroleum information maps which designate ownership for the Section 15 acreage, and we also used a nine-section block surrounding that acreage, using the petroleum information maps.

We also develcped information from Dwight Well History as to operators around the West Puerto

Chiquito pool area, and we contacted the Oil and Gas Commission where we had concerns regarding current addresses.

We also consulted a current directory of name changes for mergers and acquisitions in the oil industry for various companies to make sure we had right addresses there.

We additionally sent notices to the Bureau of Land Management, the Jicarilla Indian Tribe, and any other parties that would not necessarily strictly be within the realm of the rules but to whom we felt had an interest in this hearing.

It took us about four days to develop those names, and we forwarded them to Mr. Pearce here for mailing.

Q. In regard to that, is that work summarized in what we've marked as Exhibit No. 1 to this proceeding?

A. Yes, it is.

Q. And that is a letter from Mr. Richard Lewis to you; is that correct?

A. Yes, it is.

Q. I notice on the last page of that report, Mr. Lewis has signed it, and you have signed concurring in the conclusions he reached as a result

of his work; is that correct?

A. That is correct.

Q. Let's look very quickly at the last page of Exhibit No. 1. That appears to be a map. Could you describe the areas that are surrounded by colored markings, please.

A. Yes. We're looking at Township 23 North, Range 1 West, a yellow enclosed area being Section 15, which is the location of Badland Hills Well.

Surrounding that in a pink border is an approximate 12-section border zone or buffer area that we checked for operator ownership. And then there is a green line indicating the pool outline for the West Puerto Chiquito Pool.

MR. PEARCE: Mr. Examiner, at this time I would also like to submit what we have marked as Exhibit No. 2 to this proceeding. That is my Certificate of Service, showing service by mail as required by Rule 1207(4) to the individuals described by Mr. Lichty during his testimony. Notice of this hearing was initially sent to those parties on September 28th of 1989.

Q. At this time, Mr. Lichty, I would ask if you have additional matters that you would like to highlight for the examiner?

A. Not that I'm aware of.

MR. PEARCE: I have nothing further of this witness, Mr. Examiner.

I would ask the admission of Mobil Exhibits 1 and 2 to this proceeding.

HEARING EXAMINER: Exhibits No. 1 and 2 will be admitted as evidence.

Any questions of this witness? If not, he may be excused.

RAY JONES,

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

DIRECT EXAMINATION

BY MR. PEARCE:

Q. At this time, Mr. Examiner, I would like to call my next witness, and I would ask him for the record to please state his name and place of residence.

A. My name is Ray Jones. I reside in Lakewood, Colorado.

Q. Mr. Jones, by whom are you employed?

A. I'm employed by the petroleum consulting firm of Jerry R. Bergeson & Associates, Inc.

Q. In what capacity are you employed by Bergeson & Associates?

A. As a senior petroleum engineer.

Q. Mr. Jones, have you previously appeared before the New Mexico Oil Conservation Division and its examiners and had your credentials made a matter of record?

A. I have not.

Q. Would you briefly summarize for us, please, your educational background and work experience.

A. I have a degree, bachelor's of petroleum engineering from the Colorado School of Mines, 1979. I worked for Flow Patrol, 1979 and 1980, in the areas of well testing and operations in the North Sea.

I worked for Texaco North Sea UK, Inc., in be Aberdeen, Scotland, 1980, 81, and 1982. For Texaco, I performed reservoir engineering, production engineering duties. These included well test design and analysis for current producing wells and exploratory wells.

I worked with Chorney Oil Company, 1982 through 1985, as a petroleum engineer, chief petroleum engineer, mainly concerned with reservoir engineering with fields in the Rocky Mountain area.

And since that time, I've been employed by Bergeson & Associates, reservoir engineering, well test analysis, reservoir simulation within the U.S.

and international. And I also teach in the Bergeson industry courses of well testing, reservoir engineering, and reservoir simulation.

Q. Mr. Jones, has Bergeson & Associates been retained by Mobil to study the Badland Hills 15-1 Well?

A. Yes, we have.

Q. And you are the employee at Bergeson who has been charged with that responsibility; is that correct?

A. That is correct.

MR. PEARCE: At this time, Mr. Examiner, I would ask that Mr. Jones be recognized as an expert in the field of petroleum engineering.

HEARING EXAMINER: He is so qualified.

Q. (BY MR. PEARCE) Mr. Jones, during the course of drilling and completing the Badland Hills 15-1 Well, do you know if bottom hole pressure tests were conducted on that well?

A. Yes. Bottom hole pressure tests were conducted in the end of October to test the pressure of the Mancos A-B zones.

Q. Sir, I would ask you to refer to what we've marked as Mobil Exhibit No. 3 in this case, and would you highlight for the examiner and those in attendance

the relevant features on that exhibit?

A. On Exhibit 3, I have shown the pressure information from that case, tool DST. I applied the bottom hole pressure at gauge depth versus time as the elapsed time from the beginning of the test. In the upper left-hand corner, I have included the annotations of "swab" and "shut-in."

The well would not flow naturally, and so it was swabbed for a period of approximately six hours for the flow period to reduce the pressure.

The DST tool was then shut in and left shut in for approximately 70 hours.

The rather erratic pressure at the very beginning of the test is due to swabbing of the well to reduce the pressure.

The pressure ranged from approximately 1,220 pounds to a high of about 1,800 pounds and then was reduced to approximately 1,590 psig at the shut-in of the test or the shut-in of the well.

Q. Then would you describe, please, the pressure performance of the well once it was shut in.

A. The pressure increases and at approximately 41 hours into the test; that would be about 47 hours on the time scale. This gauge recorded a maximum pressure of 1,824 psi. That pressure is constant

throughout the rest of the test.

Q. Let's look, please, at what we've marked as Mobil Exhibit No. 4. Could you describe that exhibit, please.

A. Exhibit No. 4 is a comparison of the recorded pressure from the Badland Hills Well with a graph of regional initial pressures for the Mancos. The base graph is presented before -- and this particular copy came from Case 9525.

I have added the pressure of 1,824 psig and at the gauge depth of 937 feet subsea to this graph.

