BEFORE THE BOARD OF OIL, GAS AND MINING

DEPARTMENT OF NATURAL RESOURCES

IN AND FOR THE STATE OF UTAH

IN THE MATTER OF THE REQUEST FOR AGENCY ACTION OF LIVING RIVERS, PETITIONER; DIVISION OF OIL, GAS AND MINING, RESPONDENT - REQUEST TO APPEAL THE DECISION OF THE DIVISION OF OIL, GAS AND MINING APPROVING THE APPLICATION OF EARTH ENERGY RESOURCES TO CONDUCT TAR SANDS MINING AND RECLAMATION OPERATIONS AT THE PR SPRINGS MINE, UINTAH COUNTY, UTAH.

DOCKET NO. 2010-027 CAUSE NO. M/047/0090 A

TAKEN AT: Department of Natural Resources
1594 West North Temple, Room 1040
Salt Lake City, Utah

DATE: Wednesday, February 23, 2011

TIME: 9:06 a.m. to 6:26 a.m.

REPORTED BY: Michelle Mallonee, RPR

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James T. Jensen, Chairman
Kelly L. Payne
Samuel C. Quigley (Recused)
Jean Semborski

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I N D E X

Docket No. 2010-027 Cause No. M/047/0090 A

Wednesday, February 23, 2011

(The proceedings began at 9:06 a.m.)

CHAIRMAN JOHNSON: Good morning, everybody. Can we go on the record?

I'd like to welcome everybody to the February 2011 hearing of the Utah Board of Oil, Gas and Mining. This will actually be two days of hearings. The plan is to only hear Agenda Item No. 3 today. And the other matters, 1, 2, and 4 through 7 will be heard tomorrow.

So the matter that we're going to hear starting this morning is Docket No. 2010-027 Cause No. M/047/0090A - In the Matter of the Request for Agency Action of Living Rivers, Petitioner; Division of Oil, Gas and Mining, Respondent - Request to Appeal the Decision of the Division of Oil, Gas and Mining Approving the Application of Earth Energy Resources to Conduct Tar Sands Mining and Reclamation Operations at the PR Springs Mine, Uintah County, Utah.

Before the Board proceeds on that, I think most people know that my term and Sam Quigley's term will be up at the end of February. And the Board believes that this matter will not be, because of the complexity and the amount of testimony and evidence that's going to be

entered, the Board will not be able to render a decision before the end of February. It's a very good likelihood of that. Because of that reason, I will be recusing myself from this matter, and Jim Jensen will be sitting in as Board chairman for this matter.

Mr. Quigley.

MR. QUIGLEY: And likewise, I will recuse myself from this matter.

CHAIRMAN JOHNSON: First Mr. Harouny.

MR. HAROUNY: I'd like to announce that I may have some oil and gas leases in the neighborhood and the immediate area. If everyone is okay with me attending, I don't see any conflict at this point.

CHAIRMAN JOHNSON: And Mr. Payne.

MR. PAYNE: Mr. Chairman, just for the record, I'd like to note that attorneys for Western Resource Advocates are representing the petitioner in this matter today. And I'd like to disclose that my employer is involved in a dispute with a separate party, who is also represented by Western Resource Advocates. Western Resource Advocates' involvement in this matter today will not affect my ability to consider this case objectively. I don't see any problem participating, assuming the petitioner has no objection.

MR. DUBUC: We have no objection to either board

member.

CHAIRMAN JOHNSON: No objection to Mr. Payne or Mr. Harouny?

MR. DUBUC: That's correct.

CHAIRMAN JOHNSON: Okay. All right. Thank you, very much.

Mr. Quigley and I are going to recuse ourselves, and Mr. Jensen will be running the hearing. Thank you.

MR. ALDER: Mr. Chairman, if I might, just for the record, interpose a question to the Board on your recusal?

CHAIRMAN JOHNSON: Yes.

MR. ALDER: So do I understand that you will not be participating at all in the questioning of the witnesses or the hearing of testimony?

CHAIRMAN JOHNSON: That is correct. And we will not be participating in the deliberations.

MR. ALDER: The Division would just like, for the record, to note its objections to your recusal. Understanding your inability -- I'm sorry. I turned it off instead of on.

Understanding your inability to participate, we believe that the parties and the Division are entitled to have a mining representative present, if possible, and believe it might be possible for the new Board members to

hear the testimony. And understand, I'm not asking you to change your mind. I just want that on the record.

CHAIRMAN JOHNSON: Okay. Mr. Quigley actually represents geology, and I represent mining. Specifically, my experience is coal mining. Mr. Payne is a mining representative on the Board. Also Ms. Semborski has experience in mining, also.

MR. ALDER: We'll miss you for lots of reasons. I just wanted to make that objection on the record.

MR. GILL: I think that was kind of a compliment.

CHAIRMAN JOHNSON: We do not want to do anything to jeopardize the case moving forward. And we just felt it would be much cleaner if we were not involved, since a decision, in all likelihood, would not be rendered before March 1st.

MR. ALDER: Thank you.

CHAIRMAN JOHNSON: Thank you.

CHAIRMAN JENSEN: Good morning, Counsel and parties. Welcome. I hope that you'll indulge me.

MR. GILL: You may want to relocate to here because you control the microphones.

CHAIRMAN JENSEN: I asked Doug to leave them all on, and I think they're all on.

As I started to say, I hope that you will bear

with me as I conduct my first hearing for the Board of Oil, Gas and Mining.

For those of you who don't know me, my name is Jim Jensen, and -- can you not hear me?

MR. ALDER: No.

CHAIRMAN JENSEN: I'll move it up closer.

My name is Jim Jensen. I'm an attorney, practiced private practice of law over 22 years. And then spent twenty -- part of those years -- I spent 25 years as general counsel for Savage Companies, a privately held materials handling and transportation company headquartered here in Salt Lake City. I've been on the Board for two years. And it's my pleasure to welcome each of the attorneys and the parties here.

For the record, could we have counsel for each of the parties introduce yourselves.

MR. ALDER: Yes. For the Division, Steve Alder with the Attorney General's Office. And Emily Lewis will also be representing the Division for the Attorney General's office.

MR. DAVIS: Mr. Chairman, on behalf of Earth Energy Resources, John Davis and Chris Hogle and also Ben Machlis for Earth Energy.

MR. DUBUC: Mr. Chair, on behalf of Living Rivers, my name is Rob Dubuc, and this is my colleague,

Joro Walker.

CHAIRMAN JENSEN: All right. Living Rivers is the petitioner. I believe it's appropriate that -- are you going to start?

MR. DUBUC: We agreed with the Division was that the Division would begin by giving a broad overview of the project.

CHAIRMAN JENSEN: Is that by virtue of counsel, or is that through witness testimony?

MR. DUBUC: I think Mr. Alder could address that.

CHAIRMAN JENSEN: All right. And after that?

MR. DUBUC: After that, we would present.

CHAIRMAN JENSEN: Okay.

Mr. Alder.

MR. PAYNE: Mr. Chairman, were we going to consider the two motions that...

CHAIRMAN JENSEN: Good point. Good point.

There are -- before we get into that, there are two procedural matters that are before the Board, a motion in limine and a motion to strike. And the Board would like to hear from each of the parties, and will allot each of the parties ten minutes to give us your highlights and anything else that you want to tell us.

And then the Board is going to go and recess and

make a decision on those two procedural matters. That decision will drive how the rest of the day goes. And so with that, decide who wants to go first relative to the motions.

MR. HOGLE: I'll go first. Chris Hogle for Earth Energy Resources.

The motion to strike and in limine seeks a Board decision to exclude evidence on re-arguing the groundwater quality issues that the Division of Water Quality has already decided. Living Rivers concedes that they won't and they can't challenge a DWQ determination. But then they go on to say in their opposition material that they are not going to do that, but what they are going to do is challenge the Division's reliance on those determinations. I would submit that's a nonsensical distinction. If you can't or you won't challenge a determination, then you can't challenge reliance on that determination.

The DWQ, like any governmental agency, makes determinations for the public to rely on and heed. It's the same as this body. If this Board -- here's an example: Say this Board upheld the Division's determination on the NOI in this case. Living Rivers goes to court, files a lawsuit that says, "We're not going to challenge the Board's determination, we're just

going to challenge anybody's reliance on it." It's a distinction without a difference. The Board doesn't want to get into the business of determining which determinations of sister agencies are entitled to be relied upon and which are not.

So, you know, we submit that the DWQ determination that the mine will create a de minimis impact on groundwater quality within the Department's jurisdiction, Living Rivers wants to challenge that based on the technical errors and omissions. And we just think that's not appropriate. They could have challenged it and they didn't. It's precluded.

The other thing I want to mention about that is they say they are not going to challenge it. But look at their witness' testimony. Elliott Lips testifies, quote, in his pre-hearing testimony that it's invalid. He uses word "invalid." He also says that there are problems with the determination made by the DWQ. Both of Living Rivers' witnesses challenge the basis on which DWQ made its determinations. That's the same thing as challenging the validity. It's the same thing.

Living Rivers argues that the Division, DOGM, has an independent duty to ensure that projected impacts to groundwater, surface water, soils and soil stability, air quality, public health are addressed. But this case

is only about -- of those, this case is about surface and groundwater. They haven't challenged soil stability, public health. That's outside the scope of this case. So the issue about whether a DWQ determination may be relied upon in these other contexts isn't part of this case. It doesn't need to be decided.

I want to address Charles Norris' toxicity opinions. He's made determinations, conclusions regarding the toxicity of certain chemicals, and he's not a toxicologist. He doesn't simply present documents. He doesn't simply present material safety data sheets or internet information. He selectively presents it, interprets it, and tries to apply it outside its setting to the PR Springs mine.

He could have done this in his initial testimony in January. They say that it's proper rebuttal because the information wasn't provided until after his initial testimony. It's just simply not true. The NOI, the second letter in Appendix B to the NOI, identifies the chemical. And he's used that information to find the internet information that he presents in his latest testimony. It was there.

Yeah, the letter appears elsewhere in the NOI with blacked-out information. But it's there with the information that's not blacked out. I could point to it.

CHAIRMAN JENSEN: Again, when you say it's there, where is it?

MR. HOGLE: It's in the second letter in Appendix B to the NOI. The second letter.

CHAIRMAN JENSEN: And that is not blacked out.

MR. HOGLE: It's not blacked out. It's not blacked out. And the only way he could have reviewed that letter -- he identifies it as a letter he reviewed in his February testimony. The only way he could have reviewed it is as part of the NOI because it wasn't produced in this case. It wasn't provided recently, as Living Rivers suggests. It was part of the NOI. We didn't produce it otherwise. That's how he had to review it. Thank you.

CHAIRMAN JENSEN: Thank you.

Mr. Alder.

MR. ALDER: Thank you, Mr. Jensen, Members of the Board.

We joined in the -- or filed a motion in limine and motion to strike, as well, addressing simply the same issue. And I think it's been agreed now that the Board cannot look into or revisit the Division of Water Quality's decisions. But, of course, the Board can look at the adequacy of the Division's evaluation of the NOI.

The testimony that the Division is prepared to

give will demonstrate that the Division has its own professional competent people. But that as any professional would, they don't own all the information, and they rely on other agencies for evaluation of technical information. And in this case, much of the technical information concerning water quality was reviewed by the Division of Water Quality in their permitting.

So there's sort of two aspects to that evidence. One, was it adequate for the permit, and was the permit appropriately given? That's nothing that this Board can change. That's nothing this Board has jurisdiction over. But the Division also looked at the information and relied upon that information and evaluation as part of its evaluation of the NOI. That's an appropriate thing for the Board to do -- I mean, for the Division to do.

And I think there's a limited extent to which the Board could ask questions about that. Was the information the same? Was the information that they looked at carefully looked at? Was there any mistakes or fraud in submitting information, or are we talking about the same thing?

But this hearing should not become a hearing on MSDS documents and toxicity, which is admittedly beyond the expertise of the Division. We believe it's beyond

the expertise, in many respects, of the Board -- but not totally. So I think the Board can act as a gatekeeper. They can allow some question as to what should or shouldn't have been asked and provided. But I don't think we need to get into a hearing about -- the type of hearing that would be before the Division of Water Quality Board.

So how do you thread the needle? I think you're just going to have to, perhaps, allow some leniency but not allow a full planopy (phonetic) of experts on issues that were never addressed.

I envision this as kind of like you ask somebody to fill out a short form, tax form, and then you bring them in for a full corporate audit. The rules don't require the information that they're being asked to be audited about.

The question before the Board today is: Did the Division require the information that's specially required for an NOI? That is not to say that the Division doesn't care about the potential for contamination from chemicals. We certainly don't want anybody to get the impression that the Division is trying to hide the ball or that we didn't worry about these issues. It's just that at this stage, at a question about the NOI, the questions should be limited to what

was required by the rules, what was provided, and was a reasonable and adequate evaluation done by the Division and an adequate NOI provided by Earth Energy?

So I don't really have a final answer, except that I believe much of the information that was provided should be stricken pertaining -- unless -- I just think there's no real relevance. And I think the burden is on the petitioners to show that it is relevant and that it was required by the rules.

CHAIRMAN JENSEN: Counsel.

MS. WALKER: Do I have to have hold this down?

CHAIRMAN JENSEN: Shouldn't have to.

MS. WALKER: Okay. Good morning.

First of all, I think that while EER and the Division essentially reference specific areas of the testimony that they think should be stricken from the record, that each one of those pages has to be examined independently, because what we're talking about is this wholesale striking of significant portions of the testimony. And yet, the issue is rather narrow, at least if you look at it from the Division's point of view.

So in order to do it justice to this motion, we would have to go page by page and argue over, essentially, is the material on those pages what EER and the Division say it is?

And I think if you look at our response to their motion, although I did somewhat of that work, the point is, is that it doesn't say what the Division and EER say it does. Much of that testimony has to do with the Permit by Rule, which was submitted as part of the NOI. And the Division itself admits that that's probably an issue before this Board. So none of that testimony should be struck, because the Division agrees that it's appropriate. So we would have to go through it page by page and determine: Is this line dealing with Permit by Rule, or is this line dealing with DWQ's assessment?

