NEW MEXICO OIL CONSERVATION COMMISSION

STATE LAND OFFICE BUILDING

STATE OF NEW MEXICO

CASE NOS. 10446, 10447, 10448, 10449

Consolidated

IN THE MATTER OF:

The Application of Yates Petroleum Corporation for Authorization to Drill, Eddy County, New Mexico.

VOLUME VI

BEFORE:

CHAIRMAN WILLIAM LEMAY

COMMISSIONER GARY CARLSON

COMMISSIONER BILL WEISS

FLORENE DAVIDSON, Senior Staff Specialist

State Land Office Building

October 23, 1992

REPORTED BY:

CARLA RODRIGUEZ
Certified Court Reporter
for the State of New Mexico

ORIGINAL

A P P E A R A N C E S

FOR THE NEW MEXICO OIL CONSERVATION DIVISION:

RAND CARROLL, ESQ.
Natural Gas Programs
Room 206, State Land Office Building
Post Office Box 2088
Santa Fe, New Mexico 87504-2088

FOR YATES PETROLEUM CORPORATION:

LOSEE, CARSON, HAAS & CARROLL, P.A.
300 American Home Building
Post Office Drawer 239
Artesia, New Mexico 88211-0239
BY: **ERNEST L. CARROLL, ESQ.**

FOR NEW MEXICO POTASH CORPORATION:

KEMP, SMITH, DUNCAN & HAMMOND, P.C.
Post Office Drawer 2800
El Paso, Texas 79999
BY: **CHARLES C. HIGH, JR., ESQ.**

KEMP, SMITH, DUNCAN & HAMMOND, P.C.
500 Marquette, N.W., Suite 1200
Post Office Box 1276
Albuquerque, New Mexico 87103-1276
BY: **CLINTON W. MARRS, ESQ.**

FOR POGO PRODUCING COMPANY, SANTA FE ENERGY OPERATING PARTNERS, L.P., and PHILLIPS PETROLEUM CORPORATION:

THE HINKLE LAW FIRM
217 Montezuma Street
Post Office Box 2068
Santa Fe, New Mexico 87504-2068
BY: **JAMES G. BRUCE, ESQ.**

FOR BASS ENTERPRISES PRODUCTION COMPANY:

KELLAHIN & KELLAHIN
Post Office Box 2265
Santa Fe, New Mexico 87504-2265
BY: **W. THOMAS KELLAHIN, ESQ.**

FOR KAISER-FRANCIS OIL COMPANY:

CAMPBELL, CARR, BERGE & SHERIDAN, P.C.
110 N. Guadalupe Street
Post Office Box 2208
Santa Fe, New Mexico 87504-2208
BY: **WILLIAM F. CARR, ESQ.**

* * * * * * *

I N D E X

E X H I B I T S

NEW MEXICO POTASH EXHIBITS (CONTINUED)	REFERENCE
Exhibit No. 8(a) and 8(b)	1453
Exhibit No. 8(c) & 8(d)	1482
Exhibit No. 9	1446
Exhibit No. 10(a) & 10(b)	1457
Exhibit No. 11	1484
Exhibit No. 25	1460
Exhibit No. 26	1468
Exhibit No. 28	1459
Exhibit No. 29	1482
Exhibit No. 30	1482
Exhibit No. 38	1453
Exhibit No. 41	1436
Exhibit No. 42(a) & 42(b)	1441

CHAIRMAN LEMAY: We'll look at our schedule at the break and we'll check on schedules when we reconvene. Okay. Day 3, Hearing 3. Day 6, actually. Mr. High?

MR. HIGH: Mr. Chairman, before we call our next witness, I would like to offer into evidence an additional exhibit. Yesterday, during the testimony of Dr. Mitchell, he was asked for information and pulled a document out of his briefcase to look at it in response to a question from Mr. Weiss. I would like to put that document into the record so we'll have it, and I'll offer it as New Mexico Potash Exhibit No. 41.

CHAIRMAN LEMAY: Exhibit 41 will be admitted into the record without objection.

MR. HIGH: We would call Mr. Bob Lane.

ROBERT H. LANE

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

EXAMINATION

BY MR. HIGH:

Q. Have you already been sworn, Mr. Lane?

A. Yes.

Q. Would you state your full name please,

sir.

A. Robert H. Lane.

Q. Where do you reside, Mr. Lane?

A. 500 Baja, Hobbs.

Q. Hobbs, New Mexico?

A. Right.

Q. Where are you employed?

A. New Mexico Potash.

Q. How long have you been employed there, Mr. Lane?

A. New Mexico Potash, since they purchased it in 85.

Q. Tell us, if you will, Mr. Lane, your educational background.

A. I have a bachelor of science in mining engineering from New Mexico Tech.

Q. What year?

A. 1950.

Q. After you obtained your mining engineer degree, where did you go to work?

A. I went to work for International Minerals and Chemical Corporation in January of 1950.

Q. At what location?

A. Carlsbad, New Mexico.

Q. What type of operation was that?

A. Potash mining, both langbeinite and sylvite.

Q. How long did you stay with IMC?

A. With IMC-Carlsbad, from 1950 to 1957 as junior engineer, geologist, mine surveyor, mine engineer.

Still with IMC but transferred to IMC-Canada, Ltd., in Esterhazy in 1957. Stayed there until 1960 as mine superintendent.

In 1960 to 63, transferred back to Carlsbad with IMC as chief engineer.

1963 to 1985, when New Mexico Potash purchased the Kerr-McGee mine, I was with Kerr-McGee as chief engineer, mine superintendent and superintendent of mine engineering.

Q. So you have been working in potash mines since 1950?

A. Yes, sir, on a continuous basis.

Q. That includes potash mines both in Southeastern New Mexico and in Canada?

A. Yes.

Q. As far as the New Mexico Potash facility is involved, you have worked continuously at that facility since 1963?

A. At that facility since 1963.

Q. During the time of the change in ownership, you were with the same facility?

A. With the same facility, yes.

Q. Tell us some of your duties and responsibilities that you had at the New Mexico Potash facility, Mr. Lane, from 1963 through 1965.

A. 1963 through construction of the underground--missile construction of the underground and surface facilities, we were working on mine plans, general design for both surface and underground.

After production started in 65, we had an engineering department which took care of the geology, rate control, mine surveying, lease maintenance for both minerals, water, right-of-ways, tailings, drilling of water wells. On the staff, working on budgets and long-range mining plans.

Q. Have you had occasion previously, Mr. Lane, to testify before the Oil Conservation Commission?

A. I have.

Q. Had your credentials accepted?

A. Yes.

MR. HIGH: Mr. Chairman, we would ask the Commission to accept the credentials of Mr. Lane as a mining engineer.

CHAIRMAN LEMAY: His credentials are accepted.

Q. Mr. Lane, were you involved in the designation by New Mexico Potash of its Life of Mine Reserve?

A. I was.

Q. Tell us, if you will, your involvement in the whole Life of Mine Reserve issue?

A. Well, the Life of Mine Reserves, the first one was put out in 1988. I developed that from those plans.

Q. Let me interrupt there and focus a little bit more. The Life of Mine Reserve concept is relatively new, isn't it?

A. Yes.

Q. Did you participate in the process that led up to the adoption by the OCC of the Life of Mine Reserve concept?

A. I was. I did.

Q. Those were the negotiations between the potash industry and the oil and gas industry?

A. That's correct.

Q. There have been some references to what's been called the Miner's Bible?

A. Yes.

Q. You understand that to be some comments that were prepared on behalf of the potash basin?

A. That's right.

MR. HIGH: Mr. Chairman, given the extensive references to this document, we would like to offer it for inclusion in the record as our Exhibit No. 42, the April 1992 document, I'll call it, prepared on behalf of the potash industry addressing this issue, and we would offer it as our Exhibit No. 42.

CHAIRMAN LEMAY: With no objection, Exhibit No. 42 will be admitted into the record.

[Discussion off the record.]

MR. HIGH: Mr. Chairman, just so we do have a complete record, the document I referred to a moment ago as Exhibit 42, we would like to refer to it and offer it as Exhibit 42(a), and then we would offer, as Exhibit 42(b), a prior bound volume that was prepared by the potash industry in 86?

MR. CARROLL: 86 or 87, when the

initial--we don't know if there's any difference and that's our problem, Mr. LeMay, between the two documents. I've never seen this bound document, and I've seen this one.

MR. HIGH: We'll put them both in the record and Mr. Carroll and I will exchange copies.

CHAIRMAN LEMAY: Let the record reflect we have two Exhibit 42s, (a) and (b).

Q. (BY MR. HIGH) Now, Mr. Lane, following the adoption of R-111-P that set out the Life of Mine Reserve concept, did you have any responsibilities on behalf of New Mexico Potash to make that designation?

A. Yes.

Q. And did you do so?

A. I did.

Q. Look at the book in front of you, if you will, at Exhibit No. 3.

COMMISSIONER WEISS: There are no Exhibit 3s in our book.

MR. CARROLL: Mine didn't have one, either.

Q. Look if you will, Mr. Lane, at Exhibit 3, and tell me if you can identify that, please?

A. This is a computer--

Q. I'm sorry, it's letter I just handed you.

A. I'm sorry. This is a letter of transmittal to the State of New Mexico Energy, Minerals and Natural Resources Department, dated March 20, 1989.

Q. Is that the letter when you filed the first LMR designation following the adoption of R-111-P?

A. It is.

Q. Look back at Exhibit 2. It's the large map. Look, if you will, Mr. Lane, at Exhibit No. 2, and tell me if you can identify that for us, please.

A. This is a computer map. It's the same as the LMR--the first LMR was submitted in 89.

Q. Does Exhibit 2 accurately reflect the LMR of New Mexico Potash when it was filed in 1989, and the one-quarter mile and the one-half mile buffer zones?

A. As submitted in 89, it only had the LMR on it. The quarter-mile, half-mile has been added to this map.

Q. When you submitted the LMR map to the

state and to the BLM, you didn't put the buffer zones on it?

A. No, I did not.

Q. But on Exhibit 2 you have added those to this document?

A. I also added our drill holes.

Q. Now, two of the proposed wells we're talking about, Graham 3 and 4, would be within the buffer zones of the initial LMR of New Mexico Potash?

A. They are.

Q. Look, if you will, at Exhibit 4(a) in the book. Hopefully, if you turn to Tab 4, you'll find two documents, 4(a) and 4(b)?

A. Yes.

Q. Can you identify those documents for us, please?

A. Exhibit 4(a) is a letter of transmittal dated January 14, 1992, State of New Mexico Energy, Minerals and Natural Resources Department. "Enclosed find two copies of plats showing our Life of Mine Reserves of New Mexico Potash, for the corporation, as per Section 2(a) of order 12-111-P."

Q. Is this an update of the LMR?

A. This was an update of the LMR as of January 7, 1992.

Q. What is Exhibit 4(b)?

A. Exhibit 4(b), dated January 14, 1992, to the Bureau of Land Management, Roswell District, in Roswell. Same transmittal as read before.

Q. I take it that the reference to Order 12-111-P is a typographical error and it should be order R-111-P?

A. Right. Correct.

Q. Between the time that you filed the initial designation of an LMR with the State and BLM and the date you sent Exhibits 4(a) and 4(b), were there any other modifications to the LMR?

A. No.

Q. So the first modification to New Mexico Potash's LMR would have been in January of 1992?

A. That is correct.

Q. Have there been any other modifications of the LMR since that time?

A. Not since that date.

Q. Do you know whether or not Order R-111-P authorizes changes in an LMR?

A. Yes.

Q. Look in front of you, if you will, at Exhibit No. 9, and go to page 11, please.

A. Exhibit 9?

Q. Yes. There should be a copy of Order R-111-P under Tab 9?

A. I don't have a copy of it.

Q. Let me let you use this one. Look on page 11, if you will, paragraph C.

A. All right.

Q. Take a minute and read that paragraph if you will, Mr. Lane.

A. Paragraph C: "A potash lessee may amend its designated LMR by filing a revised designation with the BLM and the State Land Office, accompanied by the information referred to in Section A above. Such amendments must be filed by January 31st next following the date the additional data became available."

Q. And did additional data become available prior to the time that you filed the revised designation with the State and BLM as shown in Exhibits 4(a) and 4(b)?

A. It did.

Q. And what new data did you have, Mr. Lane?

A. The new data was from a new core test which was drilled in December of 1991.

Q. All right. Explain to the Commissioners, if you will, how it came about that we drilled Core Hole No. 162 at that time?

A. A drilling program was planned in the fall of 91. A series of nine holes were planned. The drilling program wasn't finalized until about the first of November. Actual drilling was towards the end of November, the first of December.

In that time, Mr. Case requested an additional hole to be placed in Section 2. I located the hole and we put it into the drilling program.

Q. Had you previously been asked to approve wells in Section 2?

A. Yes.

Q. And this is before you drilled Core Hole 162?

A. That's right.

Q. Did you object to the wells that were sought in Section 2 prior to the drilling of Hole 162?

A. I did.

Q. Which holes were you objecting to? Are these the four along the east side?

A. The four holes along the east side. I objected to the original location as they wanted them, and they moved them back to a minimum location of 330 from the east line.

Q. When you say you objected to the wells being moved back, we're talking about the wells that were, in fact, drilled along the east side of Section 2?

A. Correct.

Q. Do you recall who drilled those wells?

A. Yates Petroleum and Pogo Producing.

Q. The two northern wells were Yates and the two southern wells were Pogo? Is that the way you recall it?

A. I think so.

[At this time, Mr. Rand Carroll is present.]