It shows that the recorded pressure is in line with what we would expect as an initial reservoir pressure for the Mancos in this area.

Q. Other comments on Exhibit No. 4?

A. Not at this time.

Q. All right, sir. Let's look, please, at what we've marked as Exhibit No. 5 to this proceeding. I notice in the bottom, left-hand portion of that graphical display, there are a number of symbols. Could you describe those symbols and the information represented, please.

A. Yes, sir. The symbols represent pressure tests, specific pressure tests for three wells. The well names are noted in the lower left-hand corner of

the figure, Badland Flats, Federal No. 1, the Amoco State CC No. 1, and the Wishing Well 35-7.

These points are shut-in pressure measurements taken at various points in time. The pressures decrease in time because the wells were producing over this time period.

Q. As I understand the caption on this exhibit, those wells are part of what is sometimes referred to as the Schmitz Anticline; is that correct?

A. That is correct.

Q. Is that the producing area in closest proximity to the Badland Hills Well?

A. Yes, it is. The Schmitz Anticline is a term of reference I have used. It begins at an area approximately the Amoco Schmitz Anticline Federal No. 1 Well, continues south to the southern edge of the West Puerto Chiquito-Mancos Pool.

Q. Looking at the information displayed in the bottom, left-hand portion of this exhibit, based on the latest recorded pressures from the Schmitz Anticline area, which occurred in late 1988, and based upon the production since that time, do you have an estimate of the pressure you would expect to be recorded in the Schmitz Anticline at this time?

A. Yes. I would expect the pressure for this

group of wells shown to be approximately 1,000 psi or less.

Q. In the upper right-hand portion of this exhibit, there is a data point marked "Mobil Badland Hills 15-1." What does that point represent?

A. That is the pressure shown on the previous figure for the Mobil Badland Hills 15-1 Well. An adjustment has been made to correct the pressure from gauge depth to a depth of 750 feet subsea.

Q. Based upon your study and the information you have reviewed, as I understand it, it's your opinion that in late 1989 when the Badland Hills Well was pressure tested, there was between an 800- and 900-pound pressure difference between the Schmitz Anticline wells and the Mobil well; is that correct?

A. That is correct. That would indicate that the Mobil Badland Hills 15-1 is not in communication with the wells that have been termed Schmitz Anticline wells.

Q. Let's move on to some further study that you did, and I'd ask you to refer to Exhibit No. 6 to this proceeding and describe the information reflected on that exhibit, please.

A. Exhibit No. 6 is a well list of those wells that were included in what I term the "Schmitz

Anticline area," and it is the list of wells for which I had production information.

Q. All right, sir. Let's look at what we've marked as Exhibit No. 7, and you mentioned that you had production information from the five wells shown on Exhibit No. 6. How was that information utilized in Exhibit 7?

A. Exhibit No. 7 is a plot of the total production from those wells. It is a plot of oil production in barrels per calendar day. Water rate and gas flow ratio is also included. The oil production is the solid diamond symbol and is a curve in the top cycle of the graph.

I have shown on here a dashed line as an extrapolation of expected future performance from this group of wells, and that is annotated with a value of 32 percent. The line drawn in is approximately 32 percent per year effective decline.

Q. Based upon the analysis of production from those Schmitz Anticline wells and the decline which you have extrapolated, have you made an estimate of the expected ultimate recovery from the Schmitz Anticline well?

A. Yes, I have. With the cumulative production and expected decline, the estimated

ultimate recovery for the five wells is 558,000 barrels of oil.

Q. That is up to the point of --

A. The economic limit.

Q. How have you utilized that 558,000-barrel number, please. I'm referring to Exhibit No. 8.

A. On Exhibit No. 8, I have estimated aerial extent or aerial drainage areas, if you like, for these five wells. I have used the 558,000-barrel estimated ultimate recovery, and I have used recovery factors from two fields in the area.

The recovery factors are on the second entry labeled, "Range of Estimated Ultimate Recoveries Per Acre," 199 to 161 barrels per acre.

Q. Based upon your study of various fractured Mancos reservoirs, do you believe that a range of 161 to 199 barrels per acre is a reasonable expectation of production from the fractured Mancos formation underlying the Badland Hills well?

A. Yes, I do. These numbers were from the two fields nearest to the north.

Q. All right, sir, I apologize for interrupting. Please go to the next step in your analysis.

A. With the estimated ultimate recovery and an

estimate of recovery per acre, I have estimated the aerial extent that the five wells are draining. This ranges from 2,800 to 3,500 acres, and I have converted that to sections. And that ranges from approximately 4.4 to 5.4 sections for this group of wells.

Q. Based upon that analysis, do you have an opinion upon the appropriate spacing and drainage area of wells such as the Badland Hills 15-1?

A. Yes, I do. I have concluded that, from this information, 640 acres is a reasonable spacing unit for these wells and for the Badland Hills 15-1.

Q. At this time I would ask you to refer to what we've marked as Exhibit No. 9. I would ask you to describe for the examiner the information reflected.

A. I made some economic calculations for comparisons of 640-acre spacing versus 320-acre spacing. In order to do that, I needed projections of the oil production in time.

There are two curves shown on this figure. The one that's annotated 32 percent, that would be the expected production profile for a typical well based upon the information that we've just reviewed.

The second line, the solid line, that would be for a case of two wells on the section. As I

expect the well to drain approximately 640 acres, I would not anticipate that a second well would add any reserves.

A second well may increase initial production, temporarily. And so I have used an initial rate that's twice that of the single well case for the 320-acre spacing. However, that case would have a steeper decline. And I have calculated that decline at the same reserves to be 53 percent per year.

Q. How have you utilized those two calculations of decline rates in your analysis?

A. I used these two decline rates, the initial rates, with typical economic parameters to estimate the recovery for a 640-acre case and 32-acre case.

Q. Let's look, please, at Exhibit No. 10. I would ask you if that exhibit reflects the result of the analysis you've just described?

A. Yes, it does.

Q. What information is reflected on the first page of Exhibit 10, please.

A. That is a plot of discounted cash flow in thousands of dollars with discount factor in percent.

I have shown the results for the 640-acre economic case as a solid line. That's the line at the

top of the stippled band.