Now, the better way to address this motion is to accept the testimony. And then as the Board is deliberating, it weighs -- it essentially weighs the relevance of the evidence to its determination. So it can hear evidence, and if they consider it to be irrelevant or not of much weight, then that determination is made at the time.

But the risk you run by essentially striking good portions of our testimony from the record is that if a reviewing court determines that evidence is properly -- or was improperly ignored, this whole hearing is going to have to take place again because it's likely that that evidence is critical and that you would have to hear it.

So I suggest that, rather than this wholesale

striking, that you just keep the arguments in mind and weigh the relevance of the testimony to your ultimate decision. But specifically, I think the record is very clear that the Division has certain obligations under the regulations that you are very familiar with, I assume. For example, Section 109, 1010 (sic), 106. These regulations require the Division to look at the NOI and determine if it adequately describes, for example, impacts to groundwater, impacts to surface water. If you look at those references from the depositions that we cited in response to their motion, it's very clear that the Division relied wholesale on DWQ for meeting those obligations.

Now, if suddenly -- and I want to be -- I want to make a distinction here because EER misstated our position. We do not believe that DWQ's permit decision is subject to this Board's review, but they made findings. So in analyzing that permit request, we can call it, DWQ made certain findings. The Division relies wholesale on those findings. And we referenced repeatedly in depositions from staff members where they did that.

So if suddenly we are not allowed to determine whether those -- or at least essentially present our evidence to the Board whether or not those findings are

legitimate, that means that a whole section of the Division's -- the adequacy of the Division's determination is suddenly off limits to us. That would be akin to -- for example, we know that EER hired a consultant, JBR, to do a lot of the work associated with the NOI. So an analogy would be that we would not be allowed to determine whether JBR's decisions were valid, and we would have to take them as a given. And yet, if JBR makes a mistake or, you know, is inaccurate, or fails to examine something thoroughly, who is responsible for that? EER, not JBR.

And so what the Division and EER are asking you to do is essentially put off-limits a crucial element of the decision that the Division made.

Now, relative to these other points, the idea that Mr. Norris is not an expert to talk about MSDS sheets. MSDS sheets are these -- I don't know if you know what they are. But they, essentially, have to do with whether a material is safe or not.

So Mr. Norris is a professional geologist. Well, the person who wrote the Permit by Rule is also a professional geologist. So is DWQ's -- the signatory of the DWQ determination. So if we're not allowed to talk to professional geologists about toxicity, then no one who is going to be at this hearing is going to be

qualified to do that and we'd need to describe every MSDS sheet in the record, along with any testimony that anyone is going to provide, including in the Permit by Rule. I don't think that's a very good idea, but we're willing to go along with it if you think that Mr. Norris is not qualified.

Plus, again, EER's argument is not nuanced. Much of what Norris talks about is the physical characteristics of these chemicals. That's exactly what his job is day in and day out for 25 years. You talk about vapor density, you talk about solubility -- and anyway, there are a lot of technical terms that he addresses in his expert testimony. Is the suggestion that he's not qualified to talk about those? That's his whole job. The fate and transport of chemicals in, for example, a waste pile. So EER, again, they just want to strike huge sections of testimony without that nuanced approach, and that's unacceptable.

This idea, again, of whether this was rebuttal testimony or not. Okay. So I admit: We didn't realize that one letter had redacted material and it was repeated elsewhere in the record without redacted material. It was our understanding until January 11 that we were not allowed to know the makeup of this chemical. We looked at the letter with the redacted material, which is also

in the record, didn't realize that somewhere in the record they had hidden one that had that reference in it. And, you know, we were told again and again that we weren't allowed to know this. And, in fact, we didn't get the MSDS sheets for the actual chemical with its actual makeup, including the list of chemicals that Mr. Norris goes through, until January 11th, after we had filed our direct testimony. And we have the email that shows that. So if, you know, Mr. Norris was supposed to find that hidden reference in the record --

CHAIRMAN JENSEN: Counsel, I would just caution you about "hidden." There's nothing in the record that anyone's hidden anything. I would just be careful about that commentary.

MS. WALKER: I apologize.

Anyway, the better point is we didn't get the MSDS sheets until January 11, and so we didn't really know the makeup. So the whole list of chemicals that are in one of the materials that EER plans to use were not available to us, certainly, without those MSDS sheets, which, of course, no one at EER, apparently, is qualified to talk about, either. That's our take on it.

I think if you review the extent to which the Division relied on DWQ's findings -- not their permit decision, but the findings they made in making that

permit decision -- that those findings cannot be somehow taken as valid for the purposes of this hearing.

The other thing is, is that the Division itself agrees that the extent to which the Division relied on those findings is exactly the testimony that's appropriate for the hearing today. Thank you.

CHAIRMAN JENSEN: Any of the Board members have any questions?

Mr. Gill.

MR. GILL: I have just a couple of questions. Maybe one.

Do you have any court cases to support, or legal authority to support? And if you do, what's your best case on that, that this Board should review the actions and decisions of another agency and how far should that review go?

MS. WALKER: Well, I think you are misstating our decision, and I apologize if I am not making it clear. We are not asking you to review a decision that DWQ made. We're asking to be able to provide testimony on the Division's reliance on findings that DWQ made.

In terms of where our legal authority comes from, I think it comes from the Division's understanding of its own role in adjudicating the NOI. And if you look at the testimony from Mr. Baker that we quote in our

motion, it's very clear that he understands that ultimately the Division is responsible for carrying out its regulatory obligations. It's the Division's rules. They are required to carry them out. And that's what we're talking about. We're talking about the Division's -- essentially, the Division's actions in carrying out their regulations. If they chose to rely on somebody else's statements and findings, then we need to know if that's appropriate. Is it appropriate to do that?

CHAIRMAN JENSEN: Counsel, doesn't that get -- it seems to me -- I hear what you are saying.

But on the one hand, you concede that you can't look at the DWQ decision. You've conceded that. You come at it that you get to look at it in the reliance by the Division on the DWQ decision. Isn't that your position?

MS. WALKER: Well, it's a teeny bit different than that.

CHAIRMAN JENSEN: Okay. First of all, let's take the DWQ determination. You are saying that's not subject to your review?

MS. WALKER: If you define the determination as the decision on the -- to grant a permit, shall we just say. The permit decision, no, not in front of the Board.

You're right.

CHAIRMAN JENSEN: All right. And did you have a chance to comment on that before the DWQ?

MS. WALKER: There was no comment period.

CHAIRMAN JENSEN: There was no comment period. All right. I interrupted you. So go ahead with your...

MS. WALKER: Well, you know, I realize that our argument is subtle. But I think just because it's subtle doesn't mean it's not important. And the idea is, is that -- I really think that the consultant analogy is completely appropriate.

If you rely on somebody else's findings -- and really, we're talking about the findings because we listed the findings that are at issue, not the determination. But the findings that they -- it's like they, you know, sort of weighed some facts. But if suddenly those facts are taken as true and cannot be challenged in any way and the Division relied on them, then what does that mean?

So we, you know -- again, it would be like JBR making those important decisions, and suddenly all those facts that JBR comes up wouldn't be subject to challenge, even though EER relied on them in essentially finalizing the NOI.

MR. JENSEN: Okay.

MR. GILL: That brings me back. Still, this cannot be the first forum where this subtle argument has ever been made. So I'm wondering if you have any legal authority for your position that clarifies this. I mean, there are a lot of good arguments on both sides. And so if there's past legal authority of where boards like this should look or how far or how deep, that would help, knowing your best case or your best legal authority you have. Not all of them. Which one is the best for what you are relying on?

MS. WALKER: I apologize because I have given you my best legal argument, which is based on regulations, not on case law. I did not find any case law. And I actually think that this situation is somewhat unique.

Now, I know that it happens in the federal context. But in the federal context, you could sue both DWQ -- I mean, you know. I could sue the Bureau of Land Management and the Park Service at the same time. I could sue the Bureau of Land Management and the Forest Service at the same time. We're allowed to do that. So it doesn't come up in the federal context, really.

But the idea that just because -- just because -- and I completely understand that the Board only has jurisdiction over the Division matters. And,

you know, maybe the solution is to hear how we approach the issue and see if it really is as bad as everyone paints it to be. Maybe you'll find that we're not really doing anything, other than talking about the Division, the Division's responsibilities, and whether or not the Division met its regulatory obligations. And I think that if you started to hear the testimony, you'll realize that that's what's going on.

And if it's too much about DWQ, then when you are making your deliberations, you just say to yourself, "I'm not going to give a lot of weight to this because this isn't what I'm supposed to be doing."

MR. JENSEN: All right.

Any other comments or questions?

MR. JOHNSON: Mr. Chairman.

CHAIRMAN JOHNSON: Mr. Johnson.

MR. JOHNSON: I wanted to direct one question to the Division.

When the petitioners were arguing their side of this motion, there was an argument made that some of the material that's in these statements made by some of these witnesses -- for instance, those concerning the Permit by Rule, were conceded to be appropriately admissible before the Board. So the point being that some, but not all, of what's in there should be stricken.

I just wanted to see if that was a true statement in terms of the Division conceding that that's the case.

MR. ALDER: I'm not sure I understand the question. If you are asking about some of the proffered exhibits and not all the proffered exhibits, or if you are asking about the scope of the DWQ determination, I would like to point out that you can't have a decision without findings. And so it's a little bit of a false distinction saying, "We only depend on their final determination, but we can't look at their findings." I mean, the finding of de minimis effect is based on additional findings. And concededly, the Division relied on those findings. Is that your question?

MR. JOHNSON: I guess my question is -- if I understood it correctly -- that in some of the prefiled testimony, the argument of petitioner was that some of what's discussed in that testimony shouldn't be stricken, or need not be stricken, though your position is that some of it should be.

Is that the case? Or is it your position that 100 percent of it should be stricken or not admitted under the motion in limine?

MR. HOGLE: No, I think it's going to require some pulling apart.

MR. JOHNSON: That's what I wanted to know. Thanks.

CHAIRMAN JENSEN: All right. The Board will be in recess. We'd ask the parties and counsel to remain in the building. We'll make the decision as soon as we can and give you advance notice to get back in here. Thanks.

(The Board deliberated from 9:44 a.m. to 10:57 a.m.)

CHAIRMAN JENSEN: Let's go back on the record.

The Board has determined that with respect to the motions in limine and the motions to strike by Earth Energy and the Division that each of these motions are denied.

The Board would request that this hearing --

MEMBER OF THE AUDIENCE: Will you turn on your mic?

(Pause in the proceedings.)

CHAIRMAN JENSEN: The motions in limine and motions to strike filed by Earth Energy and the Division are each denied.

The Board requests that, going forward, that the parties need to focus on the Division's duties solely under the Board's rules and to focus on the Division's reliance on the DWQ determination.

This Board requests from each of the parties and witnesses that we receive live testimony to allow the

Board to weigh the credibility, relevance, and materiality of such testimony. This Board -- I realize that there's prefiled testimony here, but the Board requests and wants to hear from each witness. Let's go forward.

Mr. Alder, I think you wanted to give a presentation?

MR. ALDER: Mr. Chairman, to clarify for the parties and the Board that we're on the same page, I believe there was a request by some of the parties as to whether or not the Board wanted opening statements. If so, we would proceed with those. And then as far as the presentation of the witnesses, the agreement of the parties was that the Division would provide one witness, Paul Baker, who would provide an overview of the decision and the mine very briefly, hopefully, and allow some questions. And then we would have the petitioners proceed with their witnesses, and then Earth Energy would follow.

Then the Division has two witnesses that would speak to the regulatory evaluation that they made, and that would be last. And we have one rebuttal witness that we've reserved, and there may be other testimony. But that's how we envisioned it going forward.

And as far as opening statements, they could

possibly proceed in a different order, but that's where we are.

CHAIRMAN JENSEN: From other counsel, any comment to Mr. Alder's...

MR. DAVIS: Earth Energy would agree to that proceeding. I think we would like to make a short, prepared statement, if we might. And that could either come now, along with other prepared statements, or at the beginning of our case-in-chief with our rebuttal.

CHAIRMAN JENSEN: And for the petitioner?

MR. DUBUC: Point of clarification. I believe that Mr. Alder and EER had agreed that petitioner would have a final rebuttal opportunity at the end of this --

MR. ALDER: That's correct.

MR. DUBUC: -- proceeding. Perhaps I missed that.

MR. DAVIS: I think he said that.

MR. DUBUC: I apologize.

MR. DAVIS: We stipulated to that.

MR. DUBUC: In terms of the opening statement, we also would like to make a short opening statement. It might be -- because of the audiovisual aspect of it, because we've got to plug in our computers, it might make -- well, because of the slides and stuff. So for instance, the Division has their computer plugged into

the system. It might make sense just to do the opening statement as we present our case so we are not going back and forth with...

CHAIRMAN JENSEN: So you are reserving your opening statement to when you present your case?

MR. DUBUC: Yes, sir.

CHAIRMAN JENSEN: And Mr. Davis?

MR. DAVIS: I'd actually prefer to make ours now, if that would be all right with the Board. I don't have any audiovisual effects to go with mine.

MR. PAYNE: Mr. Chairman, I'd actually prefer to hear from petitioners first, their opening statement, to start this off with so we have the context of why we're here today.

MR. DAVIS: I can wait.

MR. DUBUC: Does the Board want to give the Division an opportunity to set the stage? I think that's all the Division was going to do.

CHAIRMAN JENSEN: I think that's fine. Let's go ahead and set the stage.

And then petitioner, you will have the opening statement.

MR. DUBUC: Thank you, sir.

MR. ALDER: So we're going to go ahead, then. I'll make a brief opening statement, then call Mr. Baker.

Is that correct?

MR. GILL: Mr. Alder, would you sit a little closer to the mic?

MR. ALDER: If I understand correctly, it's acceptable if I make a brief opening statement. Then we'll call Mr. Baker as a witness. Is that what you understand, everyone?

As an initial introduction of this case to the Board, I think that I would like to stress that it's important to look at this Notice of Intention on the actual facts and the actual law that are presented, and not to deal with the potential nightmare versus some regulatory obligation to avoid all harm.