Q. Why did you ask Yates and Pogo to move those wells back closer to the east section line?

A. There was langbeinite indicated by an AEC hole to the south, with a trend coming to the northeast, and that would be the minimum loss if there was langbeinite in that section.

Q. And when you objected to the original location of these four existing wells and asked them to move them back, how far did they move them back?

A. 330 feet to the east.

Q. But they were still within Section 2?

A. Yes.

Q. How close, do you recall, Mr. Lane, did that put those four wells along the east side of Section 2? How close were they to the existing other wells?

A. Generally, it would be 990 feet.

Q. Why did you even allow those four wells along the east side, Mr. Lane?

A. I didn't have Section 2 in our present LMR, and at the time we did this I had no plans for drilling a well in that section.

Q. At the time the original was approved?

A. At the time it was approved, yes.

Q. And after you drilled Core Hole 162, what did you find?

A. We found good mineralization in the 10th ore zone and also in the 4th ore zone, the 10th ore zone being sylvite, the 4th ore zone being langbeinite.

Q. Before you drilled Core Hole 162, you felt like there was mineralization in Section 2 already, didn't you?

A. Yes.

Q. What type mineralization?

A. The 4th ore zone langbeinite.

Q. And New Mexico Potash, of course, doesn't process langbeinite?

A. No.

Q. After you drilled Core Hole 162, you also found there was some sylvite in Section 2?

A. Yes.

Q. Was it of a grade that New Mexico Potash was capable of mining?

A. Yes.

Q. Look, if you will, Mr. Lane, to Exhibit No. 6 in front of you there.

A. All right.

Q. Can you identify that document for us?

A. Exhibit 6 is a copy of our abandonment of the Core Test Well No. 162.

Q. Does that have attached to it the Core Hole Analysis of 162?

A. It does.

Q. Does it reflect the level of

mineralization of sylvite?

A. Yes.

Q. Is the amount reflected there of sufficient grade and thickness that New Mexico Potash can mine it?

A. It is.

Q. There's been some testimony, Mr. Lane, that you may have heard about the speed at which Core Hole 162 was drilled. Tell us, if you will, how many core holes, during the time you've been at New Mexico Potash, you've been involved in having drilled, just roughly?

A. 70.

Q. And of those, how long does it generally take to drill a core hole?

A. Two days or less, without any troubles or breakdowns of the rig and equipment.

Q. Is there anything unusual in your mind about Core Hole 162 being drilled in what someone said was 48 hours?

A. No.

Q. Now, after you got the results of Core Hole 162, what, if anything, did you do with respect to your existing LMR?

A. Revised it and put it in in January.

Q. Were there any other core hole data or data from core holes that you relied upon to revise the LMR?

A. There is.

Q. Look at Exhibit 7(a) in front of you there, if you will, please, sir.

A. All right.

Q. What is that document?

A. Exhibit 7(a) is a summary sheet for Core Test F-52 drilled by Farmers Educational Cooperative Union of America.

Q. Is that one of the core holes that you used in revising the LMR?

A. It is.

Q. All right. Look at Exhibit 7(b).

A. Exhibit 7(b) is the same data for Core Test FC-65.

Q. Did that go into your revisions of the LMR in 1992?

A. It did.

Q. Look at Exhibit No. 8, if you will, and tell me what those are.

A. Exhibit 8?

Q. Yes.

A. I have 6, 7 and 9. Sorry, no 8. Wait,

I'm sorry. 8(a), yes, sir.

Q. Look at Exhibits 8(a) and 8(b) and tell me if you know what those are, please.

A. Exhibit 8(a) is United States Department of Interior Geological Survey, potash ore reserves in proposed waste isolation plant area, Eddy County, Southeastern New Mexico.

Q. Which core hole is that for, or does that report cover?

A. This covers potash tests drilled by the government, P-21.

Q. Was that considered by you and relied on in the LMR in 1992?

A. Yes, and also AEC-8.

Q. Now, Mr. Lane, how do you go about, when you get core hole data, how do you go about giving influence to the analysis of the core hole? How do you go through that process and how did you go through that process at New Mexico Potash when you got the results of Core Hole 162?

A. With the five adjacent holes available, I used a triangular method plotting isograde on each of the legs and connecting the grade at which it's using as a cutoff grade.

Q. Let me show you Exhibit No. 38. I

believe the Commissioners have a copy of this from yesterday. Does Exhibit No. 38 show the triangulation method that you just referred to, Mr. Lane?

A. Yes.

Q. And explain to the Commissioners how you go about using that triangulation method to plot out an LMR.

A. Are we giving the grades?

Q. No. Just refer to the core hole, if you would.

A. Going from--we start from 162 in Section 2, over to F-65, which is in the southeast corner of Section 34, 21-31, we have a grade for each of those holes, a value. And where the red line crosses that leg of that triangle, that would be our cutoff grade.

Q. Do you project it out to each of those core holes?

A. Yes.

Q. By what method?

A. By plotting isograde points and then connecting equal points.

Q. You're extrapolating out from each hole?

A. That's correct.

Q. And go ahead and complete the triangle for us.

A. The same thing would be from F-65 to F-52. We have an isograde point as a cutoff. F-52 back to 162, both are above the cutoff grade. The same thing going down from F-62 to AEC-8. Both are above cutoff grade. F-62 to P-21, both data points are above cutoff grade. So there's no crossing. No line.

Q. Using that triangulation method, Mr. Lane, what did you conclude with respect to the mineralization in Section 2?

A. That the majority of Section 2 was mineralized.

Q. Is the triangulation method something that you have used for a long time in New Mexico Potash?

A. I have used it ever since being on this property.

Q. That would be since 1963?

A. 29 years.

Q. Now, look at Exhibit No. 5 in front of you there, Mr. Lane. Do you have Exhibit 5 in front of you, Mr. Lane?

A. Yes.

MR. HIGH: For the Commissioners' information, I could have used Exhibit 38. There's nothing different between the two.

Q. Look at Exhibit 5, Mr. Lane. Does that document reflect the LMR as you revised it in January of 1992?

A. It does.

Q. Based upon the core hole data you just told us about?

A. Correct.

Q. This was the new LMR designation you filed with the State and the BLM?

A. Yes.

Q. Now, after you filed this new designated LMR with the State Land Office, did you, thereafter, have some communications with them concerning the new designation?

A. Yes.

Q. Tell me how that came about.

A. The LMR was sent in mid-January to the State Land Department. In early February I received a letter asking for additional information.

Q. Look at Exhibit No. 10(a) and tell me

if that's the letter you're referring to.

A. Yes.

Q. Did you respond to that letter?

A. I did.

Q. Look at Exhibit No. 10(b) and tell me if you could identify that?

A. Exhibit 10(b) is in response to the letter of February the 10th from Mr. Prando, which passes on the information that Hole 162 was mineralized in both the 4th and the 10th ore zones; and he also pointed out in his letter of February 10th that sylvite mineralization also existed in that hole instead of just langbeinite.

Q. Look at Exhibit 11 and tell me if that's the letter you received from Mr. Prando also.

A. It is.

Q. Now, in this letter, Mr. Lane, in the first paragraph, Mr. Prando says that the quality--and this is the last sentence in the first paragraph, after he acknowledges that Core Hole 162 does shows an economic accumulation of sylvite, the last sentence says, "The quality of ore is such that the southeast quarter of Section 2, Township 22 South, Range 31 East, contains a

commercial deposit." Do you see that?

A. Correct.

Q. Does a statement like that have any basis at all in mining?

A. No, it doesn't.

Q. Why is that so?

A. The main reason, that the influence of Hole 162 is not equal in all directions.

Q. Should it be?

A. It should be in this case, at least minimum.

Q. What minimum distance or influence should you give a core hole like 162, from your experience?

A. My experience, half-mile by itself.

Q. So you would assume that whatever Core Hole 162, the same type ore and the same type grade would be found within a half-mile circle of that core hole?

A. Correct.

Q. Has that been the system you've used during the time you've been at the New Mexico Potash facility?

A. I used 2500 feet, not the half-mile.

Q. Which is close to a half-mile?

A. Right. Oh, half-mile, yes. 2500 feet. Close to it.

Q. Instead of a half-mile, you just use a straight 2500 feet?

A. Yes.

Q. Is that what you've generally used throughout your work there at New Mexico Potash?

A. Yes, without information on the off side of it, if I don't have any of the drill hole data.

Q. Have you found that process to be predictable with respect to what's out there?

A. Reasonably so, yes.

Q. Now, at the time Core Hole 162 was drilled, you were aware, I take it, Mr. Lane, that International Minerals and Chemicals was interested in acquiring Section 2 from New Mexico Potash?

A. I was aware of it, yes.

Q. Do you know whether or not they were aware of some wells that were being proposed to be drilled in Section 2?

A. Yes.

Q. Look at Exhibit No. 28, if you would, please. What is that document, Mr. Lane?

A. Exhibit 28 would be the letter from Michael Stogner to IMC Fertilizer, Incorporated, in Carlsbad, dated November 5, 1991.

Q. What's the second page? Is that dealing with Section 2?

A. Yes. Section 2, 22 South, 31 East.

Q. And it has reference to the possible drilling of the very wells we're talking about here?

A. Yes.

Q. What's the second page of that document?

A. It's a letter from IMC Fertilizer, Incorporated, to the New Mexico Oil Conservation Commission, protesting wells in Section 2, 22 South, 31 East.

Q. And what's the date of that letter?

A. October 31, 1991.

Q. Now, without referring specifically to the numbers, Mr. Lane, let me direct your attention to Exhibit No. 25, please.

Do you have Exhibit No. 25 in front of you, Mr. Lane?

A. I do.

Q. What are those documents, please, sir?

Just take the first page and explain them, if you will. Explain to us what that document shows. Don't refer to the numbers, just tell us what it shows.

A. It's a copy of daily mine production statistics.

Q. All right--

A. And it's the one for the last production day of that month.

Q. Let's start with the left-hand column, and let me ask you which one of these to describe, because this document is marked "Confidential."

The left-hand column, what does the first entry, 8220 mean?

A. That's a mining machine number.

Q. Would the same be true for those below that number?

A. It would.

Q. All those would be machines at these various stages?

A. Individual machine numbers.

Q. And column 2, then, would be what?

A. Tons produced.

Q. What does the little mark--

A. Are you on the top line or on the bottom?

Q. I'm on the top line.

A. Top line, second column, is the area in which that machine and production came from.

Q. That would be 203, and what's that entry after that? Is that an X?

A. I don't know what that is. It's something.

Q. It has no meaning as far as you know?

A. Not right now.

Q. So Mining Machine 8220 on this particular day was working in what we call Area 203?

A. It was.

Q. Now, I notice in the next couple of columns there, there's entries for some mining machines and no entries for the others?

A. That's correct.

Q. What does that mean?

A. It did not operate during that shift. The first column was day shift, middle column was afternoon, and the third set of numbers would be night shift.

Q. Where would the day shift cut off? Is

the entire top portion of the document the day shift?

A. No, just the top left set of numbers is day shift. The center set is afternoon shift, the right-hand side is night shift.

Q. Across the top one-half of the document, it should be divided into three columns?

A. Right.

Q. The first column being the day shift, the next column being the second shift and the third column on the right-hand, top side of the page, being the third shift?

A. Third shift.

Q. And the numbers alongside the mining machines would be the ore that was mined by each of those particular mining machines?

A. That's correct.

Q. If there were no entries, it means that that particular mining machine was not operating that shift?

A. Not operating that shift, that's correct.

Q. After "area" there's the column "tons." I take it that's the number of tons

mined by that particular mining machine?

A. It is.

Q. The next column entitled K20, does that show the grade of the ore that was mined by that mining machine on that shift?

A. It is.

Q. All right. Let's drop down to the bottom one-half of the page and again, the page we're talking about is for September 28, 1989?

A. Correct.

Q. What does the bottom one-half of the page show?

A. It's a summation of the upper lines, the upper three shifts. It brings it down and totals it for the day in the second column, month to date in the third column. The day's grade in the fourth column, and month-to-date grade in the fifth column.

Q. So, by looking at these documents, you could tell, on a daily or monthly basis, how much ore was mined and the grade of that ore?

A. Yes.

Q. Now, all of Exhibit No. 25, Mr. Lane, appear to be the same document. Is this just for different periods of time?

A. Yes. I think there's six sheets here and it runs from the last day of each month, from September through January of 90. The line runs through December. We're talking about 89. Okay. September through January. This is February.

Q. We have already seen, Mr. Lane, the grade of the ore in Section 2. Now, I would like for you to go with me through these documents, and let's point out to the Commissioners the lowest grade of ore on each page which we have mined in our mine. Let's start with the first page.

A. On a monthly basis or a shift basis?

Q. Let's go ahead and do it on a shift basis.

A. Shift basis.

Q. What's the lowest that we mined on September 28, 1989?

A. 10.94.

Q. Go to the next page and tell me the lowest grade we mined on October 31, 1989.

A. 9.73.

Q. Next page is November 30, 1989. What's the lowest grade in the mine?

A. 10.86 percent K20.
Q. Look that up on the top on the afternoon shift?
A. I'm sorry. 10.57.
Q. And go to the next page, which is December 31, 1989, and tell me the lowest grade ore we mined?
A. 11.85.
Q. Go to the next page, January 31, 1990, and tell me the lowest grade we mined.
A. 11.37.
[Commissioner Carlson is not present.]
Q. The next page was February the 28th of 19--
MR. HIGH: Should we wait on Commissioner Carlson?
CHAIRMAN LEMAY: Two of us are all that's necessary.
Q. Okay. Look at February 28, 1990, Mr. Lane, and tell me the lowest grade ore we mined.
A. 9.22.
Q. If we continued throughout these documents, we could determine on a daily basis the grade of ore that New Mexico Potash was actually mining?