I have shown the results for the 320-acre case with a dashed line, which is at the base of that stippled band.

The stippled band represents the economic loss from drilling the second well on the section.

Q. Is it your opinion that based upon the production history of wells in the fractured Mancos reservoir that the drilling of a second well to accomplish 320-acre spacing would cause the drilling of unnecessary wells and therefore cause waste?

A. Yes, sir, it is.

Q. I notice that attached behind the initial page of Exhibit 10 are two data pages. What's reflected on those sheets, please.

A. The two data pages are the economic calculations for the one-well and the two-well cases, or 640-acre and 320-acre cases.

Q. And those pages set forth the parameters utilized in your economic calculation; is that right?

A. That's correct, they do.

Q. Mr. Jones, I would ask you if you have reached a conclusion on the basis of your analysis of whether the Badland Hills 15-1 Well is in a petroleum reservoir separate from other producing reservoirs in

the area?

A. It is my opinion that the Badland Hills 15-1 is separate from other wells in the area.

Q. And based upon your study, have you reached a conclusion of the appropriate spacing for wells at least for the Badland Hills Well?

A. I have concluded that 640-acres would be appropriate for this well.

Q. You have stated your conclusion that spacing with greater density such as 320-acre spacing would cause the drilling of unnecessary wells; is that correct?

A. That is correct.

Q. Do you have anything further to highlight for the examiner at this time?

A. No, I do not.

MR. PEARCE: I have nothing further of this witness, Mr. Examiner.

I would ask the admission of Mobil Exhibits 3 through 10, and I would pass the witness for questioning.

HEARING EXAMINER: Exhibits 3 through 10 will be admitted as evidence.

Questions of this witness? Mr. Kellahin?

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Jones, perhaps by way of reference, we might use the plat that was attached to the information that identified the various participants.

A. Okay. I have it.

Q. My client is Mr. McHugh. His operations in this area include the Nassau Resources Laguna Colorado No. 2 Well?

A. Yes, sir.

Q. Which is in Section 2. When I look at the area outlined in pink on this page 5 of Exhibit No. 1, we have the Mobil 15-1 well in Section 15 that's in the fractured Mancos. In Section 2, we have the Nassau Resources Laguna Colorado No. 2 Well in the fractured Mancos.

Are there any other wells currently completed in this interval within the area identified by the pink outline?

A. There is an Amoco well in Section 3, Badland Flats Federal No. 1. It's located in the northwest quarter of Section 3.

Q. When I look at your Exhibit No. 6, the Laguna Colorado and then the Amoco Badlands Flats Federal No. 1 and three other wells were included in your analysis of production plots for the Schmitz

Anticline area?

A. That's correct.

Q. Exhibit No. 5 was a pressure plot versus time on the Schmitz Anticline wells, but I don't find the wells plotted to include the Laguna Colorado No. 2 Well.

A. That's correct.

Q. Did I miss something?

A. No. The Laguna Colorado 2-6 is not included. As I recall, the pressures for the Laguna Colorado were less than some of the other wells in this general area.

The recorded pressures I believe were on the order of 1,000 pounds or less, and at least two of the pressures that were reported for the Laguna Colorado well would be off the scale of this plot. They would show an even larger separation with the Mobil Badland Hills 15-1, a larger pressure separation.

Q. In making your study, did you review the case file and the commission order in Case 9451, which was Order R-6469-G, by which the Division extended the West Puerto Chiquito-Mancos Pool and picked up the McHugh acreage in Section 2?

A. I'm familiar with it.

Q. Did you look at the technical presentation and the testimony in that case?

A. I had reviewed that before, yes.

Q. What's your recommendation about where to put Section 2? Do we leave it in the pool to the north, which is the West Puerto-Chiquito Mancos Pool, or are we going to put that well in the Mobil proposed pool today?

MR. PEARCE: For clarification, the pink outline on the exhibit dealt only with the notice question. The pool being proposed is the yellow outline, a Section 15 pool only.

MR. KELLAHIN: I'm sorry. I've been confused by all the pretty colors. Okay.

Q. The advertisement talks about creating then Section 15 as its own pool, and that's what we're talking about here?

MR. PEARCE: Yes.

THE WITNESS: Yes.

Q. (BY MR. KELLAHIN) In the alternative, it talks about extending the West Puerto-Chiquito Mancos Pool to include Sections 3, 10, and 15. That's not something you want to do?

MR. PEARCE: That alternative has now been dropped based on the well test data that's been

presented, yes.

Q. (BY MR. KELLAHIN) Based upon your analysis, Mr. Jones, can you determine whether you see pressure information that makes the McHugh Laguna Colorado No. 2 more typical of wells that ought to be included within the area that you propose for the pool to be created for Section 15?

A. I did not study the Laguna Colorado well in Section 2 specifically to see -- specifically for that well. Based upon the pressure information, the well in Section 2 is in the reservoir that is separate from the well in Section 15 and should not be included with the well in Section 15.

Q. When we look at the Amoco well in Section 3, was it?

A. Yes.

Q. That Badlands Flats Federal No. 1 in Section 3, my understanding of the existing West Puerto-Chiquito Mancos Pool is that Section 3 would be included in that pool. Do you know?

A. I do not know specifically. I should defer that to Perry.

MR. KELLAHIN: Let me withdraw the question and state it this way.

Q. When we look at the Amoco well in Section

3, is that part of the same reservoir with the McHugh well in 2, or is the Amocc well in 3 going to be part of the pool in Section 15, or can you tell?

A. The Amoco well is not part of the pool for Section 15. That I can tell.

Q. Have you studied sufficiently the engineering information to draw any conclusions about whether the Amoco well in 3 ought to be part of the Section 2 Nassau Colorado Laguna Well?

A. I have not studied that. That was not a requirement for this analysis.

Q. I understand. I'm just trying to see where we're going to go with your pool. One of the difficulties when we have two pools, even though they're on the same spacing, is at some point there may be a need to draw a distinction.