This is not the Canadian operation. This is a mine under Utah's law which allows for reasonable mining, provided there is reclamation. This mine is a relatively small mine. It's well designed to avoid impacts, I think the testimony will show. And all the requirements for a Notice of Intention have been satisfied. And I will ask during the hearing that the Board focus on those requirements for the Notice of Intention, not the broader world of concerns.

This is one of the first times that this Division or this Board has had an appeal of a decision for a mineral mine under the mineral program. And that

mineral program is covered by the Mined Land Reclamation Act. And this Act is more like the Oil and Gas Conservation Act than SMCRA or the Utah Coal Act. It looks to allowing mining to proceed while ensuring that reclamation of the land takes place and the land is able to return to its post-mining use.

As a result, the permit and the Notice of Intention requirements are not proscriptive, as you may be familiar with since we have more cases appeal under the Coal Act. Instead, they are descriptive. And so long as a bond is required, a mine can proceed. In fact, under that Act, a small mine doesn't require approval of a Notice of Intention.

The regulations are purposely written that way because the Act, if you think about it, covers an amazing array of possibilities. It covers Kennecott Mine, one of the largest open-pit mines in the world, or a small, one-person quarry. It covers uranium mining, both surface and underground. It covers salt extraction from the Great Salt Lake. It covers a variety of locations, mines at high elevations, mines of low elevations. It covers an amazing number of mines that you'll hear. The amount of oversight that is required by this small Division is really immense.

This Act doesn't put on this agency the

exhaustive control, but allows the -- the Act allows the Agency, and expressly in the Act, provides that the Agency will cooperate with other divisions and, particularly, the Division of Water Quality, the Division of Air Quality, the SHPO, Division of Wildlife Resources. The Division, given its obligations to supervise this vast array of possibilities and with this general law, has to use it professional judgment.

What you will hear in the testimony is that this professional judgment is used, first of all, based on the knowledge of the individuals. And these individuals have experience in relevant areas, but they don't have experience in all of the relevant areas. So they're allowed to supplement their experience and their knowledge, as any person reasonably would.

Of course, they also -- an aspect of this program that is different, perhaps, is that they also -- the people who do the approval of the Notice of Intention also do the inspection and do the enforcement work. So they see how the Notice of Intention is applied. They see how it's enforced. And they sort of combine those in making their judgment on the adequacy of a Notice of Intention.

I think they rely on the normal indicia of reliability. They look at the qualifications of the

people who submit a Notice of Intention. I think you'll see in the hearing today that the Notice of Intention was prepared by able professionals, who are fully qualified. Sometimes there are certifications attached to maps or to other reports. And, of course, that's something that they reasonably rely on. But they also, as was mentioned in the motion in limine, rely on other agencies and personnel in other agencies and findings in other agencies.

So I think that's the story that the Division would like the Board to understand, is that this role that they play in approving this NOI is not one that's left exclusively to them, but also it is not the entire world of the regulation. There are subsequent enforcement actions that can be taken. There are subsequent modifications that can take place. And for this particular mine, there is approval for one pit only. And any subsequent approval will require an additional application, additional review. And all the things that might be learned will be added and applied as the Division learns.

So I think you will hear more evidence than the Division requires, and you will hear more evidence than the Division needs. But I think that may be necessary to decide whether or not the evidence that the Division did

require and that it did use allowed it to make a reasonable decision.

With that, I think -- I'd like to just touch briefly on the issues that are raised. This case involves, essentially -- I think there are three issues. One is the issues related to the groundwater and surface water systems. The other is the potential for contamination of those systems or other problems associated with chemical inputs that have to do with this process, chemical process, which is a contained process but has some questions that have been raised by the petitioners. And then the final issue they've raised is reclamation.

As I said, this case does not involve the potential that there might be some adverse effect. The laws and the regulations don't require that we determine that there are no impacts. And I think the Board will find, after taking the time to listen to all the testimony, that this is a superior NOI, that it's professionally done, that it describes the impacts and an analysis of the mitigation, that the law requires that the reliance and the judgment of the Division's personnel was reasonable, and that this is a limited proposal, and that the NOI is more than adequate.

So with that, I would call Mr. Paul Baker as my

first witness.

THE REPORTER: Will you raise your right hand, please.

You do solemnly swear the testimony you are about to give will be the truth, the whole truth, and nothing but the truth so help you God?

THE WITNESS: I do.

DIRECT EXAMINATION

BY MR. ALDER:

MR. ALDER: Would you state your full name and your position at the Division for the record, please.

MR. BAKER: My name is Paul Baker. I am the minerals program manager.

MR. ALDER: Can the Board hear?

MR. GILL: Just as a general comment, Mr. Chairman, if I might.

CHAIRMAN JENSEN: Go ahead.

MR. GILL: I'm a little bit hearing impaired. So if you could -- deals with the military. Any chance you have to touch your lips to the microphone would help me. Thank you.

MR. ALDER: Thank you, Mr. Gill.

Would you briefly summarize your education and experience prior to your work at DOGM?

MR. BAKER: I have a bachelors degree in botany

from Weber State College. That was in 1982. And I have a masters degree from Utah State University in Range Ecology, 1988. Before starting with the Division, I worked at the State Department of Agriculture in the seed laboratory from 1986 to '91.

MR. ALDER: What does your work at the Division entail?

MR. BAKER: Since then, I've worked for ten years in the coal regulatory program, from 1991 to 2001. And from 2001 to the present, I've been working in the minerals program. I became the minerals program manager in 2008.

MR. ALDER: And what are your responsibilities as the minerals program manager?

MR. BAKER: Largely what I do is to review the work of others. I look at reviews that other people do of mine plans. I review inspection reports, things of that nature, and make sure that as far as I can tell, they are adequate and that I feel comfortable signing them.

MR. ALDER: Okay. Would you tell the Board what the applicable statutes and rules that govern the mineral programs are?

MR. BAKER: The statute is the Utah Mined Land Reclamation Act, and the rules are the R647

administrative rules.

MR. ALDER: And if you wouldn't mind looking at the board, I think we have up the provisions of Utah Code 40-8-2. Are you familiar with that section?

MR. BAKER: Yes, I am.

MR. ALDER: And that's entitled "Legislative Findings." I just want you to look at the next section, which is entitled, "Purpose." Would you read that to the Board?

MR. BAKER: Sure. "The purpose of this Act is to provide, from the effective date of the Act, except as otherwise provided in this Act, all mining in the state shall include plans for reclamation of the land affected."

MR. ALDER: Based on your administration of the program, what do you understand to be the main concerns of the Act and the regulations?

MR. BAKER: The main concerns are that the land is reclaimed once mining is completed and that the Division hold an adequate reclamation surety to ensure that that is accomplished. In addition to that, we try to ensure that the environment is protected during mining operations.

MR. ALDER: And how do you do that?

MR. BAKER: As I described, we review mine plans

and be sure they are in compliance with regulations in the Act. And once a mine is operating, we do periodic inspection to ensure that the mine plan is being properly implemented -- and the reclamation plan.

MR. ALDER: And would you tell the Board a little bit about the size of your program, the staff, budget, and just the organization of it?

MR. BAKER: I don't know too much about the budget. But there's seven people that I supervise, five of whom are technical staff, two are support staff.

MR. ALDER: And would you tell the Board the expertise of the members of the staff?

MR. BAKER: We have two people with degrees in geology. Some people have multiple degrees, degrees in engineering, hydrology, and biology.

MR. ALDER: And in the administration of these programs, what are the responsibilities of these people just generally?

MR. BAKER: In general, as I said, they review mine plans and inspect, in general, according to the disciplines that they studied in school. But because of the nature of the program and the wide variety of mines and the large number of mines, everybody, really, within the program has to have some knowledge and expertise in every one of the technical disciplines.

MR. ALDER: And does this culmination of duties interrelate or strengthen the program, in your opinion?

MR. BAKER: Certainly, it does. And I would add, too, that within the program we really have a large amount of experience. I've been working in mine regulation for 20 years. There are other people that are approaching 30 years. Lynn Kunzler has close to 30 years, Tom Munson has close to 29 years. We really do have quite a lot of experience in dealing with mine regulation.

MR. ALDER: Okay. In my opening remarks to the Board, I mentioned a variety of mines. But that was just my -- would you give -- my opinion.

Would you give your testimony on that subject?

MR. BAKER: As you said, we vary from very small operations, I would say one acre and even less. Exploration operations, stone gathering operations, to some of those in the Great Salt Lake, where there are tens of thousands of acres that are affected. We have a large variety of minerals that are mined through a variety of extraction methods, whether it's evaporation, underground mining, traditional open pit.

MR. ALDER: Do you regulate mines on BLM lands?

MR. BAKER: Yes, we do.

MR. ALDER: Would you have an idea of the number

of applications for a mining permit that you review per year?

MR. BAKER: In 2010, we had 22 small mine applications, eight for large mines, 31 for exploration.

MR. ALDER: Okay. What about the number of inspections?

MR. BAKER: We did 358 inspections in 2010, so that's an average of about 70 inspections per inspector.

MR. ALDER: And what about the total number of various types of permits? Could you give the Board a number on --

MR. BAKER: No. We have about 670 active permits, that's including all the mines and exploration projects. About half of those are active.

MR. ALDER: Okay. We've used the term "NOI," I believe, in your testimony. Can you tell the Board what an NOI, or a Notice of Intention, is?

MR. BAKER: In this case, it's a Notice of Intention to commence large mining operations. And it includes basic information about the operator, of course. Also land ownership, ownership maps, operation and reclamation maps, and an assessment of potential or probable impacts, a plan to mitigate those impacts, a reclamation plan, an operation plan, and a surety calculation.

MR. ALDER: And I would like you to refer to Rule 103, 647-4-103. Is this the rule that governs what's in a Notice of Intention?

MR. BAKER: Yes, that's right.

MR. ALDER: Is that on the board? There it is.

MS. LEWIS: It's not.

MR. ALDER: We don't have that one.

But that includes the information you just mentioned, then?

MR. BAKER: Yes. That's right. 103 is basically a list of the requirements, the general requirements, in this section of the rules.

MR. ALDER: Okay. So it includes -- just go through it real quickly again, if you can remember it.

MR. BAKER: I have a copy. Just a moment.

MR. ALDER: I have a copy here, too, for you, if you want.

MR. BAKER: As I said, it's a list of the general --

MR. ALDER: If you'd just read the rule that applies to the thing that's -- for each requirement, there is a rule associated with it. Is that correct?

MR. BAKER: Yes. So R647-4-105 is maps, drawings, and photographs. R647-4-106 is the operation plan. R647-4-108 is hole plugging requirements.

R647-4-109 is the impact assessment. R647-4-110 is the reclamation plan. And R647-4-112 is variances.

MR. ALDER: Okay. And I'd just like to ask you to, again, referring to the rules, explain: Are operational practices, which under Rule 107, and reclamation practice, which are under Rule 111 -- that's 4-107 and 4-111 -- are those parts of the Notice of Intention?

MR. BAKER: No, they're not. They're rules -- they're standards by which the operator has to abide. But they are not necessarily addressed directly in the Notice of Intention.

MR. ALDER: Okay. Let's look at 109 section. And what did you say that was? And I think we do have a copy of that. It's on the board there.

MR. BAKER: Yeah. Section 109 is the Impact Assessment section.

MR. ALDER: And I think that's the section that's principally at issue in this case. And so I'd like you to just review that for the Board briefly, what is required by Section 9 as to the description of impacts and mitigation.

MR. BAKER: Well, as it says, "The operator shall provide a general narrative description identifying potential surface and/or subsurface impacts." And there

are, I think, five different sections that it references.

MR. ALDER: Would you read those?

MR. BAKER: There are projected impacts to surface and groundwater systems; state and federal threatened and endangered species or their critical habitats; projected impacts of the mining operation on existing soil resources; and projected impacts of mining operations on slope stability, erosion control, air quality, and public health and safety. And then the fifth one, I guess is what I was thinking of, is the plan is required to show what actions are proposed to mitigate the impacts.

MR. ALDER: Thank you. I'd like to ask you if you are familiar with the regulation of coal mining under the coal program in Utah.

MR. BAKER: Yes, I am from ten years' experience in working in the coal program.

MR. ALDER: And so just by comparison for the Board's understanding, would you give the Board the benefit of your comparison between the regulations for the minerals program, the one you just read, and the similar regulatory aspects of the coal program?

MR. BAKER: I would say that the coal program in general is much more proscriptive than the minerals regulatory program. For example, the coal regulatory

program will have specific sizes of ditches and channels and sediment ponds. Where that -- it may be necessary to have those in a minerals program, but it doesn't have specific size criteria.

The coal regulatory program requires a certain amount of water monitoring, requires a description of seasonal variations in water quantity and quality, where the minerals program does not have those precise requirements. Those are things that could be required, if necessary, but they're not actually included in the rules.

MR. ALDER: So if there are not specific requirements, there's not such a thing as two years of baseline data or measurements of seasonal variations of flows, those sorts of things?

MR. BAKER: That's correct.

MR. ALDER: There are not specific chemical analyses required of water quality parameters?

MR. BAKER: That's right.

MR. ALDER: So if that's the case, how does the Division determine if an NOI adequately describes the impacts from the mining operation and the adequacy of the -- or the actions that are proposed for mitigation?

MR. BAKER: Because of the wide variety of mine

permits that we have, we have to look at each one individually and what would be required for that particular operation. And that's where the education and the experience of the members of the staff is invaluable. It's what we have to do, is to use our professional judgment -- and I know that term is going to come up a lot -- our professional judgment in determining what kind of information is needed for the plan.

MR. ALDER: And if problems are observed in the NOI, are there ways of addressing those problems?

MR. BAKER: Yes. During the review process, if we see a problem, we will point that out as a deficiency in the plan.

After the plan is approved and the mine is in operation, if we see problems, then we have the ability to go back to the operator and require changes to the plan.

MR. ALDER: What are some of the ways that the Division verifies the reliability of the information that's submitted within the NOI, that it's accurate and complete?