A. Actually mining, yes.

Q. Does this document also show the tons of ore that we take out of the ground and ship up to the mills?

A. It does.

Q. Where would I go to find that number, Mr. Lane? Let's go back to the very first page of the exhibit, and tell me where it shows the number of mined tons that we take out.

A. It would be in the lower set of numbers, the third column, in the "total" line.

Q. So, under the column at the bottom, the bottom-half of the paper, the column entitled "tons," to the right there's a column with the initials "MTD" at the top of it?

A. That's correct, the third column.

Q. And if I dropped down to the line under that that says "total," which on this particular document is 191028?

A. That's correct.

Q. That would give me the mined tons taken out of the mine and sent to the surface?

A. Sent to the surface.

Q. That's month-to-date as of September 28, 1989?

A. That's correct.
Q. So that's roughly a month's worth of production?
A. That's the last working day for that month.
Q. Now, once we get the ore up to the surface, Mr. Lane, we send it through a refining process, I take it?
A. That's correct.
[Commissioner Carlson is present.]
Q. And we recover ore out of what we bring up from underground?
A. Correct.
Q. Look at Exhibit No. 26, please, and tell me if you can tell me what that is.
A. Exhibit 26 is month-end metallurgical statistics, New Mexico Potash. This exhibit was entered to show mill recovery, recovery of potash from the total potash.
Q. Is that an internal document that's kept by New Mexico Potash?
A. It is.
Q. And used in its potash business?
A. Yes.
Q. Are there any numbers that have been

removed from that exhibit?

A. All numbers except the actual recovery.

Q. And, of course, this document is stamped "Confidential," is it not?

A. Yes.

Q. Can you, by looking at Exhibit No. 26, determine on a monthly basis what your mill recovery was of the ore that you mined as shown on production curves?

A. Yes.

Q. Do these documents that are set forth in Exhibit 26 show the mill recovery of New Mexico Potash?

A. It does.

Q. Now, taking all those things into consideration, Mr. Lane, is it your opinion that New Mexico Potash has the capability of mining the ore in Section 2?

A. I do.

Q. Let's talk in terms of getting down there. You mentioned earlier that you have had some involvement in mine planning during the course of your, what, almost 30 years at that property?

A. Correct.

Q. What is New Mexico Potash's plan with respect to mining down towards Section 2?

A. Their plans have always been, and the plans we've had in the past, whatever, to mine all the reserves in that south ore body. That extended down in the north line of Section 2 in past planning. Since Drill Hole 162 was drilled, it extended that area and it can be added to existing plans.

Q. In your position at New Mexico Potash, Mr. Lane, did you have responsibility over the the haulage and belt lines and that sort of thing?

A. Yes, that's taken into consideration in yearly plans, long plans, short range, whatever.

Q. Looking at where New Mexico Potash is currently mining, and let me refer you specifically to Exhibit No. 38, which might be a little easier to follow, it looks like the southernmost penetration of New Mexico Potash's mining is in Section 23. Do you see that?

A. Yes.

Q. Tell the Commissioners what additional capital equipment, such as underground transportation, belt lines, that sort of thing,

that New Mexico Potash would have to go out and purchase to get down to Section 2?

A. Mr. Case testified to the transportation end of that, which is available and makes that range comply with state laws, I mean time-wise, for travel. I want to correct his statement of the other day on the amount of conveyor belt that's in use at the present time. I think Mr. Case stated 10 miles. That is plus 16 miles.

Q. Let's make clear, you say plus 16 miles. You don't mean 10 plus 16?

A. No, correcting it from 10 miles to 16 plus miles, and with mining plans, that amount of conveyor belt would reach into Section 2 if maintained, without new equipment.

Q. So to mine the ore in Section 2, New Mexico Potash would not have to buy any additional belt lines?

A. Just for maintenance. Maintaining the additional structures.

Q. That's true today?

A. That's true everywhere.

Q. Whether we have Section 2 or not?

A. That's correct.

Q. To mine Section 2, we would have to buy no additional belt lines, is that correct?

A. No. With a balanced mining plan, you wouldn't have to have new footage.

Q. No new transportation equipment?

A. Yes, it will take some new transportation equipment which Mr. Case mentioned.

Q. Is that transportation equipment that we would have to buy or which we now have?

A. Buy and modify ourselves. We have some.

Q. We have some of the modified equipment now?

A. In use, yes.

Q. Would it take a large purchase of equipment for us to go down and mine Section 2?

A. No.

Q. Now, let's talk about getting to Section 2, Mr. Lane. Mr. Hutchinson has done some calculations and said it would take us a whole lot of time to get down there. In fact he said, according to his calculations, we only mine, I think it was, 136 acres a year. Do you recall that?

A. Yes.

Q. Do you agree with that?

A. I do not.

Q. He got his numbers, as he said, by comparing the October 1, 1988 mine working map that's on file with the State, along with the January 1992, I believe it was, mine working map that's also on file. Do you recall that?

A. Yes.

Q. Have you, yourself, compared those two mine working maps and reached a calculation on the number of acres that we have mined?

A. I did.

Q. Would you explain to the Commissioners how you went about calculating the acres that we mine by comparison of those two maps?

A. I had the LMR map and the mine working map of October 89 and the one of January 92. All I had was an off-breed scale to do it, but I put it into square units of the change between the two maps.

I added up the square units for the change, the square units for one section, divided the two to see how many sections were mined in that 39-month period.

Q. What number did you come up with, Mr. Lane, in terms of the acres mined per year, by comparing the 88 to 92 mine working maps?

A. The numbers are over there.

Q. Do you have it written down somewhere? Where is it?

A. The yellow--no, wait a minute.

Q. How many acres per year did you come up with by comparing those two maps?

A. 293 acres per year.

Q. And it wasn't the most accurate scale.

A. It was a smaller scale.

Q. Do you feel like the 293 acres per year is more accurate than the 136 that was testified to by Mr. Hutchinson?

A. I do.

Q. Is there any reason or explanation you think might exist for Mr. Hutchinson's calculation of 136?

A. I don't know what it is.

Q. Are there any other ways, Mr. Lane, if we want to put to bed the issue of how many acres we mine a year, are there any other ways we can make that calculation?

A. Yes.

Q. How would that be?

A. Looking at an average monthly tonnage, take that to a yearly tonnage and relate that back to acres.

Q. Let's refer back to Exhibit No. 25, please, sir.

A. All right.

Q. How would you go about using the production to determine the number of acres we mine per year?

A. We could get an average monthly rate off of these sheets for tonnage produced, move it up to yearly rate. Then we could get it back into acres, one acre, which is 43,560 square feet, estimate the height--five feet for both retreat mining and advanced mining--which gives you a figure of some 218,000 cubic feet.

You divide that by our cubic feet per ton for the ore we mine, which is 15.3. We come out with an acre, that five-foot height containing 14,235 tons in place.

Then estimating, since I don't have the split here of the retreat areas to advance areas, I used a figure of 65 percent extraction for combined. That would give, one acre would have

9,252 tons per acre at that extraction.

The tonnage we used an average of, if we looked at three sheets, 205,000 tons per month or 2,460,000 tons a year. Dividing that by the tons per acre, we come out at 266 acres per year.

Q. Now, using those numbers, Mr. Lane, or in your experience, what would you project to be the time for us to get down to Section 2, if you know?

A. A reasonable mine plan for that area, it must be within the next 10 years.

Q. And to mine Section 2, since it's on the outside of our lease, what would be the standard mining procedure, in terms of how you're going to mine Section 2?

A. It would be mined in the same fashion as we're mining today, in the other 10 areas.

Q. When you're driving down to mine Section 2, would you drive down to the far lease line and mine back, or would you mine on the way down there?

A. You would try to make the lease line or ore cutoff.

Q. Referring to Exhibit No. 38, you're saying you would drive down to the south side of

Section 2 and then develop panels off into Section 2 from that point?

A. No. The mine plan I would recommend would be coming off our main entry system, which is just on the left-hand side of the centerfold, and develop south from there.

Q. And is that consistent with the southerly direction that New Mexico Potash has been mining over the last few years, Mr. Lane?

A. Yes.

Q. Looking again at Exhibit No. 38--and you have that in front of you?

A. Yes.

Q. Let's look up at the top or toward the northeast corner of the exhibit, in the green part, where it says mined 4/1983. Do you see that?

A. Yes.

Q. Tell us, Mr. Lane, why it is we stopped mining there in 1983.

A. There was a decision of management to consolidate workings and start the development of the south, and also to stop development at that point so that the northeast ore body would not be cut up for long periods of time, any entries into

it.

Q. What is the northeast ore body?

A. Extending to the northeast of where it says mined 4/83.

Q. Is that in the area where the state leases are shown in red on Exhibit 38?

A. Yes, just to the west of 36.

Q. Did the decision to stop mining at the point that mining was stopped in 1983, have anything to do with state royalties?

A. No.

Q. Do state royalties play any role at all in that?

A. None whatsoever.

Q. Do you know what the state royalties were in 83?

A. Yes, they were lower than federal.

Q. If you had a state lease in 1983 and you mined it, your royalty would be less than it would be on the federal lease at that time?

A. That is correct.

Q. Now, looking over directly to the left there, Mr. Lane, at the state lease that has M15-171 and M19--looks like--393, do you see that one?

A. Yes.
Q. That shows that mining took place in and around that area from 1970 to 74?
A. Correct.
Q. You were, of course, with New Mexico Potash at that time, right?
A. I was.
Q. Do you know why the remaining part of that section was not mined?
A. That was what we considered cutoff grade at that time.
Q. And what does that mean to a layman?
A. To as low as we wanted to mine it in blending at that time.
Q. Have the grades that New Mexico Potash can mine and process and sell, changed since 1974?
A. It has.
Q. Can you now mine lower grades than you could in 1974?
A. Yes.
Q. Can you get back in to mine that state lease?
A. Yes.
Q. How would you do that?

A. It would be in Section 2 of 21-31, the state section that's in the red. It would be Lease 14-957. There's an entry system going to the northwest. It would be mined in conjunction with the open ground in that area.

Q. As we look at the section just east of the state lease that we're talking about here, Mr. Lane, there's been some mining in that section already, right?

A. Yes.

Q. The white part around the green slash, is that ore?

A. Yes.

Q. Is that ore that will eventually be mined?

A. Eventually.

Q. Let's go to the next section just east of that one, that has mostly white in it but some green.

A. Same thing.

Q. Does that have ore in it?

A. Same thing.

Q. That has yet to be mined by New Mexico Potash?

A. Correct.

Q. The state lease toward the west will be mined in connection with the same time when those others are mined up there?

A. Correct.

Q. Do you know about the time period, Mr. Lane, that the state royalties were less than the federals? Do you recall about when that was?

A. Yes. I think the state went to a sliding scale around January 1st of 1984. Before that date, they were less.

Q. So, up until 1984, the state was less than the federal?

A. Yes.

Q. And then in 1984, when the state went to a sliding scale, it was equal with the federal?

A. Uh-huh.

Q. Do you know at what point in time they became unequal?

A. In 86, I think.

Q. Now, during the time you were drilling Core Hole 162, Mr. Lane, you were talking with Yates about their desire to drill the four wells we're contesting here today, correct?

A. Yes.

Q. Look at Exhibit No. 29, please. That appears to document a telephone conversation that you had with Mr. Clifton May?

A. That's correct.

Q. On December 4, 1991?

A. That's correct.

Q. It goes on to say, "They," being New Mexico Potash, "will not approve our locations. Unless the tests are poor, we will not be able to drill the wells at this time." Is that essentially the conversation you had with Mr. Clifton May?

A. That's correct.

Q. Look at Exhibit No. 30. Is that a letter that Mr. May sent you--

A. It is.

Q. --inquiring about the test results in Core Hole 162?

A. It is.

Q. Look at Exhibit No. 31. Is that a letter you sent Mr. Clifton May on January 21, 1992?

A. It is.

Q. Let me show you, Mr. Lane, Yates Exhibits 8(a), (b), (c) and (d). Did you receive

those letters?

A. Yes.

Q. Did they have attached to them either a plat or an APD?

A. Not to my knowledge.

Q. All right. Let me show you Yates Exhibit No. 8, which includes a letter dated January 21, 1992, addressed to you, which says it's enclosing copies of the APDs?

A. Yes.

Q. You did receive the APDs on these four wells at that time?

A. At that time.

MR. HIGH: Mr. Chairman, at this time we would offer into evidence Exhibits 2, 3, 4(a), 4(b), 9, 6, 7(a), 7(b), 8(a), 8(b), 5, 10(a), 10(b), 11, 25, 26, 29, 30 and 31.

CHAIRMAN LEMAY: Without objection, those exhibits will be admitted into the record.

MR. HIGH: And we'll pass the witness.

CHAIRMAN LEMAY: Let's take about 10 minutes and then come back.

[A recess was taken.]

CHAIRMAN LEMAY: Okay. We'll start the cross-examination now of Mr. Lane, by Mr.

Carroll.

EXAMINATION

BY MR. CARROLL:

Q. Mr. Lane, let's start, first of all, with this concept of LMR. When you're defining an LMR, what is your criteria? Do you use or include a minimum grade cutoff to draw the boundaries of your LMR?

A. Yes.

Q. What is the minimum grade that you use to draw your LMR?

MR. HIGH: Excuse me, Mr. Chairman. This is confidential information and it's shown on the documents in evidence, and I would object to bringing it out in here unless we go into confidential session.

CHAIRMAN LEMAY: Can he identify the document and, by pointing to the document, say is this the grade?

MR. HIGH: I don't have any problem with that.