A. I understand.

Q. I'm trying to decide how we set this up.

Your comparison of the Schmitz Anticline area includes what geographic area on page 5 so that I understand how you have separated out the 15-1 well from the Schmitz Anticline area?

A. The Schmitz Anticline area, as I said, was a term of convenience. I included the well information, the wells -- I had Amoco's well in 25,

26; the Nassau Resources well in 35. We have the Laguna Colorado well in Section 2, and the Amoco well in Section 3.

I picked these wells because they were close producers to the well in Section 15. In fact, the wells in Section 2 and Section 3 are, as far as I know, the closest Mancos producers to the new well in Section 15.

Q. Based upon a comparison of pressure information from four of those Schmitz area wells with the pressure from the 15-1 well, do you see a differential of about 900 pounds?

A. That's correct.

Q. Adjusted to the same database and the same point in time?

A. Yes, approximately 800 to 900 pounds.

Q. Is there any other data that supports your conclusion about the separation of Section 15 from those Schmitz Anticline area wells?

A. Any other engineering information?

Q. Sure. The pressure is obviously an important differential. Did you look and find any other distinctions?

A. Not outside of the pressure. The initial pressure does, however, match with the regional

initial pressures for fields and would be the pressure that we would expect for this area as an initial pressure and one for a field or area that was not yet drained.

Q. Have you satisfied yourself that there has been a sufficient long enough period of time for production out of the Schmitz Anticline that if the Schmitz Anticline was communicating with Section 15, you would have seen pressure depletion in your section?

A. I have.

Q. How long a period of time was that?

A. The communication between, for example, Amoco State CC No. 1 in Section 26 and the Wishing Well 35-7 in Section 35, without reviewing notes, I will say that is on the order of one day or less. So if the well -- if this area was in pressure communication, we would have observed a pressure similar to those for the Schmitz Anticline well area.

Q. When you look at the Schmitz Anticline area in terms of pressure analysis, can you conclude as a reservoir engineer that those wells are in fact in the same common source of supply?

A. I don't think there's any question about the State CC No. 1 and the Wishing Well. I have not

evaluated the other wells to accurately determine the degree of communication.

Q. Let's see if I understand your ultimate conclusion that the pressure in 15 that you've experienced in your 15-1 well is significantly different from the pressure that you see in the Amoco well in 3, and that there has been a sufficient enough period of time elapsed during which the Amoco well in 3 has been produced, that had there been communication between the two sections, you would have seen pressure depletion in 15?

A. That's correct.

Q. And absence that pressure depletion and showing 900 pounds pressure differential, you don't need to look any further, do you, to establish separation between Section 3 and 15?

A. No.

MR. KELLAHIN: Thank you. Nothing else.

HEARING EXAMINER: Any other questions of this witness?

CROSS-EXAMINATION

BY HEARING EXAMINER:

Q. Mr. Jones, besides the engineering evidence, do you have geologic evidence which might show separation?

MR. PEARCE: If I may, Mr. Examiner, my next witness is a geologist.

Q. (BY HEARING EXAMINER) Mr. Jones, where are the other Mancos pools in relation to Section 15?

A. If we refer back to page 5 of 5, Exhibit No. 1, the green line would be the southern boundary of the West Puerto Chiquito-Mancos Pool.

There is a small, one-well pool in Section 36. That would be Range 1 East, Township 24 North, I believe, called the Regina Gallup? Is that the correct pronunciation?

MR. PEARCE: Yes.

THE WITNESS: Then there's the Gavilan Mancos Pool which would be to the north and the west of this area.

Q. (BY HEARING EXAMINER) Are the West Puerto Chiquito and the Gavilan Mancos -- those are spaced on 640; is that correct?

A. Yes.

Q. Mr. Jones, the application requests a special depth bracket allowable. Can you elaborate on that?

Do you have another witness, Mr. Pearce.

MR. PEARCE: Another witness will address that.

Q. (BY HEARING EXAMINER) Mr. Jones, if you indeed did have communication from the well in Section 15 with the other wells in Section 2, what kind of pressure might you expect at this point in that well?

A. I would expect a pressure that would be very similar to the pressure observed for these other wells.

Q. It would have drawn down that much?

A. Yes, sir.

Q. Being as far away as it was?

A. Yes. We have observed in the Gavilan field, where it's generally accepted, that within the confines of the Gavilan field, the wells are in pressure communication. And as new wells were brought on, they were, say, within a range of about 100 pounds to other wells in the area. And so I would expect similar pressure measurements or pressure observations if this well was in communication with the area to the north.

HEARING EXAMINER: I have no further questions of the witness. He may be excused.

LARRY CRUNCLETON,

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

DIRECT EXAMINATION

BY MR. PEARCE:

Q. At this time, Mr. Examiner, I would like to call my next witness, and I would ask him for the record to please state his name and place of residence.

A. My name is Larry Cruncleton, and I reside in Bailey, Colorado.

Q. Mr. Cruncleton, would you please spell your last name for the examiner.

A. Last name is C-r-u-n-c-l-e-t-o-n.

Q. Mr. Cruncleton, by whom are you employed?

A. I'm employed by Mobil Exploration and Producing U.S. in the Denver Division.

Q. In what capacity are you employed?

A. I am a staff geophysicist in charge of the of the Rocky Mountain District.

Q. Mr. Cruncleton, have you appeared before the examiner or one of the examiners and had your credentials made a matter of record before?

A. No, I haven't.

Q. At this time would you briefly summarize your educational background and work experience, please.

A. Yes. I graduated from the University of Texas at El Paso with a Bachelor of Science Degree in

Geophysics. That was in December of 1980. Upon graduation, I started with Mobil at the beginning of 1981. I've since worked with them in exploration and production throughout that time.

Q. Has the majority of that time or perhaps all of that time been in the Denver office?

A. With the exception of the first year, which was a training program, which they have in the Dallas program; upon completion of that, I moved to the Denver Division.

MR. PEARCE: At this time, Mr. Examiner, I would ask that Mr. Cruncleton's qualifications be accepted and made a matter of record, and that he be qualified as an expert in the field of petroleum geology.

HEARING EXAMINER: He is so qualified.