MR. BAKER: Well, certainly to a degree, we have to rely on the operator to submit accurate information. But we always review that information and make sure there are no inconsistencies. And as far as possible, we will

try to ground truth the information. Sometimes that's not possible with the number of mines that we're involved with. The Division's reliance on the information is certainly enhanced as we see something that is stamped by, say, a professional engineer or professional geologist.

MR. ALDER: What about input from other agencies?

MR. BAKER: We do use input from other agencies. A lot of times these agencies -- for example, the Bureau of Land Management, will have field personnel that will be familiar with a site and be familiar with certain problems that will be encountered in the mining operation. And we can use those in our assessment.

MR. ALDER: I'd like you to -- first of all, have you told the Board how in practice that truthing, if you will, of this information is done? If you haven't already done so.

MR. BAKER: No, I don't think I necessarily did.

We really don't have the staff or the budget to be able to go through, like, water samples or anything like that. We do try as much as possible, though, to visit a site, to take maps with us, to look and see if what an operator is proposing makes sense and if the maps fit what's on the ground.

MR. ALDER: And I think we've talked already about the fact -- or do you know if the Mined Land Reclamation Act requires the Division to coordinate with other agencies?

MR. BAKER: Yes. Actually, it does.

MR. ALDER: Go ahead.

MR. BAKER: It specifically requires that the Division coordinate with other agencies. But it also contains the provision that compliance with the Act does not preclude compliance with other applicable rules.

MR. ALDER: So what agencies does the Division coordinate with?

MR. BAKER: We routinely coordinate with various divisions of environmental quality: Radiation Control, Water Quality, Air Quality. We're required by statute to obtain approval -- obtain a concurrence, maybe I should say, from the State Historic Preservation Officer. We also commonly will get input from the Division of Wildlife Resources, the Bureau of Land Management, and the Trust Lands Administration.

MR. ALDER: I'd like you to refer to Utah Code 40-8-5 sub 2, I think, and that specifically refers to the Division of Environmental Quality. Is that right? Would you look at that?

MR. BAKER: Three?

MR. ALDER: Three, I'm sorry.

MR. BAKER: Yes, it does. Nothing in this chapter is intended to abrogate or interfere with any powers or duties of the Department of Environmental Quality.

MR. ALDER: And then the section above that.

MR. BAKER: You are looking at A and B, actually. Should I read those?

MR. ALDER: I think just referring to those, would you just tell the Board how the Division coordinates with the Division of Environmental Quality?

MR. BAKER: Normally, if a mine is going to -- if we anticipate that a mine is going to need permitting from the Department of Environmental Quality, we will call them. And generally, we also provide a copy of the plan to Environmental Quality so that they can review it, as well.

MR. ALDER: Is there an MOU between the Division of Environmental Quality and the Division of Oil, Gas and Mining?

MR. BAKER: Yes, there is. In general terms, it requires we share general information and coordinate reviews.

MR. ALDER: I'd like now to turn to the specific PR Springs Notice of Intention.

CHAIRMAN JENSEN: May I ask a question of the witness, Mr. Alder?

MR. ALDER: Of course.

CHAIRMAN JENSEN: The reference to DEQ, is DWQ within DEQ?

MR. BAKER: Yes, that's correct.

CHAIRMAN JENSEN: Thank you.

MR. BAKER: DEQ is the Department of Environmental Quality.

CHAIRMAN JENSEN: Thank you.

MR. ALDER: I guess before I turn to the specific mine application, there is some testimony and some exhibits that have been filed that refer to the document that's entitled, "The Practical Guide to Reclamation in Utah." Are you familiar with that document?

MR. BAKER: Yes, I am.

MR. ALDER: And are you listed as one of the authors?

MR. BAKER: Yes, I am.

MR. ALDER: And for that reason and because you are the witness that's most familiar with that, I wonder if you'd just briefly tell us when it was published and why it and what its purpose is.

MR. BAKER: It was published in about 2000. And

the reason was that we were -- in various reclamation programs of the Division, we were seeing a wide variety of reclamation practices being used. And some of them were successful, others were not. And we wanted to compile a list, I guess you could say, of those practices that were being most successful and to get that information available to operators.

MR. ALDER: All right. Does it have any regulatory or enforcement authority?

MR. BAKER: No, it doesn't.

MR. ALDER: And has it ever been adopted by rule?

MR. BAKER: No.

MR. ALDER: Let's turn now to the PR Springs Notice of Intention. And if you would -- I think we're going to put on the screen for the Board members some of the exhibits that are in Appendix A to the Notice of Intention.

And if you'd refer, first of all, to the location map, which is Figure 1 in the Notice of Intention. It's right at the end of the written portion, for the Board members that have this on your electronic version. It's the first appendix.

Is that Figure 1?

MR. BAKER: Yes, it is.

MR. ALDER: What is Figure 1?

MR. BAKER: Figure 1 is a general location map of the project area.

MR. ALDER: And would you just describe the location of the mine and its size, information for the Board and for the record?

MR. BAKER: The mine straddles the Uintah and Grand County boundary. And it's along the Seep Ridge Road. The proposed mining area is 213 acres, of which 31 acres is what's referred to as the "West Pit," which is not actually included in this approval.

MR. ALDER: I think that the pits and various parts of the mine permit are shown on Figure 3. Would you look at that and tell me if that's correct?

Do you have that in front of you? Can the Board see that? We have Figure 3 in front of everybody. Is it Figure 2?

MR. BAKER: I think it's Figure 2.

MR. ALDER: I'm sorry. Yes, that's what I have written down. Sorry.

Would you describe the location of the pits and the various aspects of this proposed mine as it's shown on that layout?

MR. BAKER: Okay. So the --

MR. ALDER: And the size of the various areas.

MR. BAKER: The sizes are shown on Figure -- and I have trouble reading some of those. But the pink area is what's referred to as the "North Pit," which would be the opening pit. The black area within the pink is the existing small mine. To the north of the opening pit, there's a topsoil storage area and plant site. And off to the west, there is a waste dump. And kind of to the south, there is also a waste dump. And then the light green area off to the west of the pink is what's referred to as the "West Pit."

MR. ALDER: Okay. And the West Pit and the North Pit are kind of important to this permit review.

Would you, again, repeat which pit will be mined first, and what are the conditions of mining the second?

MR. BAKER: The first pit that would be opened would be the North Pit, the pink area. The condition and opening of the West Pit would be that the Division would consider that to be a significant revision to the plan, which would be advertised and open for public comment.

MR. ALDER: Okay. I have a hard copy for you, if you need a further reference.

Can you tell the Board a little bit about the type of material that's being mined and the method of mining just very briefly, the process? Just an overview for the Board.

MR. BAKER: Well, the material is tar sand or oil sand. And it's a traditional open-pit type of mine.

MR. ALDER: Okay. And I think you provided a chronology. And there's a copy that's been provided to the Board's secretary to be handed out of the permit chronology for this permit application. If you need to refer to that, would you just give the Board a quick overview of the amount of time from the original application of this large mine permit to its present day?

But before you do that, were there earlier permits for this mining operation?

MR. BAKER: Yes. In 2005, we received two exploration notices, and the operator drilled under those 25 exploration holes. And also in 2005, we received a Notice of Intention for a small mine. And that mining was done in 2006. And to my knowledge, the site has been inactive since then.

MR. ALDER: So then when did you receive the large mine permit application?

MR. BAKER: As it says in this chronology, we first received the large mine application in 2007, September of 2007.

MR. ALDER: All right. And how many reviews were there?

First of all, I don't know if you've explained.

I suspect the Board is familiar with the review process. But would you state that for the record?

MR. BAKER: When we receive a Notice of Intention, we will then do a review to compare the Notice of Intention to the rules and ensure that it's consistent and that it complies with the rule requirements. And we go through a series of reviews and responses between us and the operator. And in this case, there were four reviews before we issued tentative approval.

MR. ALDER: And what happens when there's tentative approval?

MR. BAKER: At the time of tentative approval, we then advertise that tentative approval in a Salt Lake paper and in a paper in the counties where the mine is located. And that begins a 30-day public comment period.

MR. ALDER: Do you also give notice to various agencies at the time of the tentative approval?

MR. BAKER: Yes, we do. We send approval, or notice of the approval -- of the tentative approval to the county.

MR. ALDER: And so what was the date given of the tentative approval in this case?

MR. BAKER: The tentative approval was May 20, 2009.

MR. ALDER: And was there an appeal brought by

anyone when this mine was first approved?

MR. BAKER: Yes, there was.

MR. ALDER: And what happened in that appeal?

MR. BAKER: It was appealed by the Utah Chapter of the Sierra Club and the Southern Utah Wilderness Alliance. And the Division held an informal conference in November 2009. And the results of that conference were that the Division's decision was upheld. Following that, there was a Request for Agency Action that was filed by SUWA and the Sierra Club. And before that came before the Board, there was an agreement that was entered into that before the Division -- that when the Division received a proposal to permit the West Pit, that that would be considered a significant revision that would go to public comment.

MR. ALDER: And based on that stipulation, was the appeal withdrawn?

MR. BAKER: Yes, that's correct.

MR. ALDER: Okay. Can you -- you've already explained how the mineral program staff works together.

But would you tell the Board who worked on the PR Springs mine review team?

MR. BAKER: Originally, I was the lead inspector and lead reviewer and the biologist. And also Tom Munson and Beth Erickson worked on it. Beth left the Division

about the same time I became minerals program manager. And so at that time, Leslie Heppler started to review the plan as the lead inspector, also working on engineering and geology components. Tom Munson continued to work on it as the hydrologist. And Lynn Kunzler worked as the biologist/soil scientist.

MR. ALDER: With regard to the PR Springs Notice of Intention, did you review the application with other agencies? And specifically which agencies and what issues?

MR. BAKER: Yes, with the Division of Water Quality. And also with the Division of Wildlife Resources, we sought some information from them.

MR. ALDER: Any coordination with the Division of Air Quality?

MR. BAKER: In this case, the mine is under the jurisdiction of the EPA. And we didn't coordinate directly with the EPA. But we were looking for -- we were looking for information that the operator had satisfied air quality requirements.

MR. ALDER: Did the Division rely on any opinions or permits that were issued or provided by the Division of Water Quality?

MR. BAKER: Yes, we did. In particular, the Groundwater Permit by Rule.

MR. ALDER: And what is a Groundwater Permit by Rule? If you could explain that to the Board briefly.

MR. BAKER: There are several categories that the Division of Water Quality has, where they allow an operation to be -- to receive a Permit by Rule rather than a site-specific permit. And I may not have the terminology exactly correct. But one of those instances is where there would be a de minimis impact to groundwater.

MR. ALDER: And in this instance, was there an application for a Permit by Rule submitted to DWQ?

MR. BAKER: Yes, there was.

MR. ALDER: And was one granted?

MR. BAKER: Yes.

MR. ALDER: And did the Division rely on that decision, and in what ways?

MR. BAKER: We did rely on the decision to an extent. But I would say that the information provided to the Division of Water Quality to the groundwater section was also included in the Notice of Intention. We reviewed that information and felt that it matched the circumstances, and that it provided adequate information for the plan to comply with the rules in R649-4-109 concerning the description of impacts to the groundwater and what actions might be taken to mitigate those

impacts.

We also, of course, looked at the approval letter that was given by the Division of Water Quality and also agreed that that letter, in combination with the information provided by the applicant, complied with the requirements in the rules.

MR. ALDER: Do you know if the Division of Water Quality reviewed the requirement for the applicant to provide a storm water permit or obtain a permit from DWQ for storm water?

MR. BAKER: Could you ask that again? I'm sorry.

MR. ALDER: I'm wondering if you know whether or not there was an application or inquiry to the Division of Water Quality with regard to a storm water permit.

MR. BAKER: Yes, there was. The operator is required to have a construction permit. Anybody who disturbs anything greater than one acre is required to have a construction permit from the Division of Water Quality for surface water. They are required to have a Surface Water Pollution Prevention Plan, SWPPP, on site. And the operator did contact the Division of Water Quality to determine whether -- exactly what permitting requirements were there for surface water.

MR. ALDER: And to your knowledge, did the

Division of Water Quality required a SWPPP -- that's S-W-P-P-P, correct -- for the PR Springs mining operations?

MR. BAKER: As I understand it, there is no industrial permit that's required, but they are required to have a construction permit. And the Storm Water Pollution Prevention Plan, the SWPPP, is required to be on site.

MR. ALDER: So did the Division of Oil, Gas and Mining require a SWPPP as part of the Notice of Intention?

MR. BAKER: We don't require a SWPPP, per se. But the plan includes a SWPPP, and that is for compliance with the Division's rules for, again, the mitigation and impact assessment portion of the plan.

MR. ALDER: Okay. So what you are saying is that you did not, through some authority for DWQ, require SWPPP. But you did, under DOGM's authority, ask for a SWPPP to address those issues?

MR. BAKER: Yes, that's correct.

MR. ALDER: Thank you.

Did the Division or the applicant have recent communications with the Division of Water Quality since this permit was approved with regard to the Permit by Rule approval?

MR. BAKER: Yes, we did.

MR. ALDER: Could you summarize that for the Board, briefly?

MR. BAKER: There had been some changes in the mine plan and in the processing plan since Water Quality's groundwater Permit by Rule was issued.

MR. ALDER: What were those changes?

MR. BAKER: One of the chemicals that they were going to use was deleted. The dumps were a little bit larger than what was in the information originally submitted to Water Quality. In the information that Water Quality received originally, tailings were going to be placed strictly in the pits, where the mine plan showed tailings being placed both in the pits and in the waste dumps. And the dewatering method had changed.

MR. ALDER: And did DER -- did EER, Earth Energy Resources, submit an updated information to the Division of Water Quality?

MR. BAKER: Yes, they did.

MR. ALDER: Did the Division of Water Quality, to your knowledge, review that information?

MR. BAKER: Yes.

MR. ALDER: What was their action?

MR. BAKER: They confirmed the previous decision that it would have de minimis impact on groundwater.

MR. ALDER: I'd like to, sir, go to one other subject before we conclude, and that is: Has the Division received correspondence objecting to the approval of this mine?

MR. BAKER: Yes, we have.

MR. ALDER: And could you describe those letters and their content briefly?