CHAIRMAN LEMAY: Or could you write it down on a piece of paper?

MR. CARROLL: I'm just looking for a minimum.

CHAIRMAN LEMAY: It's the confidential part he's having a problem with.

MR. CARROLL: That's fine.

Q. Can you tell me some reference?

A. The reference would be Exhibit 38.

Q. Yes, sir.

A. In the center, left-hand side, you see the 10th ore zone? The red line under it?

Q. I see it. Okay.

A. Percent indicated will then draw up to the red line.

Q. All right. Thank you. Now, when you are in the LMR drawing process, do you give consideration to barren areas?

A. Some, yes.

Q. Some. What is the basic criteria? How do they influence an LMR?

A. There is some core data inside of those barren areas or they wouldn't be drawn. I still use triangles. They aren't completely blank. There is some mineralization.

Q. Do you figure the ore in a barren area as part of your ore reserves?

A. No.

Q. So at least within the areas, let's

say, that are drawn in barren areas on Exhibit 38, you exclude that area from your ore reserves?

A. Yes.

Q. Now, Mr. Case made a statement yesterday that there were barren areas up in the north part of the--north area of your mine, which were barren but weren't indicated on this map as barren.

My main question is, if that is, in fact, a true statement, where would they be? Are you aware of any?

A. North portion. Yes, there's two that were left off.

Q. All right, sir. Where would--

A. And that would be in Section 5, 21-31. It's still shaded as being unhatched in blue, in Section 5, 21-31.

Q. All right. That's within the mined out ore body, is that correct? These are the abnormally sized sections, Section 5, because they're not numbered "5," for the Commissioners' benefit.

A. Yes, the upper tier of that township is the correction line.

Q. These are barren areas that are within,

except for the one in Section 5?

A. Section 5, and the northeast corner of Section 4 of 21-31.

Q. The one in Section 5 has been totally mined around?

A. Yes, sir.

Q. And one in Section 4, there is at least a small opening?

A. Yes.

Q. Any others that you're aware of?

A. Not that I can see.

Q. Okay. Now, when you're defining this LMR, do you honor all core holes available?

A. Try to.

Q. You try to. You're aware of a core hole numbered--or the nomenclature ERDA-6 that was drilled in the 1970s?

A. Yes.

Q. You're also aware that ERDA-6 shows the 10th ore zone as barren, is that correct?

A. That's correct.

Q. And reference to your Exhibit No. 38, ERDA-6 is in the southwest quarter of Section 35, is it not?

A. No.

Q. Where is ERDA-6?
A. Southeast quarter of 35.
Q. You're correct. I misspoke myself. The southeast quarter of Section 35?
A. Yes.
Q. Your LMR is approximately, not quite but close to a half-mile further to the east of ERDA-6, is it not?
A. This line, yes.
Q. And ERDA-6 is approximately a half-mile from the nearest barren zone as depicted on your map, is that correct?
A. That's correct.
Q. So, in fact, this LMR line did not give credit to ERDA-6?
A. This line doesn't, no.
Q. And this line is your new LMR as of 1992?
A. The one that was sent in the LMR, as originally sent in, had a dashed line on that east side, questionable. And I think one of your witnesses pointed that out.
Q. Now, you did know there was a map--well, in fact it's Exhibit 38, you did triangulation for three core holes, did you not?

I mean, you drew two triangles on Exhibit 38?

A. Yes.

Q. And utilized K-162, F-65, and--

A. There's three triangles on that.

Q. I see. You went up to F-52?

A. Yes.

Q. There are so many cross hatches, I'm losing that one. Now, you could very well have used ERDA-6 as a triangle, couldn't you, as part of one of your points for triangulation?

A. I could have.

Q. And that could have, if you used that triangulation method, that could very well affect the number you're placing on the ore body in Section 2, couldn't it?

A. It could, as connecting the LMR coming down through Section 25, 24, to the Section 2. There's ore indicated by the U.S.G.S. in 36, also, but I don't know how much or what the values are.

Q. Now, Mr. Lane, you say that you normally give a sphere of influence to each of these core holes of somewhere around 2500 feet, close to a half-mile, roughly?

A. Yes.

Q. Now, you would also give that same sphere of influence to a barren core hole?
A. Not to a complete barren hole, no.
Q. Not to a complete barren hole?
A. No.
Q. Why is that?
A. Past experience. Major large areas are not completely barren, usually. There's usually some mineralization in the larger ones. You can find small areas. You can't give a definite area of influence to a barren hole.
Q. But you can give it to good core holes?
A. Yes.
Q. You don't disagree with the statement of Mr. Lammers that the mineralization that we're looking at down here is fairly erratic?
A. By the barren areas that are shown, you might say that.
Q. What about by the differing percentage rates of K2O? Wouldn't that also tell you it's pretty erratic, because they do differ considerably?
A. There's a good range, yes.
Q. You also get a good range in the actual heights where you find the percentages of or

where you can find potash?

A. Not too much change in the height.

Q. Between Core Hole F-52 and K-162, you've got a difference of from 48 inches to 61 inches, don't you?

A. Yes.

Q. And then, if you drop down to AEC-8, you've got 75 inches, right?

A. Coming up from the south, yes.

Q. In ERDA-6, you've got no inches?

A. I don't know what the bed was in ERDA-6. There are inches of the 10th ore zone.

Q. Now, this barren zone we've got, this big one here in Sections 26, 27, 22, you have three core holes in there, don't you? K-157, 158 and 151?

A. I don't have it here in front of me, but 157--I know of two right off.

Q. I'll show you what for reference, it's our exhibit that Mr. Lammers testified to, No. 41. It has those core holes depicted, does it not, 151, 157 and 158 with a K letter?

A. Yes.

Q. Just a general question. Were these, you talked about a nine-hole program that you

drilled here in the last year. Were these part of that nine-hole program, 151, 157 and 158?

A. No. 157 and 158 were.

Q. Okay. Do you recall what numbers started that nine-number program just offhand?

A. K-153.

Q. K-157 and K-158 are on the southernmost leading edge of this barren area, are they not?

A. They are.

Q. And you did not give a half-mile or 2500 feet reference to those?

A. No, I didn't.

Q. Those showed barren in the 10th ore zone because you included those within your barren area?

A. Within the barren area, low cutoff grade.

Q. Let's look at your Exhibit No. 7(b), please. I think it's 7(b).

A. Just a second. I didn't get this exhibit book back together right. What exhibit is that?

Q. 7(b), as in boy.

A. I have it.

Q. I guess that is the recapitulation of

Core Hole F-65?

A. That is correct.

Q. And Core Hole F-65 formed one of the legs of your triangulation of the three triangles, did it not, in the very corner of Section 34--

A. That is right.

Q. --on your Exhibit 38. Now, you show on Exhibit 38, 9.19 percent K20 with--

MR. HIGH: Excuse me, Mr. Chairman, again I have the same problem.

CHAIRMAN LEMAY: I agree.

MR. CARROLL: I'm sorry.

Q. You have on your Exhibit 38 a number, do you not?

A. Yes.

Q. If you look at Exhibit 7(b), when you go down to the 10th ore zone under the beds analyzed, I find a number that is only one-third of that. Do you see what I'm talking about?

A. Yes.

Q. We have no way of correlating that number to the one on your Exhibit 38?

A. It's a combination of the first two numbers under the K20 in that deal. And the

height, the bottom portion of that, of the bed itself, that's the total height of the 10th ore zone.

Q. New Mexico Potash does not have the ability to process carnallite, does it?

A. In certain amounts, yes. It's soluble.

Q. Where it's two-thirds of the product?

A. In limiting blending, yes.

Q. How much is "limited"?

A. One unit, or something in that area.

Q. One unit--

A. One mining unit, at the most.

Q. When we're talking about mining units, is that a weight measurement?

A. No. One mining area. And maybe limited scheduling. It can be controlled.

Q. It creates problems and it has to be watched very carefully?

A. Yes, sir.

Q. Now, did you combine carnallite with sylvite on any of these other core holes to arrive at the--

A. Not that I know of.

Q. So this is the only one that we did that to, as far as you understand?

A. To my knowledge at this time, yes.

Q. Now, this nine-hole core, as Mr. Case told us that there had not been a coring program for several years out here in New Mexico Potash, and then there was a management decision to do these nine, what was the criteria that you picked the first nine before you got to 162?

Why did you pick those? As a general comment, and I'm not trying to get you to go through each one, but generally what determined, what was the criteria that you used to determine where we're going to put our core holes?

A. Short-range mining plans.

Q. Short-range mining plans. So the placement of these core holes was in advance of or in the areas where you were mining then, I take it?

A. Right.

Q. Now, K-162 was not determined on the basis of short-range mining plans, was it?

A. No, it wasn't.

Q. How was the exact location of K-162 picked or determined, as opposed to the southwest quarter, the northwest quarter, or the northeast quarter?

A. No scientific way, I'll put it that way. That's where I put the availability of roads and a fair location.

Q. It was almost like throwing a dart in a dart board?

A. Or a rabbit sitting under a mesquite bush. In the same general area, yes.

Q. We've had a lot of discussion about the core holes that are drilled by potash companies, and we saw depicted in earlier testimony, I think by Mr. O'Brien, we have two exhibits that depicted that. In one example we've been able to determine that the core holes are drilled fairly rapidly, they're drilled all the way down, cored, and then cement is put in without any casing.

Then there was another example that there was actually casing set through water bearing strata, it was mudded in rather than cemented; when the coring was done, cement was put in the hole.

Are those the general methods used by your company and, to your knowledge, any other companies, for the coring and then the cementing of that core hole?

A. New Mexico Potash and Kerr-McGee has

never cased.

Q. So those two examples would be representative of how New Mexico Potash does a coring operation with respect to the issue of plugging it?

A. One of those examples. The one without casing.

Q. So New Mexico Potash, then, just never uses casing, then?

A. No.

Q. Casing, like the mudding, does that increase the cost of the coring operation?

A. It will raise it some.

Q. Why don't you use it? Is there a reason why or a management decision why you've elected not to use it?

A. Yes.

Q. What is that, Mr. Lane?

A. In our general area of Lea and Eddy County, the culebra and the magenta are nearly dry of water.

Q. You have a number of core holes that have actually been mined through, have you not?

A. Yes.

Q. Have you ever encountered a problem

with leakage of any kind of liquid when you've gone through these plugged core holes?

A. No problem.

Q. We heard from Mr. Case that there were some large tailing dams and tailing ponds. Are any of the tailing dams which hold these ponds of water, are they located over second-mined areas, to your knowledge?

A. The coarse tailings pond is over some second mined.

Q. Would that be the dam and the pond, both?

A. Yes.

Q. What's about the size of that coarse tailing pond?

A. Approximately one section, including the catch basin, the tailings pond, and a runoff basin.

Q. All right. Now I notice, too, there's one thing about this Exhibit 38, where when you say this is your LMR, that's not your complete LMR? This is only for the area of concern, is that correct?

A. That's correct.

Q. The LMR that you have drawn on Exhibit

38, actually a good portion of it is not on acreage that New Mexico Potash owns or controls, is it?

A. That's correct.

Q. Was the only change in your LMR from the 1990 or 88 version to the 92, did the only change occur in Section 2 to your knowledge?

A. No. Some of what you're calling barren areas, which are what they're called on the map, were added.

Q. Did you accept that this area of Section 2, did you push your LMR downside boundary to include more acreage as you've done here? Was this the only example of that?

A. One area was extended.

Q. Was that in the area where you purchased new leases?

A. Purchased new leases?

Q. Or acquired.

A. Not as of this date.

Q. So there's at least one other area where you moved the LMR to acreage you don't own?

A. Right.

Q. As just a general proposition, Mr. Lane, do you think it's unfair to object to

drilling of oil wells which are inside an LMR when you don't control the lease acreage?

A. I don't. I consider that as a possible reserve and try to protect it. We lease them as needed and, at times, we're ordered to cross out of our lease line and continue mining.

Q. Now, you were part of the original team that went down and started this whole mine, as I understand it?

A. Yes.

Q. When you were getting ready to sink your shaft and you were--apparently, there was a program where you went out and drilled core holes first, right?

A. Yes.

Q. Did you give a half-mile or 2500 feet sphere of influence to those core holes you were drilling when you were trying to decide on the location of your shaft?

A. I was not there for some 92 core tests, the original core tests, which went into the initial planning and decision to build a plant.

Q. Well, isn't it a fair statement that Kerr-McGee would not have given a sphere of influence for single core holes of a half-mile

when they were just trying to determine where to set that mine shaft, judging by the number of core holes you're talking about, just by that alone, the 92 core holes?

A. The policy, I don't know exactly what that policy was.

Q. Now, when we were talking about, you said the main--I guess when you were deciding and you say this is going to be the consideration that guides you in the development of Section 2, is that when you strike off in a direction, you usually go to the lease limit or the limit of the ore, is that correct, and then you stop there and work back?

A. Generally, unless there's indicated ore. If you run into an unexpected barren area or below-grade ore, if there's indicated ore on the other side, you'll decide possibly to take and drive through it.

Q. That's a decision that's governed by economics, isn't it?

A. You might say that.

Q. Well, let's go up to the northeast corner of your mine here on Exhibit 38, where you stopped your mining in 4/83 just adjacent to

Section 36, the state lease acreage?

A. Uh-huh.

Q. Now, you told us that mine management decided to move to the southernmost part of your ore reserves and leave that area, is that correct?

A. Yes.

Q. Was that an economic decision?

A. In part. It was two-fold there.

Q. You didn't go to the lease lines or the end of the ore body with respect to that mine shaft in April of 1983, did you?