Q. (BY MR. PEARCE) Mr. Cruncleton, as part of your work responsibilities, were you asked to do a geological study of the area surrounding the Badlands Hill 15-1 Well?

A. Yes, I was. I was originally assigned to look at the wells in the area and to integrate the well data with seismic, which we have recently acquired within the area.

Q. Let me interrupt for just a second. Based

on the review of the well data which was available and the geophysical data which has been developed, have you prepared a structure map of the Gallup?

A. Yes, I have.

Q. Is that reflected as Mobil Exhibit No. 11 to this proceeding?

A. Yes, it is.

Q. I'd ask you to look at that exhibit, please, and point out the items which you would like to highlight for the examiner.

A. Okay. This is a structure map constructed on the top of the Gallup zone. The map is a scale of 1 to 4,000. The contour interval is 50 feet. The broad, dashed line on that map is the boundary of the West Puerto Chiquito Pool.

The dashed lines with the X's through them, that represents where our seismic control is that we have acquired in this area.

In the southwest corner, I have highlighted the Badland Hills No. 15-1 Well. It has a box around it.

Q. I notice there are also a couple of solid lines on the exhibit, some of which have graphical symbols on one side or the other. What do those lines represent?

A. Right. Those represent faults which have been distinguished, using our seismic. As you notice, several of the faults represent several different styles of faulting and in several different directions.

Q. Very briefly, summarize what you mean by different styles of faulting and how they're represented, please.

A. Essentially, what that represents is relative motion of throws across these faults and type of faultings, whether it be normal faulting, listrick faults.

In addition to that, I've marked on here in red a line of cross-section connecting four wells, including the Badland Hills and two wells within the Schmitz Anticline area and another well to the north.

Q. Let's turn now to what we've marked as Exhibit No. 12. While you're discussing that cross-section, could you describe that for the examiner, please.

A. Exhibit 12 is a structural cross-section. What I've used in this cross-section is the dual induction logs for the wells listed along that line. This cross-section was hung on a structural datum of 500 feet.

And what this cross-section essentially shows, it represents the structural relationship of these wells with each other. And I've drawn in here the faults which we have delineated on seismic.

I've shown across this section the relative throws which we see, vertical throws that we see along this section here, delineating some of the separation of these wells with each other of the faults.

Q. You have reviewed the well data which has been available; is that correct?

A. Yes, sir.

Q. And the seismic data that you have described; is that correct?

A. Yes, sir.

Q. Have you formed a broad opinion on the geology and structure of the Gallup formation in this area?

A. Yes, I have.

Q. What is that opinion, please.

A. One of the first things that struck me in doing this study was the complexity. Using the seismic, it was obvious that the structure was much more complex than what could be derived just using well control within the area.

Mainly, in addition to that, the seismic is

used to delineate these faults which we see, which we probably would not be able to put in solely using just well control.

Q. You have defined this as a highly complex area. When a previous witness was on the stand, there was some questioning about whether or not there was geologic evidence of separation.

I would ask you to refer to what we've marked as Exhibit No. 11. Based upon the data that is available to us today, are you able to conclude that there is structural separation between the Badland Hills Well and the Schmitz Anticline Well which would account for the pressure differentials we've seen?

A. Strictly off of a structural point of view, it does not show any reason for separation between the two such as closed highs, but what is evident is the multidirections of these faults that we see in the area.

The faults in the Schmitz Anticline area, particularly the Wishing Well, appears to be associated with the fracture zone. In associating with the fault we see up there, in the Badland Hills, appears to have penetrated a different fault in its associated fracture zone down there.

Q. And looking at this exhibit, it appears

that just south of the Badland Hills wells and the vicinity of the well you just addressed to the north, and I've forgotten the name --

A. The Wishing Well.

Q. -- the Wishing Well, there doesn't appear to be seismic data between those two points?

A. No. We do not have the control to actually define whether we have more faults in that area or not.

Q. Based upon your study of the area and the data that is available to you, referring back to Exhibits 11 and 12, do you have other items of information which you believe might be helpful to the examiner in this matter?

A. No, I don't.

MR. PEARCE: Mr. Examiner, I have nothing further of this witness at this time.

I would move the admission of Mobil Exhibits 11 and 12 to this proceeding, and I would pass the witness.

HEARING EXAMINER: Exhibits 11 and 12 will be admitted as evidence.

Questions?

MR. KELLAHIN: Thank you, Mr. Examiner.

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Cruncleton, when I look at the seismic structure map on top of the Gallup, Exhibit No. 11, and I focus in on the extent of the reservoir in Section 15 from which the 15-1 well produces, what, in your opinion, is the likely geologic extent of that reservoir as we move to the east?

A. To the east?

Q. Yes, sir.

A. As we move to the east, it appears we would be moving out of the fracture zone associated with that fault, and production of the wells, I would assume, would fall off as we move to the east.

Q. Geologically then, when you examine that information, the eastern limits of the reservoir is going to be controlled by the top of the Gallup 8 outcrop, or is it going to be controlled by this -- I guess it's a fault line --

A. That is.

Q. -- through the east side of Section 15?

A. Yes. Production at most would go as far to that last fault that we see that I've listed on there that the contours -- they end up against that fault. We wouldn't assume any production on the other side of that fault.

Q. I don't have an east-west cross-section to look at; so I was trying to determine what your opinion was with regards to the likely eastern boundary of that reservoir.

When you look to the west, do you have any geologic information from which you can conclude what the likely western boundary is for the reservoir being produced by the 15-1 well?

A. No. We are not able to determine how far out the fracture system would extend.

Q. When I look at your cross-section, am I correct in understanding that the magnitude of fault displacement for the Mancos reservoir is not sufficient to totally separate the Mancos formation from the 15-1 well and, say, the Laguna Colorado No. 2 well?

A. That's correct. Across the faults there is not enough separation to separate the total interval of the Gallup there.

Q. Is there any reason that you didn't run your A-A' cross-section through the Amoco well in Section 3?

A. No. The reason I ran the cross-section between the Badland Hills up to the Laguna Colorado No. 6 is so I could represent on this cross-section

where that fault is in association with the Badland Hills.