MR. BAKER: Most of them are --

MR. ALDER: First of all, how many letters have been filed or received?

MR. BAKER: I'm not sure exactly. I believe we received somewhere around 10,000. Most of those were generated by a cell phone company, and they were form letters. We did receive several individual comments. The biggest part of the comments are very general, objecting to tar sands mining or to mining in this particular area.

We did receive a few comments comparing this to the Canadian tar sands operations, a few others that were -- that dealt with some local issues that would probably be under the authority of the local government entity.

MR. ALDER: With regard to the letters that referred to the Canadian tar sands mining operations, are you familiar with that operation generally?

MR. BAKER: In very general terms I am. I haven't actually been there, but I have seen photos. And I do know a little bit about it.

MR. ALDER: Based on your general information, are the situations or comparisons between the two operations at all similar?

MR. BAKER: They are very different. The Canadian operations use a different process. They have a hot water extraction process that uses really quite a lot of water. The tailings that result from those processing operations are about 70 percent water, 30 percent solids. So they cover very large areas with tailings ponds. And some of those tailings ponds become very difficult to reclaim, particularly in that environment, where there's limited evaporation.

MR. ALDER: And in the Notice of Intention for the PR Springs mine, are there similar problems?

MR. BAKER: They will be using water, of course, but the tailings are dewatered to the point where they would be about 10 to 20 percent water. Most of the water is recycled. There's limited water resources in this area. It's a very different environment where it only receives about 12 inches of precipitation annually. So there are quite a few differences. The scope, the size, it's not nearly what it is in Canada.

MR. ALDER: So have you been involved throughout the comments and review by the Division of the Notice of Intention as they've been submitted in the process?

MR. BAKER: Yes, I have.

MR. ALDER: You were involved in the appeals and the review of the issues in the prior appeal of this matter?

MR. BAKER: Yes, I was.

MR. ALDER: In your opinion, has the Division adequately and correctly analyzed the potential impacts from the mining operation and discussed the actions that would mitigate the proposed impacts?

MR. BAKER: Yes, I believe we have.

MR. ALDER: And did you recommend the Division approve this Notice of Intention?

MR. BAKER: I did.

MR. ALDER: All right. Is there anything else that we should educate the Board on before we conclude that I've omitted to ask you?

MR. BAKER: I don't know of anything.

I would just emphasize the answer to my previous question, that I do believe the Division has adequately analyzed this operation and that it does meet the requirements of the rules.

MR. ALDER: We'd offer Mr. Baker for

cross-examination. That concludes our direct.

Perhaps while we're deciding which way to go, I would move for admission of the PR Springs permitting chronology. It hasn't been marked. It was just provided as an illustration of his testimony. I don't think there's any objections, are there, to this being admitted?

MR. DUBUC: No objections.

MR. HOGLE: No objection.

CHAIRMAN JENSEN: And for the record, what is that?

MR. ALDER: I'm not sure where we would start with the numbering. Division 1, I suppose.

CHAIRMAN JENSEN: We'll call that D-1.

And for the record, what is that?

MR. ALDER: It is the permitting chronology. It's titled "Permitting Chronology." It consists of three pages.

CHAIRMAN JENSEN: Any objection, Counsel?

MR. HOGLE: No objection.

MR. DUBUC: No objection.

CHAIRMAN JENSEN: It's admitted.

How long is your cross-examination going to take?

MR. DUBUC: Shouldn't take too long.

CHAIRMAN JENSEN: All right. And then...

MR. HOGLE: We'll have about five minutes max.

CHAIRMAN JENSEN: Let's do that. And then we'll break for lunch. And we actually have two things that we're going to handle during the lunch hour. One is we're going to be reviewing applications on the Earth Day awards. And that's open to the public while we're having our lunch.

MR. PAYNE: Can you speak into --

MR. JENSEN: Do you know what I said?

MR. PAYNE: I notice Michelle having trouble hearing you.

CHAIRMAN JENSEN: We're going to break for lunch following cross-examination. We're going to have a lunch that's open to the public -- lunch won't be served to the public -- relative to our review of Earth Day applications. And then we're going to go into a closed deliberation session on another matter that we really need to get a decision out on while we've got all of the old Board members with us. So our plan would be to reconvene at 2 p.m.

So Mr. -- how do you pronounce --

MR. DUBUC: It's Dubuc, like Dubuque, Iowa. I get that a lot.

CROSS-EXAMINATION

BY MR. DUBUC:

MR. DUBUC: Mr. Baker, good morning -- at least for the next few minutes. I just have a few questions for you, clarification questions, if I might.

MR. BAKER: Okay.

MR. DUBUC: I'd like you to expand on what you feel the Division's obligations are to fulfill the provisions of Section 109 when it comes to surface water and groundwater quantity and quality. Can you expand on that just a little bit?

MR. BAKER: As I mentioned, I feel like this is a site-specific analysis and plan, and so it's difficult to say in general terms exactly what would be required.

We would look at the geology of the area, the topography, what we would expect for erosion, what we would expect for any impacts that might occur to the groundwater, depending on those things that I just mentioned -- the geology and soils and vegetation, the type of place, where the mining operation was being proposed -- and we would make a judgment, based on that, as far as what information requirements we would make and what mitigation might be required.

MR. DUBUC: And how would that -- how would you interface with other divisions, such as DWQ, in carrying out that review?

MR. BAKER: We would be in contact with them, as we were in this case, about whether a storm water -- a SWPPP was required, what the SWPPP would entail, and also what information was required for a groundwater permit and whether one was even necessary.

MR. DUBUC: You made the comment that you relied on DWQ's Permit by Rule determination. Is that correct?

MR. BAKER: To an extent, yes. As I mentioned, we looked at the information that was submitted by the applicant to DWQ. And we also looked at the determination that was made by DWQ and decided that that information -- we felt that information adequately represented the situation and that it met the requirements for this rule.

MR. DUBUC: Did you verify that information at all?

MR. BAKER: The members of our staff have degrees in geology and hydrology. And so I don't believe there was any, necessarily, site-specific information that was verified, that somebody went to the site to look at the geology. But Leslie Heppler, for example, is a professional geologist and is familiar with the geology of the area. So I think that she has the capability of making that assessment.

MR. DUBUC: Are you familiar with the tests that

were required to be conducted on the tailings of this mine?

MR. BAKER: I know a little bit about it. But I can't speak to it in a great deal of detail.

MR. DUBUC: How about someone else in your department?

MR. BAKER: I believe we would probably have -- you would receive the same answer from them, that we looked at the information, we looked at the tests that were done. And in that respect, we, to a large degree, relied on the Division of Water Quality.

MR. DUBUC: In looking at the tests, did you have any communication with DWQ, specifically with regard to the results of those tests?

MR. BAKER: I don't believe I did, no. I think maybe members of the staff did. I'm not certain.

MR. DUBUC: Are members of your staff qualified to look at the results of those tests and make -- make a determination whether they were of use in fulfilling DWQ's regulations for groundwater?

MR. ALDER: DWQ's?

MR. DUBUC: I'm sorry, the Division's.

Would you like me to repeat that?

MR. BAKER: Yes, please.

MR. DUBUC: Sorry. DWQ on my mind.

Were members of your division, when they looked at the tests, were they able to analyze the results of those tests in a way that allowed them to apply that analysis to the requirements that the Division has under Section 109?

MR. BAKER: Most of the test results are non detect. So as far as that's concerned, when you see something -- when the test shows that the chemical is not detected, that's pretty easy to say that it meets the requirements that there would be no impact. So in that respect, I would say yes.

MR. DUBUC: You say "non detect." Are you familiar with the problems that were delineated in the Permit by Rule demonstration regarding these tests?

MR. ALDER: Objection to the foundation.

MR. DUBUC: He has been -- and said he has relied on the Permit by Rule determination.

MR. ALDER: Right. But you've included in the question, "Are you familiar with the problems." I don't know --

MR. DUBUC: Okay.

Are you familiar enough with the Permit by Rule determination to speak about the various descriptions of the tests in terms of whether there were problems with those tests?

MR. BAKER: I have heard that there was some problems with the way the tests were done, but I am not familiar with exactly what the problems necessarily are.

MR. DUBUC: Did you or your staff discuss those problems with DWQ?

MR. BAKER: I did not. I'm not sure if the staff did.

MR. DUBUC: Okay. Regarding those tests, did the Division have any input on which tests would be required?

MR. BAKER: No, I don't believe we did.

MR. DUBUC: So in that respect, did the Division rely on DWQ's judgment on which tests were required?

MR. BAKER: Yes.

MR. DUBUC: Tell me, how many tar sands projects has the Division reviewed under the large mining regulations?

MR. BAKER: Since I've been with the Division, there have been two large mines.

MR. DUBUC: Can you describe them?

MR. BAKER: There's this one, and there's one that's operated by a company called TME, Temple Mountain Energy, which is southeast of Vernal.

MR. DUBUC: Are you familiar with the type of processing that they plan to use or are using there?

MR. BAKER: I was at the time we reviewed the plan, but I couldn't speak to it at this point.

MR. DUBUC: So in other words, you don't know if they are using the same process that is being used in this situation?

MR. BAKER: I know that the processes are different, but I can't remember exactly what their process was. I will say that I visited the mine site last week and they are not in operation.

MR. DUBUC: How big was that mine, do you recall?

MR. BAKER: I don't remember what the size was. The mine has not been yet developed as a large mine. They have two adjacent small mine notices, but it has not been developed as a large mine yet.

MR. DUBUC: Okay. Maybe I misunderstood. Have they applied for a large mining permit?

MR. BAKER: Yes. They have received approval for the large mine but have not developed the large mine.

MR. DUBUC: Okay. What was the date that the NOI was finalized?

MR. BAKER: For PR Springs?

MR. DUBUC: Please, yes. I'm sorry.

MR. BAKER: Tentative approval, as it says in the chronology, was issued May 20, 2009.

MR. DUBUC: And were any amendments made to the NOI after that date?

MR. BAKER: There was one amendment in, I believe it was March of 2010. The operator submitted a revised map and also included some correspondence from the EPA concerning air quality.

MR. DUBUC: You mentioned some changes earlier. Can you tell me when those changes were submitted to the Division and if they were -- I'm sorry.

Can you tell me when those changes were submitted to the Division?

MR. BAKER: Which changes?

MR. DUBUC: You mentioned that there were some recent changes to the process.

MR. BAKER: To the process. Those were not submitted to the Division. That information was submitted to the Division of Water Quality.

MR. DUBUC: Did the Division review those changes?

MR. BAKER: We were copied on those, and so we did look at the changes. I believe that the changes were to make it more consistent with the mine plan.

MR. DUBUC: Were those changes made after approval of the NOI?

MR. BAKER: Yes, they were. But I think my

point is that they were changes that related to the groundwater approval so that they would be more consistent with the mine plan rather than the other way around.

MR. DUBUC: Did you rely on the approval for your allowing this mine to go forward?

MR. BAKER: As I've said, we did to a degree. But we also did our own independent analysis of the information that was provided by the operator in the plan.

MR. DUBUC: So the operator submitted the information to you?

MR. BAKER: It was included in the mine plan, yes.

MR. DUBUC: I'm sorry. Okay. The recent changes --

MR. BAKER: Oh.

MR. DUBUC: -- were they submitted to the Division?

MR. BAKER: We received a copy of them, yes.

MR. DUBUC: Were they submitted to the Division for review and approval?

MR. BAKER: No, but --

MR. ALDER: I think it's been asked and answered. Objection.

MR. BAKER: As I said, though, it didn't really affect the mine plan.

MR. DUBUC: Just clarification on the design of the mine.

Are you familiar with the size of the, call them, waste dumps?

MR. BAKER: Yes. I'll refresh my memory.

MR. DUBUC: Are they 36 and 34 acres?

MR. ALDER: Mention for the record what you are referring to.

MR. BAKER: I'm referring to Figure 2.

Thirty-six and 34 acres, yes.

MR. DUBUC: Are those sufficient to handle the tailings from the West Pit as well, or are they just designed for the North Pit? Do you know?

MR. BAKER: I can't answer that. I don't know. At this point, we're not approving the West Pit.

MR. DUBUC: Do you know the depth of the mine as it's permitted?

MR. BAKER: Not off the top of my head. It's information that's in the plan.

MR. DUBUC: My colleague has just a few questions.

CHAIRMAN JENSEN: We're not going to -- we'll allow it since you haven't known. But we're not going to

allow tag teaming to go on. So when you are in cross, you decide who is going to do the cross.

MR. DUBUC: That's fine.

CHAIRMAN JENSEN: And let's make it short.

Ms. Walker.

MR. DUBUC: Your attorney stated, during his examination of you, the process the EER is using is a contained process. Do you agree with that?

MR. BAKER: Yes.

MR. DUBUC: Tell me what is meant by a "contained process."

MR. BAKER: Well, as I understand it, from the time the tar sand enters into the equipment and the chemicals and water are added until the oil is extracted, it's all an enclosed system.

MR. DUBUC: Okay. Completely enclosed?

MR. BAKER: I'm not positive.

MR. DUBUC: Okay. Have you read the expert testimony of EER's experts?

MR. BAKER: I don't know that I've read it thoroughly, no.

MR. DUBUC: Okay. So in other words, when they describe the changes that were made in the process, you can't speak to that?

MR. BAKER: That's correct.

MR. DUBUC: Okay. One final question regarding the construction SWPPP.

Where is that or the application for that in the NOI?

MR. BAKER: I would have to look through the NOI to find it. I believe it's in one of the appendices. It's Appendix G.

MR. DUBUC: I'm sorry. Is that the SWPPP itself?

MR. BAKER: Yes.

MR. DUBUC: Okay. So the SWPPP is the construction permit?

MR. BAKER: No. The SWPPP that's in the plan is the plan for protection of water as it relates to the Division's permit. It's not the water quality permit.

MR. DUBUC: Okay. You stated, I believe, that there is construction permit associated with this mine. Is that correct?

MR. BAKER: I understand that there is a construction permit, yes.

MR. DUBUC: Okay. Is it contained within the NOI?

MR. BAKER: Not to my knowledge, no.

MR. DUBUC: Okay. Thank you.