A. No, we didn't.

Q. What was the economic consideration that stopped you there?

A. We were working in what they call the southwest ore body, finishing up over in an area to the east. The decision was to come back and start the development of the south and reserve the east for a later date, without cutting up that block of ore, and leaving the entry standing as long as it might be.

Q. There's plenty of ore up there in the northeast, isn't there?

A. Yes.

Q. Now, when we talk about the royalty on this state acreage, some of your acreage out here also has overriding royalties that go to persons other than the State of New Mexico?

A. That is correct.

Q. Section 36 and 31 have some of those overriding royalties?

A. There is sections. I'm not sure which ones.

Q. You just don't know if Section 36 has--

A. Not right now, no. I don't have the list with me.

Q. Isn't it true that when we look at the lease burden and the economics of mining a particular area, you don't look just at the federal or state royalty but you look at all burdens on that acreage, don't you?

A. To my knowledge, royalty has never entered into mine plans, starting or stopping of an area, in any decisions.

Q. But economics dictated that you completely leave the area of the northeast and move down to the south?

A. Possibly, yes.

Q. How important is it to mine close to

your shaft?

A. You leave a barrier pillar, and within that pillar you have limited extraction.

Q. How important is it when you're planning your mine faces, the mining faces, such as where you've got your current areas of mining? How important is that to get them close to your shaft?

A. It's important, yes.

Q. From an economic standpoint it's important, isn't it?

A. Safety and possible damage through subsidence.

Q. Section 2, the mining in Section 2 would be the farthermost point that you've ever mined from your shaft, wouldn't it?

A. Yes, sir.

Q. And you've said that right now that New Mexico Potash does have approximately 16 or so miles of conveyor capacity, and that would get you to Section 2, wouldn't it?

A. Yes.

Q. But that would mean that you would have to stop mining in other areas and you would have to concentrate your mining in just one area?

A. No.

Q. What other areas, if you drove down into Section 2, would you be mining at?

A. As I said, the main entry or main access, it would be my access, what I would do, would be this main entry system, which is to the left of the centerfold of the map. You would be mining to the west of that, along with the south down here. There would be different blocks coming back along that belt line.

MR. HIGH: With Mr. Carlson out of the room, do you want to break now?

CHAIRMAN LEMAY: I thought I'd let him get through with his point.

MR. HIGH: I would like to have all three Commissioners here. Yates had the benefit of having all three Commissioners and I would request the same. I would like to adjourn when someone has to leave.

MR. CARROLL: I can stop. It won't bother me at all.

CHAIRMAN LEMAY: You might want to pick it up again after the recess.

MR. CARROLL: Sure.

CHAIRMAN LEMAY: I'm sorry for our

schedule.

MR. HIGH: That's fine. All I ask is that my witnesses be heard by all three Commissioners. And I understand budget hearings, so whatever you need is fine with me.

CHAIRMAN LEMAY: We'll come back at 12:30.

[The noon recess was taken.]

CHAIRMAN LEMAY: We shall continue. Before lunch, Mr. Carroll, you were cross-examining Mr. Lane.

EXAMINATION RESUMED

BY MR. CARROLL:

Q. Mr. Lane, I think right at the close of our morning session, I had just asked you a question concerning if you had run your conveyor, the conveyor belt or systems that you now have, run them down to Section 2, I had asked you whether or not that would allow for additional mining off in other areas, and I think you told me it would?

A. It would.

Q. Now, in order to accomplish that mining in other areas, would that require you to purchase any new conveyor belts or systems at

all?

A. I don't think it would.

Q. Turn to your Exhibit 38, would you, again. Let me ask you a question. There are three areas that are termed current area of mining. Let's start with these on the right-hand side here, on the east edge. There's one above each other.

The ones up above Section 22, do you intend to mine out that particular area before going to Section 2?

A. Yes. The section right above 22, yes, it would be mined out.

Q. All of that white area above Section 2. It seems you have a number of belts and tunnels going in different directions. You're saying you would intend to mine all of that area before going to Section 2. And would that also include driving to the lease line over here that runs north and south along the eastern edge of Sections 24 and 25 and the section above that?

A. The area which would be Section 13, north of 24?

Q. Yes.

A. 13 and 12 would follow the mining of

the section above 22, in the west half of Section 14.

Q. Would that include both first and secondary mining?

A. In that portion there, yes.

Q. What about this current area of mining over here to the left side of your map? Do you intend to turn those tunnels back to the west and drive all the way to the lease line there before going to Section 2?

A. Looking at the bottom of that M-651 lease where it says current mining areas?

Q. Yes.

A. West of the word "current," there's some drifts turned off and they are proceeding west, also, west and south.

Q. So before you get to Section 2, you would intend to drive to the lease line and mine that, is that correct?

A. That west side, yes.

Q. Really the term "ore body," many times New Mexico Potash, that ore body, you're talking about blocks of ore, and New Mexico Potash has gone out here and classified blocks and they would go in and mine that block and move into

another block? Isn't that really the way you do it?

A. Blocks?

Q. Blocks.

A. No, we had a northwest ore body and a northeast ore body, a southwest ore body and now the south ore body, not as a block.

Q. Let's look to the north of your Lease No. M-651, the full section of that lease. You say this was a mined area. It starts 6/79 and ends 5/81; is that correct?

A. That's correct.

Q. That would mean that in that area, the secondary mining terminated at the end of the 1981--

A. --period there. Yes.

Q. Then you see there's a block even further away from your mine shaft, to the west, which shows that it would begin mining and actually terminated almost a year later?

A. That is correct.

Q. So you didn't drive all the way to the end and secondarily mine and work back towards your mine shaft, did you?

A. This one case here, this last panel

came out before the entry system was retreated back, for access to that part over there we mined from 80 to 82. We still had an entry system through there.

Q. But you did not mine all the way--just totally mine and retreat from that area until 1982, did you?

A. Not completely, no. We found more ore out in this other area than we planned on.

Q. Well, is it the finding of the more ore that somehow affects your driving to the lease line?

A. That lease line moves. That was a new lease, that south half of the north half of 13, I think it is.

Q. Just one question, and it just occurred to me as I was looking here. When we were talking with Mr. Case, he was pointing out the oil wells, there were three of them. I'm not sure that we actually got them pinpointed. I made a note to myself that we didn't. You're familiar enough with this map and you can point out the oil wells? I just noticed the dry hole symbol in this area we were talking about?

A. Yes, I can.

Q. Would you, so that we do know what we're talking about?

A. It shows one in the southeast quarter of Section 8, 21-31.

Q. That's just above Section 17 or just diagonally offset from this M-651?

A. Right, to the northeast.

Q. That dry hole symbol, I guess the dry hole symbol, that's the well?

A. That's correct.

Q. Where's the next one?

A. Section 14, just a little southwest of the plant site or the shaft area.

Q. It's right snuggled up in that corner of that section, isn't it, the northwest corner?

A. Pretty close.

Q. Is that an entry or development shaft that runs north and south there?

A. That is right.

Q. That well is right against that, is that correct?

CHAIRMAN LEMAY: You have to find that one again for us.

A. You see where the mine shaft symbol is, pointing up to this dark area right in the

center? It's in Section 4, Section 14, the next section to the southeast in the northwest corner.

MR. CARROLL: Do all three of you see that one now?

A. That's Section 14. No, not 14. 12, 11, 10. Section 10.

CHAIRMAN LEMAY: That would be 10, not 14?

THE WITNESS: Section 10. I'm sorry.

Q. And there is a third one up close to the area where it says mined 4/1983?

A. Yes, up in Section 35 of 20-32.

Q. Starting back with the last one we talked about, do you know the distance that your mine shaft is actually from the wellbore in Section 35?

A. At least 200 feet.

Q. The one down here in Section 10, do you know how close that one was?

A. The same. We mined with the 200 pillar around it.

Q. The third one to the east, was that a 200-foot pillar?

A. That's approximately 400 off the main

drifts heading northeast.

Q. Is it in a pillar, then?

A. Yes, it's in a pillar.

Q. This is in a secondary mined area, is that correct?

A. Where is that, out in the east?

Q. No, the one to the west.

A. The one in the west is.

Q. It's in a pillar?

A. Uh-huh.

Q. The size of that pillar, then?

A. That was 200 feet.

Q. When we were talking about the change in the royalty rates, you said it was in 1984 that New Mexico went to the sliding scale?

A. Yes.

Q. In this area, when you stopped mining up there in the northeast, was in April of 1983. You were aware before 1984 that the change was coming, weren't you?

A. I don't think I was. I wasn't.

Q. That change was dictated by the legislature, wasn't it?

A. I don't know.

Q. When you say you don't use royalty in

your calculation, can you say that the management of the mine does not consider royalty?

A. I think I can, yes. I've sat in on budgets.

Q. Did I understand you that in an overall sense, you expect to mine Section 2 completely before returning back to the north part of your mine area, this area where mining was stopped back in the early 80s?

A. I would say Section 2 would be mined before we go west--I mean going to the northeast. There would still be mining in the south but not in Section 2. It would be retreating the entries out in the remaining ore.

Q. Mr. Case indicated that you could tell us approximately how much fresh air would be circulating by the work faces. There is a federal requirement?

A. Yes.

Q. What is the federal requirement?

A. The federal requirement, I think, is 9000 cubic feet in the last open break.

Q. That's cubic feet per minute?

A. Yes.

Q. Across the mine face?

A. The last opening.
Q. Your main entryways for air, are they up here in the areas around the mine shaft for ventilation of your mine?
A. They're located in this main area, yes.
Q. Now, if you drive down to Section 2, you're going to have to move the air that you ventilate your mine with, then, from the mine shaft all the way down to Section 2?
A. That's correct.
Q. Have you done any calculations--well, first of all, you lose some of your velocity, you can't just put fans up here at the shaft and expect it to go all the way to the mine working faces, can you?
A. No.
Q. You have to increase or put booster fans, I take it, all the way along?
A. That's correct.
Q. Does the fact that your mine enlarges, are you able to channel your air so that you're not losing air off into areas that have already been mined and that sort of thing? Can you pretty well predict the volume of air you're going to need as you go into your mine?

A. Yes, we have moved the air satisfactorily.

Q. Have you done any calculations on what the additional cost will be to move air from your mine shaft all the way down to Section 2?

A. No, I haven't.

Q. That, at least, as a general proposition, is going to involve some additional boosting and capital outlay to increase your air flow all the way down there, is that correct?

A. I don't know about the capital outlay. We have booster fans now throughout, and they'll be moved as areas are retreated and reused and relocated.

Q. The same way with problems of electrical power, and your continuous miners are electrically powered, are they not?

A. Correct.

Q. You're going to have to lay electric lines and compensate for, if you're coming from the mine shaft, you do have electricity loss and those things where you'll have to step it up so that you have a sufficient amount of power to run your continuous miners, don't you?

A. Correct.

Q. And that is additional cost? The farther you get away from that, that's an expensive item, isn't it?

A. Yes, but we've already installed a borehole in the south portion of the mine, and we have new power located in the south part of the mine now. It's not coming from the shaft area. It's already there.

Q. But you'll have to run lines all the way down into Section 2, then, to convey that power?

A. Correct.

Q. Where is that location, just roughly?

A. Section 15, which would be south of that indicated barren area that's cut by the main drift going south. In that corner down here, below the barren area, in that corner in Section 15.

Q. That would be just above what is marked Section 22?

A. Right, in the next section up in the southwest corner.

Q. All right. That particular area is about two miles from the shaft, is it not?

A. About two and a half.

Q. All right. When you're having power loss problems already down here on the southern advance of your mining, that necessitated--

A. No. When we put in this new borehole, we compensated for that by--before, we only had 4,160-volt primary, and we now have 13,000 primary coming down into the mine, which doubles or triples the distance.

Q. Mr. Lane, we've had indicated, I think, and correct me if I'm wrong, I believe Mr. Case indicated that for the year 1991, you were mining about 400,000 tons of product, or selling 400,000 tons?

A. Selling.

Q. And that is approximately 60 percent K2O, is that correct?

A. 62 percent K2O.

Q. Is that what the market sets the level at and you meet that market, then, that level of purity?

A. That level is purity is from our mill. Our mill is set for that.

Q. For the year prior to 1991, do you recall how many tons of product you sold, roughly?

A. No, I don't.
Q. Was it in the order of 400,000 tons?
A. In the order of it. Somewhere in there.
Q. Do you think it was less or more?
A. I'm not sure. It's in that range or should be.
Q. As a proposition, over the last three or four years, has the amount of product you've been selling going down or going up?
A. Going up.
Q. Do you have any idea, percentage-wise, what it is? One or two percent or anything like that?
A. No, I don't.
Q. Do you recall what the lowest amount was in the last five years that you may have sold?
A. No. I do not know.
Q. If you would, I want to run through a calculation here, and I'm just about through with my cross-examination, what you have told us is that your mine is capable of, what you're figuring, I think you said you used a scale to measure your map or the map that's been

submitted, basically you've been mining at a rate of roughly 265 acres per year, is that correct? Is that what you testified to?

A. Around that number.

Q. And I believe you gave me a number, there are 43,560 square feet per acre, and that's just a normal--

A. Right.

Q. That's a volumetric calculation, I guess?

A. Correct.

Q. So that's 43,560, and is that square feet or cubic feet?

A. Square feet.

Q. And I think you said that for your calculation you were using an average mining height of approximately five feet?

A. Approximately five. Five feet for that period.

Q. So to find out the square feet that you would be mining in a five-foot mining height, you would need to multiply this figure here, the 43,000, times five feet, right?

A. Correct.

MR. CARROLL: Let me borrow a

calculator.

MR. HIGH: Here's a calculator.

Q. All right. By my calculations, and if you check me, if you multiply five times 43,000, you end up with 57,717,000 cubic feet or square feet cubed?