Q. In placing the fault then, you have placed the Amoco well in Section 3 west of the fault?

A. The Amoco well? I have on my structural section -- I have represented the fault as dying out just at the bottom of Section 3.

Q. I'm sorry, yes, you have.

Have you examined the geologic relationship between the Amoco Badlands well in 3 versus the Nassau Resources Laguna Colorado Well in Section 2?

A. No, I haven't.

MR. KELLAHIN: Thank you. I have nothing further.

CROSS-EXAMINATION

BY HEARING EXAMINER:

Q. Mr. Cruncleton, is there any other geologic factor which might explain the separation of the two areas besides the faulting?

A. Not that I'm aware of.

Q. None that you've found?

A. Yes.

Q. Is this whole interval correlatable across the two areas?

A. Yes, it is. On the cross-section, what

we've depicted as our A, B, and C is relatively easy to correlate across the whole area.

Q. Do the fractures in the Mancos generally have a preferential direction?

A. Our belief in this area is that the fractures are oriented parallel to the faulting that we see in this area.

We did run a fracture log within the Badland Hills which does show the fractures do appear to be running in the direction that I had the fault depicted on the map.

Q. So, really, the two areas should be in communication, but they aren't? It all points that they should be in communication; is that correct?

A. Well, no. The wells up to the north really aren't associated with the fault that we see at the Badland Hills.

Q. Fractures go towards the wells in Sections 2 and 3?

A. In that direction, but we can't determine the extent of how far those fractures would run.

HEARING EXAMINER: That's all the questions we have at this time.

CRAIG EGGERMAN,

the witness herein, after having been first duly sworn

upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. PEARCE:

Q. May it please the examiner, I would ask the witness to please state his name and place of residence for the record.

A. Craig Eggerman, and I reside in Lakeland, Colorado.

Q. Mr. Eggerman, by whom are you employed?

A. Mobil Producing and Exploration U.S., Inc.

Q. What's your capacity with Mobil?

A. Mobil employs me as a senior regulatory engineering adviser.

Q. As part of your responsibilities, have you reviewed the application filed by Mobil in this case?

A. I have.

Q. I would ask you, sir, if you have appeared before the New Mexico Oil Conservation Division or its examiners previously and had your credentials made a matter of record?

A. I have not.

Q. Would you please, sir, for us at this time summarize your educational background and work experience.

A. I received a Bachelor of Science Degree

from South Dakota School of Mines and Technology in 1973. I was subsequently employed by Shell Oil Company for two-and-a-half years, two years, approximately.

I worked as an on-site engineer, worked in the capacity of well log evaluations, cementing and casing operations, drill stem test testing, and other related drilling activities. I served in the capacity as a completion supervisor and operations engineer.

In 1975, I was employed by Mobil Oil Corporation and subsequently worked in positions as an operations engineer, a drilling engineer, a drilling engineering supervisor. And in 1984, I was employed as a regulatory engineer.

My areas of responsibilities are all of the Rocky Mountain states, Nevada, and California.

MR. PEARCE: At this time, Mr. Examiner, I would ask that the witness be qualified as an expert in the field of petroleum engineering and regulatory management?

HEARING EXAMINER: He is so qualified.

Q. (BY MR. PEARCE) Mr. Eggerman, at this time, I would ask you as part of your responsibilities with Mobil, if you have followed certain committee meetings relating to proposed basinwide rules for

fractured Mancos reservoirs in northwestern New Mexico?

A. I have. We have one individual that was designated to serve on that particular subcommittee.

Q. And he reported regularly to you about those proceedings; is that correct?

A. That is correct.

Q. How come he's not here?

A. Because Mr. Paul Haber, who was that individual, now resides in Saudi Arabia, working for Aramco at the present time.

Q. Thank you, sir. I ask you, please, to refer to what we've marked as Exhibit 13 to this proceeding, and I'd ask you to describe what those are for the examiner.

A. What we have attempted to do here is to prepare some special rules for the Badland Hills-Gallup Oil Pool. And this particular set of special rules is drafted along the lines of, from what I understand, would be the general committee recommendations for the proposed basinwide Mancos Pool rules that they would have established in this area.

We've also examined the West Puerto Chiquito-Mancos Pool rules and the Gavilan-Mancos Pool rules and tried to incorporate some of the good things

that are in both of those.

Q. Let's run through these proposed rules very briefly, and I want to highlight a couple of items for the record, if I may.

First of all, I'd ask you to look at Rule No. 2. What does that proposed rule provide?

A. Rule No. 2 provides for 640-acre spacing.

Q. Based upon the evidence presented and the materials that you have reviewed, do you believe that 640-acre spacing would be the appropriate spacing?

A. I do.

Q. Let's look, please, at Rule No. 4 on the second page of this draft and highlight for the examiner the location rules set forth.

A. Rule No. 4 calls for a regular location to be basically in the center of the section but no nearer than 990 feet to the outer boundary of the section of the proration unit, nor closer than 10 feet to the interior quarter-quarter section lines in that pool.

The ten-foot rule is in there so that we don't have problems with computer records as far as the location of wells.

Q. And it's your understanding that the 990-foot location requirement was being discussed by

the committee; is that correct?

A. That's my understanding, yes.

Q. If the committee's recommendation ultimately is a location requirement other than 990 feet and is more restrictive, would you ask that the location for the Badland Hills 15-1 Well be grandfathered to avoid the necessity of further proceedings to approve the location?

A. We would.

Q. Let's look, please, at Rule No. 6 on the third page. The examiner, I believe, earlier in the day asked about a special pool rule with an allowable. Does this rule address that?

A. Rule No. 6 makes an effort to assign an allowable to this particular pool. We chose 800 barrels of oil per day and 2,000 GOR limitation for that particular pool.

It's my recollection that that matches the allowable for the Gavilan-Mancos Pool, but it is slightly less than what is provided for in the West Puerto Chiquito-Mancos Pool.

There is no standard depth bracket allowable, at least according to Rule 505, for wells at this depth for 640-acre spacing.

It's my understanding that 160-acre spacing

at this depth would be 347 barrels of oil per day, and you could take that times four, and you would have a value of something like 1,340 barrels of oil a day, which this is less than that amount.