CROSS-EXAMINATION

BY MR. HOGLE:

MR. HOGLE: Mr. Baker, I'm Chris Hogle for Earth Energy.

If I'm looking at this permitting chronology correct, which is Division Exhibit 1, there was four Division reviews of the NOI?

MR. BAKER: Yes, that's right.

MR. HOGLE: That occurred in just under two years, took just under two years to complete?

MR. BAKER: Yes, that's right.

MR. HOGLE: And part of that was consultation with sister agencies?

MR. BAKER: That was included in that time period, yes.

MR. HOGLE: It satisfied the Department of Environmental Quality?

MR. BAKER: Yes.

MR. HOGLE: Satisfied the Wildlife folks?

MR. BAKER: Yes.

MR. HOGLE: EPA was satisfied?

MR. BAKER: Yes.

MR. HOGLE: And it's also -- the NOI has also already undergone one challenge by some environmental groups. Is that right?

MR. BAKER: Yes, that's correct.

MR. HOGLE: Did Western Resources Advocates, Mr. Dubuc, did they represent those environmental groups?

MR. DUBUC: Objection. Relevance.

CHAIRMAN JENSEN: Sustained.

MR. HOGLE: Rule Section 109 of the Division rules -- we talked about those earlier -- that's the rule with regard to what an NOI has to contain in terms of projected impacts?

MR. BAKER: Yes.

MR. HOGLE: Has the Division ever interpreted that rule to supplant the jurisdiction authority and expertise of other state agencies?

MR. BAKER: No, certainly not. In fact, as I believe I mentioned, the rules specifically state that compliance with the Division's rules does not negate the requirement for the operator to comply with other applicable statutes and rules.

MR. HOGLE: And then you testified about the recent correspondence with DWQ regarding the changes, right?

MR. BAKER: Yes.

MR. HOGLE: Now, were the changes that were made aware to DWQ, were those changes meant to inform DWQ of what was going on in the NOI, so to make DWQ aware of what the NOI said?

MR. BAKER: No, I don't believe so.

MR. HOGLE: Well, it was made -- I think you said the letter to DWQ was meant to -- and those changes -- was meant to make the determination of de minimis impacts to the groundwater consistent with what the mine plan said, right?

MR. BAKER: Right. Yes. I understand what you are saying now.

MR. HOGLE: And the mine plan is the NOI?

MR. BAKER: Yes.

MR. HOGLE: One last question.

You mentioned that the NOI has a surety calculation?

MR. BAKER: Yes.

MR. HOGLE: Do you know what the amount of that surety is going to have to be before Earth Energy can start operations at the PR Springs mine, large mining operations?

MR. BAKER: It's about $1.6 million.

MR. HOGLE: Thank you.

CHAIRMAN JENSEN: Thank you, Counsel.

Any questions of the --

MR. ALDER: No redirect. Thank you.

CHAIRMAN JENSEN: Any questions of the Board?

MR. GILL: Can we save our questions until after

lunch?

CHAIRMAN JENSEN: Sure. Give you some energy. We'll be in recess until 2 p.m.

(A break was taken from 12:19 p.m. to 2:23 p.m.)

CHAIRMAN JENSEN: We're back on the record. All right. We're back on the record.

Mr. Alder, have you concluded, then, with Mr. Baker?

MR. ALDER: Yes, I did, Mr. Chairman. And I think Mr. Gill asked if there could be questions from the Board. So we didn't dismiss Mr. Baker; but otherwise, we're finished.

CHAIRMAN JENSEN: All right.

MR. GILL: I don't have any. I just wanted to think about it. I think you've answered the questions collectively. I think in the interest of efficiency, let's move forward.

CHAIRMAN JENSEN: Any other Board members have any questions?

CROSS-EXAMINATION

BY MR. HAROUNY:

MR. HAROUNY: I have one simple question, and you may have -- it's been a while since we heard your testimony.

In the areas that you submitted to, or parts of

the application or parts of the -- of the application actually that was submitted to the Division of Water Quality, were there specific items that you remember that you needed them to look to for permitting or concurrence? And did you get that all the -- quantitatively speaking, did you get every single one of the answers back?

MR. BAKER: The information that we're looking for was having to do with the groundwater permit and the surface -- we needed to know what they needed as far as surface water permits. And I guess I would say that yes, we got all the information back that we needed from them.

MR. HAROUNY: So everything was A, B, C, D, or 1, 2, 3? Everything was answered, and you are satisfied with all of their answers?

MR. BAKER: Yes. Yes.

MR. HAROUNY: Okay.

MR. ALDER: I just wanted to make a clarifying comment or question to Mr. Baker.

I think your question suggests that the Division submitted information with regard to these permits to the Division of Water Quality. Is that how it happened, or...

MR. BAKER: Well, no. That's not exactly how it happened. Information was submitted by the applicant. We were asking, as part of the coordination, whether

Water Quality had all the information they needed and whether Earth Energy had applied for all the permits that were needed. And we wanted to make sure that that was all taken care of.

MR. HAROUNY: So based on your recommendation, the applicant sent part of the information to the Division of Water Quality?

MR. BAKER: No. I would say that the applicant submitted that on their own. It wasn't really on our recommendation. We were just trying to determine from Water Quality whether they had everything that they needed and all the permits in line.

MR. HAROUNY: And why is that? Is that a regular occurrence that they apply to both the Division of Oil, Gas and Mining and Division of Water Quality at the same time?

MR. BAKER: Well, there are certain permits that are required from either agency. And we normally ask an operator to include in appendices in the plan the various permits from other agencies. And so those permits, themselves, may not necessarily be part of the large mine notice, but we ask them to include those in the plan. And so as part of that process, we were trying to make sure that everything was there.

MR. HAROUNY: Are there areas that are

overlapping in which you have to do regarding water quality and what the Division of Water Quality has to do?

MR. BAKER: Yeah. And I think that applies to both groundwater and surface water in this case. Where, as we've been discussing, the plan is required to have a groundwater protection plan or identify impacts to the groundwater and actions that would be taken to mitigate those impacts. And the same kind of information would be submitted both to us and to Water Quality.

MR. HAROUNY: So if you will, there's a gray line in the middle that a few items overlap. And you both are working on those items.

After what point in time do you defer to their expertise and rely on their expertise to issue a permit?

MR. BAKER: Yeah. And I realize that's been part of the focus of this.

As I've tried to explain, we do our own assessment. But we also look at the assessment that's made by Water Quality to see if it's reasonable, if we think that it's reasonable -- and I expect it normally would be -- and if it fits in with the requirements that we have. I'm not sure if that's answering your question.

MR. HAROUNY: The thing that I'm getting at is: You have a certain area of expertise in your shop, and then there's another shop that has more expertise in some

other areas. When you get their, whatever you request from them, submitted to you, how can you, with your level of expertise in your shop, determine if they are adequate or not?

MR. BAKER: Yeah, we are relying on them. When it comes to certain chemical analyses, and things like that, we are looking to them for their level of expertise and approval and their confidence with the analyses that were done. I'm struggling with exactly how to answer that question because it's kind of a qualitative judgment.

MR. HAROUNY: I realize that. And what I'm trying to do is stay away from qualitative judgments and get back to quantitative issues.

You had certain items that you did in your shop, certain items that both of you were working in the middle, and certain items that were outside of your area of expertise that they did. So I'm trying to not cross the line and stay with areas that you did and the judgment call that you made that whatever you got from the other side was adequate.

MR. BAKER: I would say that we certainly looked at the geology and the information that was submitted by Earth Energy through JBR to Water Quality.

I'm sorry, I'm really struggling with this

question. That's okay. I'll do what I can here.

But I would say that as a general rule, we did rely on their judgment with regard to the chemical analyses and to the limits as they relate to groundwater. Is that better?

MR. HAROUNY: I suppose I don't have any other questions.

CHAIRMAN JENSEN: All right. Any other questions of the Board?

Are you through, Mr. Alder, with your overview?

MR. ALDER: Yes I am, Mr. Chairman.

CHAIRMAN JENSEN: Let's see. Are we prepared to move to -- go ahead.

MR. DUBUC: I believe we're next, sir.

CHAIRMAN JENSEN: I thought there was -- is there going to be an opening statement?

MR. DAVIS: I would reserve at this point, Mr. Chairman.

CHAIRMAN JENSEN: Thank you.

MR. DUBUC: Good afternoon.

This is a chunk of pavement. It is very similar in nature to the type of material that's being mined at the PR Springs. It is, essentially, asphalt with rock and sand -- and clay, in some cases. In fact, counties in the area have used these local tar sands mines for

years for a source -- sources of asphalt for their roads. So for instance, Asphalt Ridge, which is about 40 miles to the north of here, the counties do use that asphalt. And in fact, some of the samples that were tested in this mine were taken from Asphalt Ridge.

What EER is saying they are going to do is they are going to crush this up this to about this size. It's a two-inch minus, if you look at the NOI, approximately this size. Then they are going to take the oils from the peels of citrus fruit, similar to this orange. They are going to concentrate that oil into a solvent, and' then they' are going to remove the asphalt from these pieces of rock.

Now, what's left over and what's put into the mine and into the tailings dumps, the company claims, in their press releases, will be as clean as beach sand.

Now, my wife and I go up to Oregon every year, and being a grandmother, she makes me bring back bags of beach sand for our granddaughter so they can play beach when they get home. So that's what EER has told the press is going to be left over at the end of this process, is material that is as clean as beach sand.

Now, this oil, which you'll hear referred to this afternoon as orange terpene or D-limonene, is normally used in very small concentrations to add scent

to cosmetics and food. At high concentrations, it's used to kill insects, such as aphids, ticks, tomato worms, fire ants, and wasps. And then closer to full strength, it's used as a degreaser in industrial processes for parts and tools. And this is where the EER proposal comes in.

So what EER is basically proposing to do is to create a solvent from these -- from this material that's strong enough to dissolve the asphalt and tar sands. But, they claim, the solvent they are going to use to dissolve this is completely nontoxic; in fact, they have said like throwing an orange peel on the ground.

The leftover from the process, they say, will be just as clean as the sand that's washed by ocean every day and that my granddaughter plays in. But common sense tells us that a solvent that is strong enough to dissolve the parking lot under your feet is not the same as an orange peel that's thrown onto the ground. And it also tells us that the leftover tailings from this process with some of the solvent left in it is not nontoxic. It's not safe, and it's not something we're going to take home for my granddaughter to play in.

In fact, the MSDS sheets that will be talked about this afternoon -- which are, as we talked about earlier, safety sheets required by OSHA to be on site to

notify the workers how to handle these particular substances -- and other safety sheets state that these chemicals should not be disposed of where they can get into drainages or where they have the potential to contact the surface or the groundwater. They contain such statements as, "Keep away from drains, soils, surface, and groundwaters. Avoid disposing into drainage systems and into the environment." European regulations require that these chemicals be labeled "Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment. Avoid release to the environment."

We know that leftover tailings from this process will contain a certain amount of both water and solvent, and that these tailings will be untreated, except to try to remove some of the moisture during the process. And that they will then be deposited back into the mine and into the tailings dumps.

Now, although the company hasn't disclosed the amount of processed chemical that's going to be contained in the tailings -- none of that information is in the NOI -- we have estimated that between 450 gallons and 2200 gallons a day will be used in this process. That's hardly an insignificant amount. And there are serious issues and many unknowns about the possible impact these

processed chemicals have on the environment.

Just to give you a quick overview of what our experts will talk about this afternoon. We talked about this regulatory framework, Sections 109 and 110. We will go over some of the shortfalls that are in the NOI, the fact that there is inadequate information that relates to the impacts and the mitigation of those impacts. We'll talk a little bit about the mine itself, how it is arguably an experimental type of process. We'll talk about the harmful chemicals that are being used. And then we'll talk a little bit about the Division's reliance on DWQ in terms of how they looked at that.

So we've gone over a little bit of this, so I won't spend a lot of time on it. But again, 103, Section 103 lays the various sections of the regulations that are in play here. Predominantly, we'll focus on 109, the potential surface and subsurface impacts, projected impacts to surface and groundwater systems, and mitigation for those. And then we'll talk a little bit about the reclamation plan.

Again, we will testify -- our experts will testify about the inadequacies in the NOI, how it does not contain the necessary information to fulfill the Division's statutory requirements. For instance, the NOI does not contain the necessary information to determine

the impacts of surface water systems. It doesn't contain the necessary information to determine the projected impacts to groundwater systems. It doesn't adequately deal with the issue of erosion. And it doesn't contain the necessary information regarding mitigation measures that will used to mitigate the possible impacts from these mining operations.

So that being said, basically we will focus on the inadequacies in the NOI, as I said, the Division's reliance on DWQ and their determination that there is a de minimis impact. And also, we will talk about the Division's failure to verify information in the NOI and in the Permit by Rule demonstration submitted to DWQ talking about the chemical process used in the possible forms on surface and groundwater.

As we do this, I'd like to also bring in the subject of deleterious materials. Sections 106(2) and 110(4) both require some accounting of deleterious materials that are being used on the site. Specifically, 106(2) requires that, "The operator shall provide a narrative description of any deleterious materials present or to be left on site as a result of mining or mining processing."

110(4) requires that, "Each Notice of Intention shall include descriptions of the treatment, location,

disposition of any deleterious materials generated and left on site."

Assuming as our -- well, assuming that our experts make the case that we say they will, then certainly the materials that are left in the tailings will, in fact, be deleterious. Those are not accounted for within the NOI.

Additionally -- and I don't won't get into a great deal of detail about this because I realize that Section 111 is not in play, but will be in play during the operational phase of this mine. There is a requirement in 111(4) that, "All deleterious or potentially deleterious materials shall be safely removed from the site or left in an isolated or neutralized condition, such that adverse environmental effects are eliminated or controlled." So in order to account for, and in order to fulfill the obligations of 111(4), you first have to acknowledge that deleterious materials do, in fact, exist. And that has not been done.

You'll hear a great deal of discussion this afternoon, both our experts and EER's, about the process chemical being used and whether it qualifies as a deleterious material. The possibility that it is has been totally discounted in the NOI. Because of that, it's impossible for the Division or the company to comply

with these regulations.