MR. HUTCHINSON: Cubic feet.

Q. That's cubic feet, right? Is that the right number?

A. No.

Q. Okay. What is the number?

A. Well, if you had a 10-foot mining height you would only have 435,000 cubic feet. You got 57 million cubic feet?

Q. Well, tell me what the number is.

A. 217,800.

CHAIRMAN LEMAY: Why don't we break for a minute.

MR. CARROLL: No, I can figure this out now.

Q. All right. What I haven't done, and I goofed up here, we should have multiplied 265 times this first of all, isn't that correct, if we're going to try and determine how many feet are in this mined-out area?

A. Go ahead.

Q. If we multiply 265 times 43,560, and then multiply that figure times five feet, you would end up with this number, wouldn't you?

A. Correct.

Q. And that would be, if we're mining 265 acres, that would be the cubic feet of ore that we would remove at a five-foot mining height from an acre, or from 265 acres of land?

A. Correct.

Q. I am going to put "cubic feet of ore" here, in this 265-acre plot.

Now, let's convert this to tons. I have been told that there are 5.3 cubic feet per ton.

MR. HUTCHINSON: 15.3.

Q. Excuse me, 15.3 per ton.

A. 15.3 is correct.

Q. Now, the first step in converting how many cubic feet we have per ton, we would then take the 57,717,000 and divide that by 15.3, is that correct?

A. That's correct.

Q. And this number here, would that not be 3,772,353? Would that be correct? I would just

ask you to check my math.

A. Yes.

Q. So, this number here, this 3.7 million tons, would be, if we mined out this 265 acres, we've now converted that area to tons, and this is how many tons of material are being removed, right? Would you agree with me?

A. Keep going.

Q. Now, if we're going to convert this tons of ore mined, then, to tons of product, we need to then determine how much--because really you mine a lot more ore than you actually end up with product? That's a gross way of saying it?

A. Correct.

Q. So, what we have to do, then, is convert this gross number here to our product. And, for purposes of this illustration--and I'm not trying to be exact but I think we can illustrate this--is that looking at your Exhibit 25, which has all these average numbers in it, and then looking at the exhibit that Mr. Herrell prepared, a ballpark figure for the average ore being mined would be roughly 14 percent? That is a ballpark figure?

A. Within the ballpark, yes.

Q. Let's use 14 even, which is an easier number to divide, but it's a closer number representative of your mind and what Mr. Herrell said. You say your mill is putting out 62 percent, is that correct?

A. 62 percent.

Q. And isn't it true, though, that the market that the industry is looking at is roughly 60 percent? That's what the buyers expect for the potash that's being shipped?

A. The majority of it, yes.

Q. 60 percent is also a nice round, easy number. Now, to be able to use this and to convert this, what you do is to divide, and the common practice is to divide this number into this number, and then take the reciprocal, that is, dividing the results here into one, and you come out with a figure which tells you basically how many tons of ore it takes to produce a ton of potash? Isn't that the formulation that potash miners go through?

A. No.

Q. What is the formulation or do you even try to formulate that?

A. We do it all the time. There's two

factors missing. There's mill recovery and mine extraction.

Q. How does mill recovery affect the number that I was talking about?

A. Product tons are produced by the mill. There is losses to any mill. You don't recover 100 percent of the potassium chloride you send to the surface.

Q. Do you know about how much that rate is?

A. Approximately 80 percent, as shown in the exhibit.

Q. You lose 80 percent or you get 80 percent?

A. 80 percent is what we recover.

Q. Is that representative of the industry?

A. I couldn't say.

Q. And then what was the other? You said mill recovery rate and what other factor?

A. And mine extraction.

Q. What is that?

A. We do not take 100 percent of the ore in an acre.

Q. And when you did your compilation, you used approximately 60 percent, is that right?

A. 60, 65 percent.
Q. Mr. Case testified yesterday it was somewhere between 75 and 80 percent?
A. That is on second mining.
Q. All right. Are you saying that 60 percent is not second mining, and you weren't using the second mining rate when you were figuring this?
A. No.
Q. Oh, you were not using a second mining rate?
A. No. We're doing development mining and second mining at the same time, every day. So it's not maximum, it's not minimum.
Q. Wouldn't you agree with me if you mine 14-percent ore and you sell 60-percent ore, you're in fact taking care of the problem of your mill and mine recovery?
A. No.
Q. Well, if you're trying to determine-- Let's define what we're trying to determine.
A. All right.
Q. If we're trying to determine exactly the amount of material being moved out of a mine and then classify that amount in terms of acres,

you can do it as I describe?

A. You're starting to get on the right track, but you haven't completed it.

Q. Let's finish my computation here, and I'll tell you up front, what I'm trying to do is determine right in here exactly the amount of ore, I guess determine the ore that is being mined here, and then recomputate that into acreage.

So, if we do the calculation that I formed here, it would be dividing .233. The .233 would be this computation dividing 60 percent into 14 percent. And then if we do this, what we're ending up with is 4.29? What we're trying to do here, what this number is, if you'll agree with me, it takes 4.29 tons of ore to give you one ton of potash? Do you follow my calculation now to where I'm going?

A. No, I can't follow that.

Q. You don't follow that at all? Have you done a computation of how much ore it takes to provide you with one ton of product?

A. I can.

Q. Have you ever done that?

A. Yes.

Q. Have you done it recently?
A. Yes.
Q. What is that most recent number, do you recall?
A. May I put it up on the board?
Q. Can you give me what the--
A. All right. 1. Put a "1" down. Okay. Then, times your 14-percent grade, .14.
MR. HIGH: Mr. Chairman, I'm afraid we're going to get into numbers we want treated as confidential. I don't mind Mr. Carroll testifying like he's been doing, but if he's now going to let Mr. Lane testify for a while, I'm concerned about the numbers. I don't mind Mr. Lane putting them on the board and letting him see them, I just don't want them broadcast.
CHAIRMAN LEMAY: That would help.
Q. Okay. And what is that?
A. Whatever that figures out there. It would be .18 tons of product.
Q. Per ton of ore, is that correct?
A. Yeah.
Q. Now, the next step would be, then, to take this number times that number to determine how many--well, how would you do it, then? Just

tell me the procedure. How do you convert gross tons of ore to tons of potash, procedure-wise?

A. We need the mine extraction factor in there.

Q. Well, if we're just talking about--if we're just trying to get back to just the gross acres--

A. You still need the extraction factor.

Q. What is that extraction factor? Is it something that you have to calculate?

A. You use that .60, for a combination of--

Q. If we use this number, which we talk about acreage per year, you've already used that mine extraction factor up here to arrive at this number, didn't you?

A. Uh-huh.

Q. What you're doing, our calculation down here, if we use that figure again, we'll get an incorrect factor because we've taken into account this computation of your mine extraction factor to get there?

A. It would be close, yes. Mine was a straight unit measurement without grade coming into it. I wasn't working for product tons, I

was working for mined tons.

Q. Well, if we've already got our mine extraction rate in here, and we understand here, Mr. Lane, that one, I have a calculation and I have a disagreement with you with whether or not we've already taken into account these additional factors, but let's do both computations. Your computation, as I think we've already taken it in, and if we multiply this times that, that should tell us at least for the purposes we're talking about here, how many tons of potash?

MR. HIGH: Mr. Chairman, let me object. I've been very patient. Mr. Lane has already told Mr. Carroll that he's off track. Why doesn't Mr. Carroll ask him how he did his calculation to come out with the 265?

Mr. Lane obviously does not agree with what Mr. Carroll is trying to do.

CHAIRMAN LEMAY: It might help if we could get through here and find out what his testimony is or where it might be different.

Q. Let me go ahead and perform my calculation here. Mr. Lane, if you will, just watch my math here and whether or not you believe in my theory, if we've taken into consideration

your mill recovery loss and your extraction rate, if we've taken those into account and multiplied this 4.2 times this, it will give us a number, dividing 4.29 into this. That mathematical calculation would give you 879,336 tons of 60-percent potash? I know you don't agree with my methodology, but that is correct math, isn't it?

A. No. I don't agree at all.

Q. Okay. Dividing that number into that number does not give that number?

A. I disagree with the 4.29 factor, whatever that is.

Q. Okay. Well, let's put aside that disagreement right now, Mr. Lane.

A. Okay.

Q. And we'll do what you're talking about here, but if you do divide that number into that, that's what you're getting, correct?

A. It's possible. That's correct, from your numbers.

Q. All right. And if my hypothesis or theory is correct--and I understand that this is the area where you're disagreeing with me--this would show that during this year that you're

saying you mined 265 acres, you actually produced more than twice the amount of tons of sellable product? That's what that calculation shows?

A. You asked me if the mine extraction was in the 265 acres?

Q. Yes.

A. No. I have the calculation out in front of the 265,000.

Q. You're going to have to repeat that for me, Mr. Lane.

A. Well, you do not have the--your 3,772,000, whatever it is, it's not in there. That extraction is not in the numbers as they're being peeled out here. Where did that come from there?

Q. If you'll remember, you said that there's 15.3--I believe that was cubic feet and this is how many tons.

A. The error is up on the top of the page where you have a full section at five feet. You're throwing in a 100-percent mined acre.

Q. All right. That's where you think the calculation is wrong?

A. Yes.

Q. You're not taking into account the 60

percent?

A. Correct.

Q. What I think that does, I think we're down to where we--the difference--

MR. HIGH: Mr. Chairman, can I ask that we take a short break?

CHAIRMAN LEMAY: Let us take a five-minute break. You all can do your calculations. When we come back, I would like you to, in very simplified terms, tell us where the two figures disagree.

MR. CARROLL: That's my last point.

CHAIRMAN LEMAY: I like to hear that, but it seems like you need to do some calculations to get there.

[A recess was taken.]

CHAIRMAN LEMAY: Are we ready to resume with correct mathematics or outline the differences?

MR. CARROLL: I think we can outline the differences. And I think this will be up to faith, but let us--

MR. HIGH: If you would like, Mr. Chairman, we would be more than willing to sit down with Mr. Hutchinson or whoever Mr. Carroll's

expert is, and try to agree upon this acreage thing, if you want us to.

CHAIRMAN LEMAY: If might be helpful to at least point out to us where you disagree. Is that what we're looking at?

MR. HIGH: I don't know what we're looking at. We've given these two calculations on acreage, one based on production and one based on comparison to two maps.

CHAIRMAN LEMAY: Where are you going on this, Mr. Carroll?

MR. CARROLL: Ultimately where I'm going is that what Mr. Hutchinson, when he testified to something like 136 acres, what he said basically, that was net acres. What we're talking about, that's absolute. You mine out 100 percent and get your net acres.

What we feel, and some of the statements Mr. Lane indicated to me, is that this 265 acres is not net mined, 100 percent, it's only approximately 60 percent.

CHAIRMAN LEMAY: Let me stop you there. Is that about 65 percent, Mr. Lane, the 265-acre figure?

THE WITNESS: For present mining,

that's a combination of second mining, which is high extraction, and development mining, which is at a lower extraction, and 60 would be about the average of the two for today's condition.

CHAIRMAN LEMAY: I see. And that's where the difference is?

THE WITNESS: Eventually, the development extraction will go back up on the final retreat.

MR. CARROLL: And I think when Mr. Hutchinson was developing his testimony, we weren't just measuring the net change here, but we know there was mining going on up in the first mining areas, and we could see the indications of that change. So what we were saying was that this mine was advancing into new territory at the net rate of 136 acres because there was some secondary mining going on, and that was one of the questions I know Mr. Carlson asked earlier on, maybe in the last three-day period, and that was the issue we have been trying to explain.

I think Mr. Lane gave it to me. This may be what they figure that they can advance, that's the rate that they might be advancing, producing 400,000 tons of product, but that's not

the actual rate of advance because some of their mining is going to go back into the secondary areas. And that's my whole point. I don't know if you agree with what I just said or not.

CHAIRMAN LEMAY: Why don't we have Mr. Lane comment on what your point was, Counselor? Is that all right?

MR. HIGH: Well, to make sure I understand it, are you saying, Mr. Carroll, that Mr. Hutchinson's 136 acres means a total void underground of taking all the ore out? Is that what it is?

MR. CARROLL: Could I let Mr. Hutchinson state it?

MR. HIGH: I thought that's what you just said. We haven't found a way to get 100 percent.

MR. CARROLL: When I said "complete," I meant complete as Mr. Hutchinson defined it, and I think he was using 90 percent. Because we know there's always some ore left in the mining process. You couldn't get out of there quick enough, probably. So, when I say "complete," it has to be redefined.

MR. HIGH: We'll agree with that.

MR. CARROLL: At least that's what we're told. But that's the point.

Q. (BY MR. CARROLL) Can you agree with me as to that, as to how I may have classified or clarified the difference in the two areas?

A. You haven't clarified it.

Q. Well, have I stated it?

A. I don't think you have.

CHAIRMAN LEMAY: Mr. Lane, could I interrupt? Would you state it for us, what you consider to be the differences in the two figures?

THE WITNESS: May I put up some numbers up?

CHAIRMAN LEMAY: You're the witness, anyway. Now, may I ask something here? Gary, see if you agree with Bob's figures there, and if not, the two of you kind of tell me where you're disagreeing.

MR. HUTCHINSON: The calculations are correct. However, a few minutes ago this was 65 percent and now it's 60 percent. I only had the maps they gave me to planimeter the areas that they mined in that 39-month period.

When I got those and adjusted them for

what was published information up to a 90-percent recovery, which you can find that published in a lot of places that these mines do that, I think Mr. Case suggested that they get at least 80 percent in this particular mine, so I was able to take those areas in that 39-month period and adjust them for either 65-percent recovery, first mining, which we're not too far off, plus in the second-mined areas I kicked that up to 90 percent, or an incremental increase of 35 percent.