Q. Let's look at proposed Rule No. 7, please, which addresses the vertical limits. And could you describe the proposed vertical limits of the Badland Hills-Gallup Pool?

A. Rule No. 7 was developed by examining the other pool rules in this general area. I believe it was the subject of discussion in some of the committee meetings and the geologists that are employed by Mobil were advised that this probably was one of the best ways to describe the particular section that we would have in this pool.

Q. And that is the Gallup member of the Mancos?

A. Correct.

Q. Let's look at proposed Rule No. 8. What does that proposed rule provide?

A. Rule No. 8 provides for the drilling of a second well in this particular -- in any particular proration unit, as long as it's not located in the same quarter section as the original well.

Q. What was the allowable for the section if a

second well is drilled?

A. These two wells would share the allowable that would be established for that particular proration unit.

Q. At this time, Mr. Eggerman, do you have anything further to highlight for the examiner?

A. I do not.

MR. PEARCE: Mr. Examiner, at this time I would move the admission of Mobil Exhibit No. 13 to this proceeding, and I would pass the witness for further questioning.

HEARING EXAMINER: Exhibit No. 13 will be admitted as evidence.

Questions? Mr. Kellahin?

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Eggerman, again on Rule No. 8, what's the basis for the recommendation of a second well on the 640 spacing unit when the engineering proof is that one well is sufficient?

A. This would allow the operator the opportunity to drill a second well if they in fact were not able to encounter the fracturing in that particular location from the first well.

In other words, if you ended up with a well

that only made 20 barrels a day, this would provide you with an opportunity to drill a second well.

Q. What does the Section 15-1 well produce now on a daily basis? What's the general range of production?

A. I'm going to try to recall, and this is subject to check, but I believe that we filed yesterday a completion report that indicated that the well is capable -- it currently was testing somewhere around 80 to 100 barrels of oil a day. It still was making some water back, and we're hopeful that that will drop off and that the oil rate will increase.

Q. Refresh my memory; do the West Puerto Chiquito rules provide for a second well in the 640?

A. I am going to have to defer on that. I don't have all of those orders present, and I would have to examine those to see whether they allow for a second well in there.

MR. KELLAHIN: Thank you. No further questions.

CROSS-EXAMINATION

BY HEARING EXAMINER:

Q. Mr. Eggerman, are there any significant differences between these pool rules and the West Puerto Chiquito rules? Are the well locations the

same, the requirements?

A. I believe that the allowable in West Puerto Chiquito-Mancos is higher than this. It's my understanding it's 1,340. Set-back requirements for West Puerto Chiquito, I am not quite sure what that is at the present time. I would have to examine those orders.

MR. STOVALL: Mr. Examiner, just speaking for the Division, to get it into the record -- this, again, would be subject to check, but it's my understanding that the rules in that pool are for 1,320 feet from the outer boundaries, but I'm not sure if that's across the pool or if that's on the border proration units.

I believe it's 1,320, but if none of counsel has any objection, I believe we can review those orders and take administrative notice of them as necessary.

MR. PEARCE: I think that's appropriate.

Q. (BY HEARING EXAMINER) Mr. Eggerman, is it your understanding that the 990 feet was a committee recommendation?

A. That's correct.

Q. Also the 10 feet interior setback. Do you know if there's topographical problems out there in

this area?

A. There certainly are in some parts. Are you referring to the area in general, not specifically to Section 15?

Q. Well, yes, to Section 15.

A. Section 15 has a state highway that intersects it on a diagonal. I guess you would call that a topographical consideration. I have had some discussions with members of the Commission, and it's my understanding that that's kind of a broad definition. When they say "topographical," that also means archeological considerations, as well as structural. And the road -- I'm not sure just exactly what you would call that, but it, I think, fits that general description.

MR. STOVALL: Mr. Examiner, let me ask just a couple of questions to clarify the record.

CROSS-EXAMINATION

BY MR. STOVALL:

Q. You have referred to committee recommendations. Would you identify what committee you were talking about?

A. The committee, and pardon me if I don't get the name correctly, but there was a committee formed to study basinwide Mancos Pool rules to establish

proper spacing for the Mancos formation in the northwest, or generally in the northwestern part of New Mexico, in the San Juan Basin.

Q. Specifically looking at the fractured Mancos structure; is that correct?

A. That's correct.

Q. To the best of your knowledge, has there been any official action taken on those rules? Has there been a hearing on those or anything that you know of?

A. There has not been.

Q. Did you participate, or have you participated, or has your company participate in that committee work?

A. Our company has participated in that work.

Q. And you are then familiar with that through your company's participation? You've had the opportunity to review it so that you have some personal knowledge that your proposals here are consistent with those?

A. I have.

HEARING EXAMINER: That's all the questions I have of the witness.

Mr. Pearce, is it your request that these pools be permanent pools?

MR. PEARCE: Mr. Examiner, I discussed this matter with my client. I don't think we feel strongly. Certainly, if the Division prefers to have a two-year limited effectiveness of these rules, we certainly don't object to that. Whether or not the pool will grow, I do not know at this time.

We are confident that, if it remains a one-well pool, that there is not any particular jeopardy in making the rules permanent at this time, but I suppose we don't know whether or not that will occur.

MR. STOVALL: Mr. Examiner, in response to that along that line, I would like to recall the geological witness to just ask him a couple of questions, if you don't mind.

MR. PEARCE: That's fine.

MR. STOVALL: And, I'm sorry, I forget his name, but if you could --

MR. PEARCE: Cruncleton.

MR. STOVALL: I'll remind you just for the record that you are still under oath.

LARRY CRUNCLETON,

the witness herein, after having been previously called as a witness, examination and testimony continued as follows:

FURTHER EXAMINATION

BY MR. STOVALL:

Q. I believe you testified that the Mobil well in Section 15 is not in fracture communication with wells in Section 2 and 3 or any of the other West Puerto Chiquito-Mancos wells; is that correct?

A. I would say we cannot tell from geological or geophysical evidence whether it's in communication or not.

Q. Are you fairly familiar with the fractured Mancos formation out there? And I'm not a geologist, so pardon me if my terminology is off, but with the nature of the fractured structure out in that area?