To put things in perspective, Mr. Baker went into this a little bit in terms of the mine itself. This will be, arguably -- and I think it is true -- the first commercial tar sands mine, not just in Utah, but in the United States, since Utah has the bulk of tar sands resources in the United States. The Board has been and is aware that this mining takes place in Alberta. And as Mr. Baker noted, there are some substantial differences in the type of mining, and actually in the tar sands material itself, with the Alberta mines.

The mining in Alberta, it's a very wet area. It's right on a major river, and the process is almost exclusively water based. At PR Springs, we're dealing with a high desert area. The Green River is miles away. And the separation process is largely chemical.

Having said that, let's not lose sight of the fact that the ophus process, as it is called by EER, is chemically based, but it still uses a substantial amount of water. According to the NOI, one-and-a-half to two barrels of water for every barrel of bitumen produced. At full capacity, that equates to about 168,000 gallons of water a day, all of which is entrained in the process tailings, along with residual solids that I spoke of and a certain percentage -- two to three

percent -- of leftover hydrocarbons.

As you heard from the parties today being discussed, there is about 12 inches of precipitation a year that fall in that area. And whether that is sufficient to mobilize residual chemicals in the tailings will be a focus of discussion and will be very much in play during this afternoon's discussion.

As I stated, PR Springs mine is the first of its kind. EER is proposing a process that could, arguably, be called "experimental," using chemicals in a way that they've never been used before. It's not surprising, then, to hear the Division staff freely admit they don't have the expertise to understand how the ophus process works or be able to analyze the possible environmental consequences of the chemicals left in the tailings. How could they? What EER is proposing to use is these chemicals in a way that nobody else has done.

The fact of the matter is that Division staff, as experienced and knowledgeable as they are when it comes to coal, oil, and gas, or hard rock mining, has never been faced with evaluating a commercial tar sands mine using this process before. While some of the experience that they bring with them is applicable to this mine, this tar sands mine, with a new chemical extraction process, presents unique challenges for the

Division. In order to overcome some of those challenges and attempt to address this new technology, DOGM has turned to the Division of Water Quality and their expertise in evaluating impacts of this mine to both surface water and groundwater.

Regarding surface water, we will make the case that the NOI fails entirely to account for the decreased amount of surface water runoff as a result of the mine. As we saw earlier, accounting of that sort is required by regulation. The company's experts will try to deflect this deficiency by discounting the value of that water, saying how little it is. But in a prime wildlife habitat such as this, every drop counts.

Regarding impacts to surface water quality, to its credit, the Division attempted to account for surface water runoff by requiring the company to submit a SWPPP. Unfortunately, we believe that that SWPPP is deficient and does not account for the construction phase of the mining operation. This was brought up earlier with Mr. Baker. He stated that it does. If it does, certainly we will be corrected on that, and I will stand corrected if they can show us where that is. But we have not found that in the NOI.

With the groundwater specifically, DOGM has admitted they don't have the required expertise on staff

to evaluate the impact of the chemicals and the tailings from this mine on groundwater and has effectively delegated that assessment and that oversight to DWQ. That begs the question, then, of which agency is responsible for the oversight of the groundwater impacts on the mine. The short answer is both.

Each agency is responsible for fulfilling the requirements of its own statutes and regulations. For DWQ, for the most part, that's the state implementation of the Clean Water Act. With DOGM, it's Title 40, Chapter 8, Utah Mined Land Reclamation Act, and with this mine, the large mining operation regulations.

As DWQ made clear earlier, while the Division relies, to some degree, on other agencies' determinations, the Division is also obligated to review and make an independent evaluation of the information presented by the company. To depend on another agency to fulfill DOGM's statutory obligations assumes that the other agency's regulations are an exact fit and completely account for DOGM's obligations. That's hardly likely to occur. But even if it did, even if they did completely overlap, that still doesn't remove the responsibility from DOGM's shoulders. And 40-8-5 states that.

That section of the Act withdraws any delegation

of authority to any other state agency, and unqualifiedly confers that authority onto this Board and the Division. In fact, the Division is the agency responsible to ensure that on site and off site environmental degradation to ecological and hydrologic systems caused by this mine are prevented or minimized. That is not something that the Division can delegate to DWQ.

We spoke earlier about Section 109 and the different impacts. Let's talk for a moment about DOGM's responsibilities under that section, specifically to ensure that the impacts to groundwater systems are both identified and mitigated.

The Division has made it clear that they are depending almost entirely on DWQ's Permit by Rule determination that there will be a de minimis impact on groundwater as a result of this mine. Section 109 states that, "The Division must ensure that impacts to groundwater systems are accounted for in the NOI." But they're not.

The text in the NOI refers to the Permit by Rule application to DWQ for a discussion of impact to groundwater. But a thorough reading of that document, as Mr. Lips will discuss, shows that there is no description of these impacts or their mitigation.

There's also nothing in the NOI about possible

impacts to the groundwater quality in the area beyond the statement in the Permit by Rule application that, "The base line water quality of groundwater underlying the project area is not known."

You might have seen references in the NOI, if you flip through it, to the holes that were drilled near the mine. And the statement was that the maximum depth of those holes was 150 feet, and in the process of drilling those holes that no groundwater was encountered. But what's not talked about is the location of those holes. All of those holes were along the eastern edge of the mining pit. And the average depth of those holes was 51 feet. So not only were those holes drilled only on the eastern edge of the mine, but since the planned depth of the mine is 145 feet, almost 100-feet deeper than the average depth of drill holes, it's clear that those holes could not come close to providing either the company, the Division, or DWQ an accurate assessment of groundwater in the area of the mine.

The fact is that neither the company nor DWQ has any idea about either the quality or quantity of groundwater under the mine. How could they possibly give even the broadest possible description of the impact that the mine will have on those systems as required by 109?

It's clear that when it comes to possible

impacts to groundwater, the Division depended entirely on the company and DWQ to make an assessment of those impacts. The Division did not conduct an independent analysis of possible groundwater impacts. It did not note the lack of a groundwater survey or require additional drilling. It did not study the ophus process in any detail or analyze the possible impacts of the tailings on the groundwater system.

Instead, it turned to a sister agency and accepted what that agency said at face value, essentially depending on DWQ's de minimis determination to fulfill its 109 requirements. Therefore, the agency cannot say with any certainty that the information contained within the NOI is correct.

As I stated earlier, the PR Springs mine is unlike any other that the Division has approved. This is, in essence, the first commercial tar sands mine in the state and in the nation. There's very little known about the process that's being proposed as well as the possible impacts of that process on the environment. It's quite possible that EER will continue to refine that process as the mine moves from its initial exploration stage into these commercial operations.

We saw earlier today how, at the last moment, an application update was submitted to DWQ about changes in

the process. The problem is that this refinement, if it continues, raises some concerns, both for the state agencies that approve the process that keeps changing, and for the public that wants to be involved in the oversight of the approval of that process. These changes can't be hidden from you. The approval process has to include a mechanism for accountability if and when they occur.

As you know, we have some serious misgivings about the impacts of placing tailings containing these chemicals along -- the impacts of those on the surface water and groundwater in the area of the mine. And we believe that the Division and the Board should share those concerns. I would say that if ever there is a time to be cautious and conservative in overseeing a mining project, this is that time.

We will now turn to the testimony of our experts, Mr. Lips and Mr. Norris. Mr. Norris will go first. Between them, they will testify that the NOI does not contain either the information on the projected impacts to surface and groundwater systems as required in the regulations, and it also does not require the actions proposed to mitigate those impacts. That required information is either missing from the NOI or unsupported by data and analysis.

They will also testify that the NOI does not contain information sufficient to fulfill the requirements of Section 110, "Reclamation," in order to demonstrate, either that the reclaimed mine will support post-mining use, or that the reclamation, as outlined, will minimize future damage to the hydraulic system. Ultimately, we ask that the Division's approval of the NOI be vacated. I'll turn to my colleague.

MS. WALKER: Good afternoon. I call as a witness Mr. Charles Norris on behalf of Living Rivers.

THE REPORTER: Will you raise your right hand, please.

You do solemnly swear the testimony you are about to give will be the truth, the whole truth, and nothing but the truth so help you God?

THE WITNESS: I do.

CHARLES NORRIS,

having been first duly sworn,

was examined and testified as follows:

DIRECT EXAMINATION

BY MS. WALKER:

MS. WALKER: Please state your name for the record.

MR. NORRIS: Charles H. Norris, N-O-R-R-I-S.

MS. WALKER: Can you give a brief statement of

your employment history and education history?

MR. NORRIS: Yes. I have a bachelors of geology from the University of Illinois that was given with distinction in geology. I have a masters in geology from the University of Washington.

MR. DUBUC: Do we have another mic that we can plug in here?

MS. CARTER: We don't. I'm sorry.

MR. ALDER: We have an extra, if you want to plug this one.

MS. WALKER: I can switch. Hopefully this will be better.

MR. NORRIS: Master of science in geology from the University of Washington in Seattle. I have completed my course work toward a Ph.D. at the University of Illinois and made the initial defense of the thesis research, but did not ever finish a dissertation.

I am employed by Geo-Hydro, Incorporated, in Denver, Colorado, where I serve as the chief operating officer. It's a company I founded 15 years ago. It does general consulting in geology and hydrogeology.

Prior to working -- founding Geo-Hydro, I worked as a districts geologist for a company that underwent a variety of names as it was merged while I worked for it: Simon Hydro-Search; Hydro-Search, Incorporated; HSI

GeoTrans. I believe it's been merged out of existence since I left. But I worked there for about four years as a districts geologist -- sorry, director of hydrogeology. I was a senior-level position, basically serving as an in-house consultant to other divisions around the company on hydrogeologic remediation issues that required some senior expertise.

Prior to that, I worked as a non-teaching faculty member at the University of Illinois for the laboratory for supercomputing and hydrogeology. Primary duties there was to serve as a scientist liaison to industries supporting the supercomputing laboratory, where we worked with fluid flow in the subsurface, water, as well as other gases and liquids, primarily oil-company related.

Prior to that, I was in the oil industry the first 15 years of my professional career. I started with major oil companies, Shell, Teneco, briefly with smaller firms.

Somewhere around 1980 or '81, I started a small oil and gas exploration company in Colorado, Emerald Gas & Oil, that I kept until the mid 80s when we decided we didn't really need much of a domestic industry anymore. And that's when I went to the University of Illinois.

So I've been practicing, working, making my

living as a geologist, working with water and other liquids and materials in the ground, since 1972. I'm licensed as a professional geologist -- licensed or registered, depending on the state -- in eight states, including Utah. I think that's kind of a summary.

MS. WALKER: Thank you. And have you submitted written direct and supplemental testimony in this case?

MR. NORRIS: Yes, I have.

MS. WALKER: Have corrected and complete copies of your testimony been submitted as Living Rivers Exhibits 106 and 107?

MR. NORRIS: With one caveat, I believe so, yes.

MS. WALKER: And that caveat is?

MR. NORRIS: In reviewing my testimony, I discovered on page 15 of my direct at Line 20 a statement of "4663 tons," referring to a daily total -- one of the daily totals of tailings plus water being output from the mine. And that number should be 3783. It's on Line 20 of page 15.

On Line 21 of page 15, a subsequent calculation, that of the weight percent water from that mass of tailings, was originally reported as 14 percent. Using the correct number, it should be 18 percent.

MS. WALKER: Okay. Thank you. And there's been a significant discussion already regarding the process by

which EER will extract bitumen from pore sands. I want you to discuss your testimony with regard to the chemical EER plans to use to accomplish this purpose. I want you, if you would, to start with your understanding of that chemical and process when you filed your January 7 expert report.

MR. NORRIS: At the time I filed my direct testimony, I had not seen the breakdown of the processing fluid that is in the letter from EER to the US EPA. At that time, I knew the extracting material was a terpene. I knew from non-docket, non-record information websites, EER's websites and citations to their websites that it was a citrus-based material. I inferred at that time it was likely going to be, at least predominantly, D-limonene. But I did not at that time know it. We had not received the MSDSs on it and related documents at that point. So I did not pursue it a great deal. I had some general observations with respect to it, but I didn't do any detailed analysis of my direct.

Subsequent to filing my direct on January 7, I did have an opportunity to review the letter of the proposed processing fluid at the time of the letter between EER and EPA. The fluid has changed composition some, at least by eliminating the surfactant that was in that letter. And I haven't seen anything that indicates

whether the proportion between the extractant and the water has changed beyond that one change or not.

But given that analysis and the Material Safety Data Sheets and related documents to those from the company, that gave me a point at which I could start looking into this substance and what it might mean in the application at this point.

MS. WALKER: So when did you first examine the MSDS sheets that were given to Living Rivers by -- oh, I'm sorry -- were given to Living Rivers by the company?

MR. NORRIS: Well, it would have been after January 11. I don't know specifically what days I was -- when I was given those as I sit here.

MS. WALKER: And what was your opinion of the information on those sheets?

MR. NORRIS: The MSDSs themselves were pretty standard documents, if you will. They clearly were discussing the chemical with respect to workers' safety in some kind of manufacturing or processing facility, or something of that nature. The volatility of the material, the explosive nature of it, the combustibility were all very heavily featured in the discussions of personal protective equipment and indications of exposure to workers. What is normally in a MSDS is related to employment exposures that are -- documents that, in the

US, are required for -- by OSHA as a means of protecting employees. So to that extent, information related to their importance or significance in the environment and in ecological situations is not generally emphasized, and certainly was not emphasized in those MSDSs.

There were aspects -- information on the MSDSs that were certainly relevant to disposal in the mine. The fact that the fluid is immiscible in water; that is, it will not mix thoroughly with water like alcohol would, for example, is an important characteristic in terms of dealing with its fate and transport in the environment.

The fluid density of the material was provided, at least on one of those sheets, I think maybe both of them. It is less dense than water. And so, given free movement, it will tend to float on top of water. And this was discussed in the MSDS as being important in the workplace in terms of firefighting and the fact you don't want to be using water to try and put out a fire in the workplace because material just floats to the top of the water.