MR. HIGH: Let me object. I don't mind us doing this, but I would rather just go off the record and let us sit down again. I don't want Mr. Hutchinson again testifying in the middle of my witness.

CHAIRMAN LEMAY: He's not testifying. I'm trying a new procedure. We're trying to find out what the differences are. And we can find out better by asking the scientists rather than getting the lawyers involved.

MR. HIGH: I agree with that.

CHAIRMAN LEMAY: If the lawyers will be quiet and I can ask the scientists, I'll go back and forth. It may be a little bit off what we're

supposed to do, but I think we can get some answers without trying to protect.

MR. HUTCHINSON: Within the scale of the maps that he submitted, and adjusting for numbers that I didn't have, mill recovery is a very confidential thing, and this, you know, we're in the same ballpark. But when I wanted to see if the acres that I was using had some basis in fact, I went back to how many tons they were producing and back-calculated and came up within 12, 15 percent. So I thought okay, well, I've checked into that through an independent means, and that's where I came up with the 136 or whatever.

I never discounted that. When they got further away from the shaft I just held it constant, knowing on an average basis I didn't know where they were going to mine, but wherever they picked to mine, I wouldn't be too far off.

CHAIRMAN LEMAY: I'm more interested in, do you tend to agree now, with this new knowledge, with the numbers that Bob put up there?

MR. HUTCHINSON: Yes, this is a correct way to calculate it. I didn't have the benefit

of this. But we disagree, not in reality, but at the point in time this will be 90 percent rather than the 60 percent.

CHAIRMAN LEMAY: Is it fair to say with this new knowledge you would tend to agree with what Mr. Lane has put up here?

MR. HUTCHINSON: Yes. We were talking about apples and oranges on the acreage.

CHAIRMAN LEMAY: I understand the idea that he is including going back and doing secondary mining, where you were just figuring advance.

MR. HUTCHINSON: Yeah. I didn't have the benefit of--

CHAIRMAN LEMAY: You're still in disagreement 265 versus 134, but maybe we've defined the disagreement better?

MR. HUTCHINSON: If he used his maps and checked the areas more accurately, his numbers would be reduced.

CHAIRMAN LEMAY: Do you agree with that? If you looked at your maps and checked it, the numbers would be reduced, or not?

THE WITNESS: Very little, if any, if he's using the same two maps.

CHAIRMAN LEMAY: All right, Counsel. I hope you don't mind. At least we know exactly where we disagree.

MR. CARROLL: That was my whole purpose and we got there.

CHAIRMAN LEMAY: I understand your style. You're schooled in that way.

MR. CARROLL: Well, I didn't know how else to do that.

CHAIRMAN LEMAY: That's why I stepped in. I hope you don't mind. Excuse me.

MR. CARROLL: Chairman LeMay, I appreciate it, because that was my sole purpose of this line of cross-examination. And I think you're now aware of it and it's up to you to make the decision. And I have no further questions.

CHAIRMAN LEMAY: All right. Are there any questions that we need to ask at this point?

MR. CARROLL: Well, I'm through.

CHAIRMAN LEMAY: You are?

EXAMINATION

BY COMMISSIONER CARLSON:

Q. I think the gist of this thing is, how much acreage is this mine eating up for a year on its way to Section 2. We've had testimony that

we're going to get there in 50 years or 80 years, and Mr. Case yesterday said somewhere between seven or eight and 20 years. As I understand it, that's what we're looking for, this mine is grabbing acreage on its way down there.

You say it's 265 new acres per year that the mine is extending out, is that correct?

A. That's correct.

COMMISSIONER CARLSON: And excuse me, but I guess your testimony is still that it's 136?

MR. HUTCHINSON: It's going to be less than that considering they stop and take all of the secondary mining as they develop their panels away from the shaft, correct.

CHAIRMAN LEMAY: You're shaking your head, but isn't that the point we're looking at? or did I misinterpret you? What we're trying to do is find the difference and see if there's enough agreement as to where the disagreement is and the point that's being raised. That's the reason we're interrupting this cross-examination.

MR. HIGH: I can't tell you what the difference is because their numbers are wrong. I

don't know the difference. I don't know the difference.

CHAIRMAN LEMAY: That's what we're trying to define, the reasonable differences.

CHAIRMAN LEMAY: Anything else, Gary?

COMMISSIONER CARLSON: No.

CHAIRMAN LEMAY: Commissioner Weiss?

EXAMINATION

BY COMMISSIONER WEISS:

Q. If you planimetered the mined area on Exhibit 38, have you done that?

A. No.

Q. That's how you can tell what the historical mining rate is. This represents 30 years of mining?

A. Well, you could with planimeters, yes. You could do it with computers.

Q. I would think the software would tell you what the area is in hatched green here. Do you know what it is?

A. I don't right now. We have answers for ore reserves, which would give you--

Q. Can you tell me what this green striped area is?

A. No, I couldn't right now.

Q. Does your software permit an easy calculation of that number?

A. An easy calculation.

Q. Was that mined up in 30 years?

A. It's been mined to date, yes. And we've been in business 29--no, 25.

Q. If we take that area and divide it by 29 years--

A. 26.

Q. 26 years, that's the historical mine rate, the way I see it. That would be a nice number to have.

MR. WEISS: Does anybody have that number?

MR. CASE: I don't have it, Mr. Weiss, but one word of caution: Until 1985, when we became New Mexico Potash, we were running the mine around the clock 365 days a year, basically.

Market conditions at the time we became New Mexico Potash dictated reducing that rate to 10 days on, four days off, so you've got to be careful.

COMMISSIONER WEISS: I understand, but that would be a historical rate, by definition.

MR. CASE: Yes, but with some caveats.

COMMISSIONER WEISS: Has anybody made that calculation? Sir?

MR. HUTCHINSON: In 26 years, beginning in 1965 through 1991, which is the best information I had, I calculated the gross acres mined to be 9,622. Again, I was doing it on maps that may not be of the best scale, but they were New Mexico Potash maps or copies of them.

That averaged 370 gross acres per year, the kind of acres that they're talking about now, I believe, as being gross acres. Much of that time, as Mr. Case just said, they were mining 365 days a year, three shifts a day, and now they're mining something like 70 percent of that. So that was another rule-of-thumb judgment I used. And they're further away from the shaft and the demand is less.

Q. If we have more of this next month, would you get your computer to tell me how many acres are in the green stripes there, please?

A. Yes.

COMMISSIONER WEISS: Thank you.

CHAIRMAN LEMAY: Anything else? Excuse the interruption, but maybe we got that point

covered and you can go on, Mr. Carroll.

MR. CARROLL: Mr. LeMay, I was through. That was my last issue.

CHAIRMAN LEMAY: Mr. High, do you have some additional direct?

MR. HIGH: Yes, sir, I do.

EXAMINATION

BY MR. HIGH:

Q. Mr. Lane, look if you will at Yates Exhibit 41. Do you still have it up there?

A. No.

Q. Let me give you mine. Mr. Carroll asked you some questions about other core holes drilled in the same drilling program as Core Hole 162, and he referred to some that were in the barren area shown on Exhibit 41, one being Core Hole K-157.

He asked you a question about how much influence you gave to the data from Core Hole 157. Do you remember that?

A. He was talking about either 157 or 158, I think, in that combination.

Q. What kind of data did you get from Core Hole 157?

A. I received no data from 157. We lost

that hole.

Q. What do you mean you "lost the hole"?

A. We lost the hole. It was a blow-out. We had to move the rig off of it.

Q. When you say "blow-out," what happened?

A. We hit an air pocket.

Q. So that core hole was never completed?

A. Not completed, no.

Q. Now, when someone uses the word barren with reference to a core hole, what does the word barren mean when you use it?

A. Below cutoff grade.

Q. Would a core hole that has zero mineralization, is that different from a barren core hole?

A. It would be located in the barren area.

Q. So, if you had a core hole that was below cutoff grade but still had some mineralization, would it still figure into the computation of how much influence you're going to give it?

A. Yes.

Q. Would you give it some influence?

A. I would give it some influence.

Q. That would be based upon how much

mineralization, even though it's below the cutoff?

A. Yes.

Q. Now, the location of Core Hole 162, I believe you said, was determined primarily because of access?

A. Access, yes.

Q. And that's one of the biggest expenses on core holes is getting in and out?

A. That's one of the large expenses, yes.

Q. Look at Exhibit No. 9 there in front of you, Mr. Lane, which is Order R-111-P. Do you have that?

A. I have it over here.

Q. Turn to page 10, please, sir. Go down to paragraph G(a)?

A. All right.

Q. It's talking about a potash operator filing or designating an LMR. Do you see that paragraph? Paragraph (a) under G?

A. Yes, I'm on (a). Yes, go ahead.

Q. The second sentence of that section says, "For purposes of this agreement, Life of Mine Reserves means those potash deposits within the potash area reasonably believed by the potash

lessee to contain potash ore in sufficient thickness and grade to be mineable, using current-day mining methods, equipment and technology."

Is it your opinion, Mr. Lane, that with the information you have, you reasonably believe that Section 2 contains potash ore in sufficient thickness and grade that New Mexico Potash can mine it using current-day methods, equipment and technology?

A. I do.

MR. HIGH: That's all I have.

MR. CARROLL: One quick question.

FURTHER EXAMINATION

BY MR. CARROLL:

Q. When you indicated that this K-157 was not completed because of a blow-out, do you recall what depth that blow-out was?

A. Not exactly, but above the ore bed.

Q. Approximately how far above the ore bed? Was it within a hundred feet?

A. Plus or minus. It was within that range.

MR. CARROLL: Thank you.

CHAIRMAN LEMAY: Commissioner Carlson?

FURTHER EXAMINATION

BY COMMISSIONER CARLSON:

Q. A couple of questions, Mr. Lane. The two Yates wells in Section 2 that are already, I guess, drilled and producing, the Graham State 1 and Graham State 2, is that correct? When did you approve those wells?

A. I'm not sure the date. Possibly early October. I'm not sure. It's possible. I don't know.

Q. At the time you approved them, those wells were within the half-mile buffer zone of your then Life of Mine Reserves, is that correct?

A. They were.

Q. Weren't you concerned that if you mine to the extent of your Life of Mine Reserves, I guess at the southern portion of Section 35 there, that you would be coming dangerously close to producing oil wells?

A. The LMR, which was in existence at that time, does not follow the north line of Section 2. It's curved off that end. I don't know the exact distance this well is off of that LMR right now.

Q. So your LMR was not within a half-mile

of those wells?

A. It might have been fairly close, yes.

Q. Your Exhibit 2 shows, I guess at least the one in the farthest northeast, that's the Graham State No. 1 and No. 2, that's within the quarter-mile buffer zone and the other one is well within the half-mile buffer zone, is that correct?

A. That is correct.

Q. Mr. Case testified yesterday that he would be afraid to mine within a half-mile of a producing oil well, and yet here you approved oil wells within a quarter-mile of your LMRs, apparently without too much concern, is that correct?

A. We approved it.

Q. Were you concerned about mining within a quarter-mile of those when you approved them?

A. I, myself--

Q. Excuse me?

A. My own opinion, I play with the depth plus 10, usually. What Mr. Case feels, that's what it will be at New Mexico Potash.

Q. Do you know, and I think this has been testified to last month, do you know if IMC bid

on those langbeinite leases that they mentioned in one of your exhibits that were being offered in the area southwest of Section 2?

A. I'm not sure. I have no information on it.

Q. If I remember the exhibit, they requested that those applications to drill not be approved because they were concerned about langbeinite was going to be leased southwest of there, and they intended on applying for those leases. And I assume those are the leases that Yates got, is that correct?

A. They were the only ones up for sale in a recent time.

Q. You don't know if IMC--

A. No, I don't.

Q. Getting back to those three dry holes that are within your present mine workings, do you know when those oil and gas wells were drilled?

A. Two were drilled in the early 40s, I've not gone back and checked recently, and one in the early 50s. The early 50s.

Q. Do you know how deep those wells were?

A. Under 4000. I don't know the exact

numbers right here.

Q. Do you know if they found any shows of hydrocarbons?

A. I checked those wells years ago, meaning off the old logs if I'm not mistaken, and I didn't see any report of hydrocarbons, to the best of my knowledge right now.

Q. When New Mexico Potash got to within 200 feet of those wells, were you concerned about potential gas in the mine?

A. I wasn't, no.

Q. What year was that?

A. When we mined?

Q. Yeah, when you got up to--

A. The one out east would be late 60s or real early 80, somewhere in that range.

MR. HIGH: What did you say?

A. Late 79 or early 80, along in that range. This is plus or minus years. I was trying to look at a map to remember when we were in that area.

Q. This is the one in Section 35?

A. 35.

Q. Do you know when the mining got up to the other two?

A. Early 80s for the center one, and I'm not sure the one in the west.

Q. At least the one in the early 80s and possibly the one in Section 35 was after your scare in 1981 with MSHA, being a gassy mine--the fear that you would have a gassy mine under MSHA, is that correct?

A. It would be in that time frame, yes.

Q. And yet you got within 200 feet of these wells and weren't that concerned about gas getting into your mine?

A. There's always concern for gas.

Q. You say you don't want to mine any closer than depth plus 10 percent?

A. That's my personal feeling.

Q. And Mr. Case says he doesn't want to mine any closer than a half-mile, and yet you got within 200 feet and it appears that you weren't that concerned. You didn't take any precautions?