A. In this particular area, yes.

Q. Is there a reasonable possibility that if, for example, a second well were drilled in Section 15, say in the east half somewhere, that it might possibly tap into a fracture network that extended two or three sections to the north?

A. That's possible.

Q. And, similarly, could a well perhaps be drilled in Section 10 which could create a fracture communication either to the north or to the south or both?

A. That's possible too.

Q. If that were so, would that, in your opinion, indicate that perhaps there was a common reservoir in the sense that there was fracture communication along there? You just happened to not hit it with the 15 well?

A. Could you restate that question again?

Q. I'll try. I'll restate it by prefacing with a comment that perhaps due to the nature of the fractures in that area, it is possible that there is in fact fracture communication from, say, Sections 2 and 3 or even further north into the West Puerto Chiquito-Mancos to the south, and that the Mobil well has not hit that fracture system, and, therefore, that particular well doesn't show any signs of being in communication, but in fact the proration unit might be?

A. That's possible.

Q. Do you anticipate additional exploration in that area?

A. At this time, yes.

Q. If additional exploration indicated that there was a fracture system extending and bringing the West Puerto Chiquito-Mancos area, or what you're calling the Schmitz Anticline area into communication with, say, with Section 15, would Mobil reconsider its

thinking as to whether it should be a separate pool or whether it should become part of the West Puerto Chiquito-Mancos Pool?

A. I don't know if I can answer that question at this time.

Q. The reason I'm asking that question is I'm thinking in terms of whether the rules should be permanent or temporary. And speaking for myself and just off the top, it would appear that perhaps temporary rules might give us the time to make that determination. Would you agree?

A. Yes.

MR. STOVALL: I have no further questions.

MR. PEARCE: I would like to revisit the subject with the witness, if I may, Mr. Examiner.

HEARING EXAMINER: Yes, sir.

FURTHER EXAMINATION

BY MR. PEARCE:

Q. Mr. Cruncleton, we've had some questioning about fracture communication between the 15-1 well and wells to the north. Do you find geological evidence that those wells are in communication?

A. We have no direct geological or geophysical evidence that it is in communication with that.

MR. PEARCE: I think that's all. Thank

you.

HEARING EXAMINER: Mr. Pearce, can I get Ray Jones back on the stand for a couple of minutes?

MR. PEARCE: Certainly.

RAY JONES,

the witness herein, after having been previously called as a witness, examination and testimony continued as follows:

FURTHER EXAMINATION

BY HEARING EXAMINER:

Q. Mr. Jones, your assumption that the Badlands well will drain 640 acres is solely based at this time on an analogy to the wells to the north; is that correct?

A. That is correct.

Q. We have no evidence at this point on actually what that well will drain? We don't have any production data or other evidence?

A. That is correct. We have analogy from wells to the north and from evaluations of the fields to the north. And the information of the Schmitz Anticline is consistent with other information in the area that we have.

Q. Do you feel that the reservoir properties are that similar between the two areas that you can

make that analogy?

A. Yes, within the local variations of the Mancos, I do.

HEARING EXAMINER: That's all I have.

MR. PEARCE: Nothing further.

HEARING EXAMINER: Mr. Emmons, I believe you want to make a statement?

MR. EMMONS: Amoco Production Company has reviewed the exhibits, the application, and testimony presented by Mobil, and specifically the engineering testimony. We think it clearly supports that a separate pool should be established. Therefore, Amoco recommends, agrees with, and supports Mobil's application.

HEARING EXAMINER: Is there anything further in this case?

Case 9789 will be taken under advisement.

CERTIFICATE OF REPORTER

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

I, Deborah O'Bine, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I caused my notes to be transcribed under my personal supervision; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL November 25, 1989.

Deborah O'Bine

DEBORAH O'BINE
CSR No. 127

My commission expires: August 10, 1990

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9781, heard by me on November 15 1989.

David R. Catanach, Examiner
Oil Conservation Division

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

EXAMINER HEARING

IN THE MATTER OF:

Application of Mobil Producing Texas and New Mexico, Inc., for pool creation and special pool rules, or in the alternative for pool expansion, Rio Arriba County, New Mexico. Case 9789

TRANSCRIPT OF PROCEEDINGS

BEFORE: MICHAEL E. STOGNER, EXAMINER

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

October 18, 1989

ORIGINAL

HEARING EXAMINER: Next I'll call Case No. 9789, which is the application of Mobil Producing Texas and New Mexico, Inc., for pool creation and special pool rules, or in the alternative for pool expansion. This is in Rio Arriba County, New Mexico.

At the Applicant's request, this case will be continued to the examiner's hearing scheduled for November 1, 1989.

CERTIFICATE OF REPORTER

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

I, Deborah O'Bine, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I caused my notes to be transcribed under my personal supervision; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL November 13, 1989.

Deborah O'Bine

DEBORAH O'BINE
CSR No. 127

My commission expires: August 10, 1990

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9789, heard by me on 18 October 1989.

, Examiner
Oil Conservation Division

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

EXAMINER HEARING

IN THE MATTER OF:

Application of Mobile Producing Texas and New Mexico, Inc., for pool creation and special pool rules, or in the alternative, for pool extension, Rio Arriba County, New Mexico. Case 9789

TRANSCRIPT OF PROCEEDINGS

BEFORE: VICTOR T. LYON, EXAMINER

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

November 1, 1989

CUMBRE COURT REPORTING
(505) 984-2244

ORIGINAL

HEARING EXAMINER: Next called case, 9789.

MR. STOVALL: Application of Mobile Producing Texas and New Mexico, Inc., for pool creation and special pool rules, or in the alternative, for pool extension, Rio Arriba County, New Mexico.

Applicant requests this case be continued to November 15, 1989.

HEARING EXAMINER: Case 9789 is hereby continued to the Examiner Hearing to be held November 15, 1989.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9789, heard by me on November 1989.

, Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

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

I, Diana Abeyta, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I caused my notes to be transcribed under my personal supervision; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL January 3, 1990.

DIANA ABEYTA
CSR No. 267

My commission expires: May 7, 1993