A. Not in this case here, where there was no indication of hydrocarbons, to my recollection.

Q. Okay. I just have one more questio... When you extend your mine, say you're going to go into a new section, I assume you do more drilling

than you did for--well, in Section 2 you did one drill hole.

If you were going to extend your mine down there, would you do another drilling program to delineate the reserves exactly?

A. There's another drilling program being planned, to my knowledge, right now, which will still take place, and I'm sure they will put at least one or two holes in that general direction.

Q. The intent of that drilling program is to delineate the reserves in this southern portion of your mine?

A. Yeah, to help mine planning and delineation.

Q. When is that drilling program?

A. I don't know when it will be approved.

Q. Five years? next year?

A. I would think before that. Possibly next year or within next year.

COMMISSIONER CARLSON: That's all I have. Thank you.

CHAIRMAN LEMAY: Commissioner Weiss?

FURTHER EXAMINATION

BY COMMISSIONER WEISS:

Q. Mr. Lane, do you have a safety man as

such in the mine or with the company?

A. Yes, we have a safety department.

Q. Safety department. Good. Yesterday, Professor Mitchell said that the Exeter rig caught fire and burnt, down in Section 2, I believe, or 36, perhaps, last year?

A. I missed that.

Q. Well, he said that. Was there any change in the methane readings in your group C's and the mine faces that were related to that?

A. Would you repeat your question again?

Q. Was there any change in the methane readings in the mine as a result of the Exeter rig catching on fire, the blow-out?

A. I have no knowledge of any.

MR. HIGH: Mr. Weiss, I don't want to leave you with the wrong impression. I'm not sure I heard that testimony that way yesterday. We've had no rig in our mine blow up.

COMMISSIONER WEISS: No, the Exeter oil well. They were drilling a well for Pogo, wasn't it? That was the testimony yesterday.

MR. CARROLL: I understood that to be in some other part of the country.

MR. HIGH: Yeah, I didn't understand

that to be a fire. That wasn't in our mine.

THE WITNESS: That wasn't in our immediate area, that I know of.

COMMISSIONER WEISS: That was a misunderstanding on my part there.

MR. HIGH: I'm sorry to interrupt.

COMMISSIONER WEISS: No, I appreciate it. Thank you.

Q. (BY COMMISSIONER WEISS) how are the core holes plugged? Do you use a pump truck? a ready-mix truck? How is that done?

A. The last series was done by Halliburton or B & J.

Q. That's general practice?

A. Yes.

Q. Just a moment ago, when we were discussing the green hatched area on Exhibit 38 and I asked you to get the area off your computer and then divide it by time, can you normalize that time with your comments and Mr. Case's comments concerning whether you're running three shifts or one?

A. I guess it could be done. I can't do it on the computer, but one of our people might be able to.

MR. CASE: Commissioner Weiss, if I might, area calculations are helpful at best. Royalties are paid on tonnages removed. And perhaps we can try and close on how many tons we've removed versus how many acres are shown on the map and at different rates.

We're currently mining X number of tons per year and previously we were mining Y tons per year. We can back into that calculation or front into it. It would be awfully hard to come off the map, because during the time we've been running the reduced rates, we've been doing second mining in areas that were previously first mined at the higher rate. It will be like a jigsaw puzzle to try and hit areas first.

But, to answer your question, yes, you can planimeter all that and say, okay, there are so many acres that have been affected by mining.

COMMISSIONER WEISS: Maybe you can give me the average time-related number.

MR. CARROLL: Chairman LeMay, if I might make a suggestion here, I have no objection to asking the experts, Mr. Hutchinson and Mr. Case, to get together and come up with a single map so that both of them know what's going on,

sometime between now and December 1. That might really save a lot of this.

CHAIRMAN LEMAY: Is that something we need? You made the request, Commissioner Weiss.

COMMISSIONER WEISS: I would like to know what the historical mining rate is over the life of the mine, not the last six months or the two years. What the real mining rate is.

MR. CARROLL: If we don't have the two sit together, we'll probably get a disagreement again.

COMMISSIONER WEISS: I think you can come up with one for the life of the mine. I'm not sure if the life of the mine is 30 or 26.

MR. CASE: It depends on the rate you pull the ore out.

COMMISSIONER WEISS: I mean, when it started. Was it 1962?

MR. CASE: 1965.

COMMISSIONER WEISS: 1965? I've heard different numbers. So, that's not clear to me.

MR. CARROLL: Can we agree, then, that Mr. Hutchinson can come down and sit with you, Walter?

MR. CASE: If we can have an agreement

on what may or may not be covered during those discussions, and that would be between you and Mr. High, but again we're getting into this odd area of confidentiality between potential competitors.

MR. HIGH: I have no objection to sitting down with Mr. Carroll and Mr. Hutchinson and trying to work out some stipulations. I won't open up the mine to Mr. Hutchinson.

CHAIRMAN LEMAY: That's not what was requested.

MR. HIGH: We'll be more than glad to come up with any stipulations that will speed this thing up.

CHAIRMAN LEMAY: Let's leave it at that, then. You have your areas of confidentiality and you heard Mr. Weiss' concern, and I was just trying to accommodate that in some fashion.

MR. CARROLL: We'll do that.

Q. (BY COMMISSIONER WEISS) And one last question here, there was testimony, I think it was today, I have it down for a question to you, at least, concerning the nonleased area in the LMR of 38.

What are the mine lease boundaries down here on Exhibit 38?

A. It's the blackout line, generally going around the worked-out areas.

Q. The black line goes to the heart of Section 27 and it goes south. What happens in there when it hits Section 34?

A. The lease line would be in the northwest corner to the west quarter corner, then over to the center of the section, down to the south quarter corner and back over to the southwest corner section and back over to the southwest corner. That is unleased at the time, that 160 acres of the southwest quarter.

Q. Of which section?

A. Of Section 27.

Q. Is that the only area that was nonleased? Does New Mexico Potash own the leases on most of 34, 35, 36 and 2?

A. We own all of 36, all of 35, all of 34 and all of 2, yes.

Q. I have one more question. Why were the core hole locations left off of Exhibit 38, all of the core hole locations of interest down here?

A. That was our preference there, and how

much information we would give related to this hearing.

COMMISSIONER WEISS: Thank you. That's all I have.

EXAMINATION

BY CHAIRMAN LEMAY:

Q. I just have one follow-up. On those three dry holes that Commissioner Carlson raised, do you remember if you took gas readings at all on the surface around those casings?

A. No, I didn't.

Q. In the mine itself, did you go around the well at all? I guess you have a sniffer, but--

A. That area adjacent to it had been checked on a shift-by-shift basis, as the faces went by, at least.

Q. And there were no anomalous readings?

A. None that I know of.

Q. I would like to explore a little bit, you mentioned the coring you've been involved with. In your career at the mine, have you had any sidewall cores or core slicer cores, or do you need a hole core diameter to do the work you need to do in getting grade?

A. No, we quarter the core. We use one-quarter of it to retain three-quarters of it.

Q. You use one-quarter to retain three-quarters. Explain that.

A. We use one-quarter for analytical analysis.

Q. You're talking about a hole core analysis?

A. You take one-quarter of the core.

Q. For a whole core analysis?

A. Yes.

Q. What about the other three-quarters?

A. We retain that.

Q. Have you ever experimented with sidewall coring or any other type of coring method?

A. No, I haven't.

Q. Could that be useful in your Life of Mine Reserve plans and so forth?

A. I never looked into it. I don't know, sir.

Q. I would like to ask you more about these barren core holes. You mentioned you don't give them a 2500-foot radius of influence. A barren core hole with zero mineralization, how

much do you give it, or is it arbitrary?
A. Enough to get a line around it or, say, 500 feet.
Q. So a barren core hole--
A. If it sat on the edge, yes.
Q. --would be somewhere in the neighborhood of 500 feet, radius of influence?
A. Yes.
Q. If there was some mineralization, would that effect your radius of influence?
A. With mineralization, I normally will use a triangle method and bring that line back out to the isopach grade of cutoff.
Q. So you have a proportional gradation between commercial ore and whatever that grade of influence would be?
A. Right.
Q. Isn't that basically what you're doing with those core holes that have cored commercial ore?
A. Yes, sir.
Q. So you follow the same procedure with a core below the grade?
A. Right.
Q. On your four feet of 11 percent

mineralization that you showed on Exhibit 106, is that one percent higher than the BLM? I think I've heard the figure four feet of 10 percent?

A. Yes, it is.

Q. You're different in that area?

A. Yes.

Q. Would that affect any of the LMR areas, or is that one percent?

A. Very, very little.

Q. Who owns the southwest of Section 27, do you know, on your map there?

A. Southwest quarter of 27 is federal lands, BLM, unleased.

Q. If you have to drive down to Section 2, you would have to go through there, wouldn't you, in order to get ore?

A. Chances are we would. And we would apply for a lease.

Q. Would you try and lease it or anything?

A. Yes.

Q. Have you made any effort to try and lease that land?

A. We have discussed it and we're looking at possibly leasing, at an early date, some area there in the south.

Q. Once you drive down to Section 2, according to your mine plan, it looks like your LMR just kind of opens up. You have Section 11, which looks perspective, and 14, evidently, has pretty good mineralization. You're not interested in those because they're too far away from your main shaft? Is that your reason, or what?

A. That will be a decision when we get into Section 2 or close to it.

Q. I thought Mr. Case mentioned something about, you have to be so close for your miners to get to the shaft; otherwise you're violating some federal restrictions there?

A. In the next 7 to 8 years, transportation might change as much as it did in the past three years.

Q. Might put a monorail underground to zip around. So that's an open-ended decision, you might keep going or stop or whatever?

A. That's right.

CHAIRMAN LEMAY: That's all I have. Thank you very much.

MR. HIGH: I have a few more questions.

FURTHER EXAMINATION

BY MR. HIGH:

Q. Mr. Lane, look at Exhibit No. 2, if you will, please. It's the original LMR map. Now, when you said that you approved the four wells along the east side of Section 2, Mr. Lane, the two northernmost wells being Yates and the two southern wells being Pogo, I take it that those people asked you for your approval to drill those wells?

A. They did.

Q. And you were cooperative and agreed to them?

A. Yes.

Q. You knew these were Delaware wells, right?

A. Uh-huh.

Q. Did you recall what the industry agreement was with respect to Delaware wells?

A. I do today.

Q. What is it?

A. One-half mile.

Q. For a well drilled to the base of the Delaware, where the bottom hole location is above the base of the Delaware, do you recall if the buffer zone was one-quarter mile?

A. It was one-quarter mile.

Q. If it went below the Delaware, it was one-half mile?

A. Okay.

Q. The line on which the northernmost, I guess it's Graham No. 3, it's right at the one-quarter mile?

A. Graham 3 is on that line, yes.

Q. That would be consistent with what the potash industry agreed to do with the oil and gas people as the industry agreement? We agreed to that one-quarter mile?

A. One-quarter above the Delaware, yes. Right. I agree.

Q. Now, do you have any different concerns, Mr. Lane, between a dry hole that's been plugged and abandoned and a well that's drilled to 8500 feet and 2,600 to 2,800 psi? Is there a difference in the bottom hole pressure?

A. Restate your pressure.

Q. Do you have any different concerns between a hole that was dry and then it's plugged and abandoned, and an operating or producing well that's drilled to 8500 feet, bottom hole depth, and has a bottom hole pressure of 2,600 to 2,800

psi, is there a difference between those two?

A. Yes, there is a difference.

Q. Which one would you be the most concerned about?

A. The one that was a producer and had the pressures indicated.

Q. Looking again at Exhibit 2, the two wells in Section 36 that are within the one-quarter mile buffer zone, were you asked to approve those two wells?

A. Yes.

Q. Why did you agree to those wells?

A. On the LMR that's not the computer run of it, I had a dashed line, a questionable line on that LMR in that area right there, in 36, going through to the west half, and we gave them--we approved the standard location.

Q. And even though it was within a quarter-mile of the buffer zone?

A. Yes, sir.

MR. HIGH: That's all I have, Mr. Chairman.

FURTHER EXAMINATION

BY COMMISSIONER WEISS:

Q. Mr. Lane, on the plugged and abandoned

wells, is it the fact that it has 2,800 pounds bottom hole pressure? Or what about a producing well that's no longer producing, it's dry or it's depleted? Do you have the same concern with it as you do a dry hole, or how do you view that?

A. I'd have less concern for a dry hole never producing than one that's produced and abandoned.

Q. If the bottom hole pressure is 100 pounds or 500 pounds, can you quantify that for me?

A. No, I can't.

COMMISSIONER WEISS: Okay. Thank you.

CHAIRMAN LEMAY: Additional questions of the witness? He may be excused. Do you have a quickie you want to put on, or do you want to call it a day?

Let's take a 15-minute break and decide whether you want to put another witness on. It's your call.

[A recess was taken.]

CHAIRMAN LEMAY: Mr. High?

MR. HIGH: We would like to insert into the record some information, and we can do so by stipulation or with another witness, some

information on those other three wells, when they were mined and when they weren't.

I have several questions to ask about when we mined around those dry holes. We want to pin those dates down, and we can either do it by stipulation, an exhibit or another witness. Other than that, we have nothing further.

CHAIRMAN LEMAY: Do you have anything else?

COMMISSIONER CARLSON: No.

CHAIRMAN LEMAY: Bill?

COMMISSIONER WEISS: Nothing else.

CHAIRMAN LEMAY: We're adjourned until the 1st at 8:30 in the morning.

(And the proceedings concluded.)

CERTIFICATE OF REPORTER

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

I, Carla Diane Rodriguez, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Commission 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 24, 1992.

Carla Diane Rodriguez

CARLA DIANE RODRIGUEZ, RPR
CSR No. 4