There are -- another important physical property of the material, both for workplace conditions as well as in nature, is the vapor density material. Here, the two MSDSs dramatically differed. In one case, the density of the vapor was listed as being very, very much less than

that of air, air being a standard of 1. I think it was .01 something. But somewhere between 1 and 2 percent air to air.

The other MSDS indicated that the density of the vapor was greater than that of air. That's important in the workplace to know that, if you had a spill, where the vapors are going to be going. Are they rising to the ceiling? Are they sinking to the low corners of the warehouse or a shop of some kind? In nature, it's also very important because how that vapor moves through a porous medium, like the sands that make up the tailings from this process, are going to be greatly influenced by whether that gas is lighter than the air that is in pore space or heavier than air.

If you have some of this material in the disposed media -- or in the disposed tailings and it evaporates, if it floats in the air in the pore spaces and rises to the surface and dissipates, that creates an entirely different dynamic in terms of its fate and transport than if it's denser than air and is going to sit at the bottom of the air column and the pore space and build up its concentrations and separate, create a vapor block, vapor separation, of the remaining material in the tailings and the atmosphere. So knowing -- resolving that alone would be one reason to look further.

One thing that I have noticed and come to appreciate through the years working with MSDSs, is that the vintage of an MSDS can be important. What is known about a chemical when an MSDS is written can be quite different than what is known about a chemical five, ten, 15 years later.

I notice that one of the MSDSs was a 1997 document with no indicated revisions to it. The other had a revision date of 2004. And there was some significant differences between the two with respect to their warnings regarding exposure in the general environment.

The older one just listed that it was a marine pollutant and also warned against disposing in a way that would allow it to get to a municipal sewer system.

The newer one not only indicated that marine pollution was a problem, but also indicated it was toxic to aquatic life. Now, that's fresh water. So apparently, between those two times, between 1997 and 2004, there had been more evaluations of the material. And it was not just in sea water that it created problems for aquatic life, but also in fresh water -- or one of the authors was more thorough in what they came up with. So that indicated to me that these were materials that had the potential for environmental problems, which is

one of the reasons to read an MSDS.

They show, in some cases conflicting information, in some cases just different information. And they didn't have all of the physical parameters that one needs if one wants to try and understand, even approximately, what fate and transport process is going to go on, things like viscosity and surface tension. So more research into that particular compound needed to be done.

One other thing that those documents included was an analysis of one of the sources of D-limonene that included the other compounds -- the other chemicals, that were part of the product, that particular company's product -- as minor constituents. So we now have, not just the D-limonene to look at, but we have somewhere between six and eight other compounds that are potentially part of the process that needed to be evaluated.

MR. HOGLE: Mr. Chairman, may I make a comment -- maybe ask a question? The way we had sort of contemplated this hearing and the preparation for it was Living Rivers' experts would file prehearing testimony, and -- I didn't want to interrupt Mr. Norris. Mr. Norris has filed 70 pages of prehearing testimony. And we sort of contemplated that there'd be a summary of that and

then cross-examination. And as I listen to Mr. Norris, it sounds like a lot of repetition of what he has put in his 70 pages of prefiled questions and answers. And the other expert that Living Rivers has, Mr. Elliott Lips, has an even greater amount. We're concerned about the timing. And so we thought what we'd be doing is having a summary and then cross-examination of these witnesses.

CHAIRMAN JENSEN: Well, you recall that this morning we said that the Board prefers live testimony. And I think the concern is that this prefiled, while it's filed, it's not admitted. And we want to have the benefit of live testimony so that we know what is being said and the chance to have cross-examination and a chance for the Board to observe and listen to the demeanor of the witness. And so maybe we've added to the problem.

MR. HOGLE: No, I wouldn't say that. Really, I wanted some clarification. I heard you say that this morning. I wasn't sure if you were aware of the stipulation that we had. And of course, you know, we'll go along with whatever the Board wants us to do. But sort of operating at a -- there was not a connection in my own mind as to what was happening and what we'd stipulated to and how we prepared for this hearing. That's okay. Just wanted to make sure.

MR. DUBUC: Mr. Chairman, further point.

In terms of the prefiled testimony, certainly we could sit there and go through all the 70 pages. We don't think that's necessary. But we would like some clarification in terms of whether that prefiled testimony will be part of the record of this hearing. Could you clarify that, please?

CHAIRMAN JENSEN: Well, if the parties all stipulate that it's coming in, I suppose the Board is willing to let it come in, understanding, though, that the weight that the Board may give to it may be minimal and that we'll give a lot more weight to live testimony. So I just give you that so that -- because I certainly don't want to -- and the Board doesn't want to throw a curve at you relative to this prefiled testimony.

And so if the parties want to stipulate and have stipulated, and now you want to stipulate that it's going to be admitted into the record, I think the Board will admit it, but with the caveat that the weight that the Board may give to that will certainly not be the weight that the Board would give to live testimony.

MR. DUBUC: Yes, sir. I think what we're trying to do is strike a balance between going through all the testimony and responding to the Board's request that that testimony be live. The parties did stipulate in advance

that these -- in order to speed up the hearing, that we would prefile testimony. And both sides have done that. And it would be helpful if we had a resolution now, if possible, on whether the parties will stipulate to the inclusion of that in the record. And that will somewhat determine how thorough we have to be in the examination of our experts.

MR. GILL: Mr. Chairman.

CHAIRMAN JENSEN: Mr. Gill.

MR. GILL: Can I assist just a little bit on this? Just from my perspective, I appreciate the effort to get prefiled testimony. The question I had was that there was a presumption that some of the testimony may be subject to a motion to strike, and it was hard to find out and figure out when and where that was going to occur. And so it seemed like if there was -- if that is going to occur ad infinitum as to the prefiled testimony, that wasn't going to save us any time and could confuse the issues; whereas, if it has been stipulated that testimony represents that point of view and there are not going to be motions to strike, that would affect how I look at it.

So I'd appreciate -- you know, it goes to the veracity of the testimony and the weight that I am willing to give it, anyway.

MR. DUBUC: As I understand -- well, the motion to strike was submitted late last week. All this testimony -- this process of prefiling testimony has been going on since early January. So the motion to strike was a surprise to us; but nonetheless, the Board has ruled on that this morning. So as I understand the situation, you have agreed to hear all the testimony to include the prefiled testimony. If that is not...

CHAIRMAN JENSEN: Well, I think you're being presumptuous on that, because part of our thought here is that we're going to have an opportunity to hear these witnesses, and so we didn't have to get into the nuances.

But I think this Board certainly doesn't want to go against what is the stipulation of the parties. I looked and was thinking in terms of -- that this gave all the parties a chance to see what the other was going to say and get prepared to come. I didn't have it in my mind that it was going to be binding on the Board that it's in and it's evidence. That's the way I was looking at it. But I'm only speaking for myself. And I think that's kind of what the Board had in mind, certainly in its ruling this morning.

MR. DUBUC: Perhaps --

MR. GILL: Stated another way, in my perspective -- all I can do is pass this on for the

benefit of counsel.

The motion was denied without prejudice. So if there are parts of the testimony that needed to be taken care of, let that be addressed so that we can make -- and with a goal. I mean, the goal here is to make an informed decision by this Board with the best evidence we can get. And going back and forth between what's stricken and why, there's no continuity. And that's, I guess, how I interpreted it.

MR. DUBUC: Certainly. Subject to future decisions by the Board of any possible motions to strike and a decision that related to that, what we'd ask is that, and what we agreed to -- and certainly I think the other parties could be heard on this -- is that we agreed that this would be part of the record.

MR. GILL: No one's answered my question yet, and that is: Are we going -- is the intention of counsel to go through a myriad of motions to strike as to the prefiled testimony, or has there been some sort of gentleman's agreement or all the way up to a stipulation on that?

MR. DUBUC: We will not submit any motions to strike.

MR. HOGLE: I mean, we took our shot at it, and it didn't work out. I mean, if it was without prejudice,

then perhaps I would say, as the Board learns more about the nature of the testimony of Mr. Norris and Mr. Lips and how it does get to challenging the Division of Water Quality, then maybe the Board would want to revisit that. Or as it considers Mr. Norris' testimony and the foundation for his areas of expertise, the Board might want to revisit that. But insofar as motions to strike, you've seen our motion to strike. And we won't file another one that's any different.

MR. DAVIS: Just let me add that that does not mean that the parties will not -- don't reserve their right, certainly, to object to testimony. You know, we would retain all of our rights to object to testimony.

MR. ALDER: If I might, for the Division, I think the understanding when the stipulation was proposed was in the nature of a discovery agreement. And the proposal was that there would be expert reports filed. And in lieu of that, it was proposed by Living Rivers that they would prefer to file -- prefile testimony. I see the prefiled testimony exactly on par with expert reports that have been filed by Earth Energy, and there's no other prefiled testimony. But it's certainly not testimony in the sense that it was given with parties there, like the testimony you're going to hear today.

So I think my understanding of the stipulation

was that you would hear live testimony with regard to that, and that that testimony, prefiled testimony, was intended to prepare the parties for this hearing.

MR. GILL: I'll defer to the chairman.

MR. HOGLE: Can I add something maybe to throw a little more mud into the water?

CHAIRMAN JENSEN: Why not?

MR. HOGLE: Some of this depends on timing. Frankly, if we can get done with this today by stipulating to prefiled testimony and then just having a summary, if we can expedite it that way, then we would be in favor of that. But if we're going to stipulate to the admission of the prefiled testimony, and we're also going to hear substantial portions of it anyway -- and we probably won't finish today if that's the case -- then there's not much impetus for us to stipulate to the admission of the prefiled testimony. And the conditions that we were operating under when we stipulated to the proceedings and how they would go have changed.

CHAIRMAN JENSEN: Well again -- and I don't mean to belabor it -- you heard what the thought process was of the Board. We thought it was for purposes of discovery among the parties so that there were no surprises. But we hadn't intended, and we're thinking about -- I'll tell you, at this point, we're thinking

about the record. And if this is going to go up on appeal, we want to have a record that we relied on and that we made informed decisions on. And right now, the Board -- the Board has not relied on the prefiled testimony and came here with the expectation that we were going to have live testimony.

MR. DUBUC: May I? With that in mind, for instance, Mr. Lips, you know, as we discussed, he will not take that long if we can summarize his testimony, knowing that the prefiled testimony is part of the record. That, I think, was the intent so we could move through this, knowing that the information would be at least part of the record. So it does make a difference in terms of how we approach this.

I really don't want to go through 70 pages' worth of testimony because I don't think it's necessary, and I think we can expedite this and make the points that we need to make. But there are nuances within -- some calculations, for instance, or some citations to different documents that are in the prefiled testimony, and I think of both parties, that really should be part of the record.

So what I would ask from the Board, if it will, is a ruling on whether this prefiled testimony will be part of the record.

CHAIRMAN JENSEN: I think the Board has made it clear that we're not going to -- we're not going to admit it. Now you're certainly entitled to proffer it at the end of the case so it's on the record for appeal purposes. But we want to hear live witnesses.

And to your observation, Mr. -- Dubuc?

MR. DUBUC: Dubuc, sir.

CHAIRMAN JENSEN: Dubuc. Now I've got it. It sounds like it's got a Q on it.

MR. DUBUC: It's pronounced that way.

CHAIRMAN JENSEN: Your reference to within the prefiled there are nuances. It's difficult for the Board to discern from looking at written prefiled nuances, where we may very well pick up on it in person. That's one of the examples of the hesitation of the Board.

Now, I certainly hope that we haven't harmed any of the parties here. And it's certainly not our intent. And I can tell you this Board is willing to take the time to do it right. And we won't -- we're not going to hold to a time schedule. If we don't get finished today, we're going to keep on hearing this until it's done. But we want to do it right. And we don't want any party to be prejudiced by our misunderstanding of what you had intended out of the prefiled testimony.

MR. DUBUC: Okay. Ms. Walker would like to --

MS. WALKER: No, no. I'm just going to as we go.

MR. DUBUC: Well, then, in that case, we will save the motions to include testimony until a later time. Thank you.

MS. WALKER: Okay. Just because there was a little bit of a break there, I just want to remind Mr. Norris what he was talking about.

You were discussing -- I think you were discussing your reaction to the MSDS sheets that were provided from the company on January 11.

MR. ALDER: Mr. Chairman, I object to this continued line of questioning. And I have held back objecting for some time because I wasn't quite sure how we were proceeding.

But given the discussion we just had, the objection that I would make to the testimony is that it presupposes facts that are not in the record, which would determine whether or not this testimony about MSDS data -- which could go on for a long time -- is relevant to the investigation of the mine. Specifically, there has been no testimony as to whether or not or how it might get into the environment.

And I think if Mr. Norris is going to speak to the MSDS, he should do it in the order that first

establishes whether it's at all relevant. So I would object to continued testimony about the MSDS, toxicity, NIH, and all the other stuff that's in the record until we've established whether or not there's evidence and whether or not Mr. Norris is qualified as an expert to proceed.

He has not been qualified as an expert on the issues, both as to MSDS sheets, and as to the means of transmitting that material into the groundwater. If that's the subject he intends to talk about, I think he's probably qualified as a hydrologist to address the second question. I'm not sure about the first.

CHAIRMAN JENSEN: I think it's appropriate that if you are ready to move for his admission as an expert, that it's appropriate for this Board to consider.

And with respect to the objection of Mr. Alder, I think he is correct that we ought to get some foundation of where we're going and understand what the relevance is to the MSDS, which kinds of makes --

MS. WALKER: So if I understand correctly, then, you are saying you'd like to know about the fate and transport of the chemical before you understand what it is?

CHAIRMAN JENSEN: I think, if I understand Mr. Alder's objection, he's trying to -- you can have

discussion about MSDS and all these different materials. But what's its application to this issue of contamination of either groundwater or surface water? That's the issue.

MS. WALKER: Okay. Well, just to be clear, it's not just contamination of groundwater and surface water. It's also whether the chemical is a deleterious material.

But I think I understand what you are asking. So we thought we were doing it in an order that would be easier to understand. But let's talk about the fate of the --

CHAIRMAN JENSEN: I don't want to throw you a curve.

MS. WALKER: That's fine. I want to do it in a way that's --

CHAIRMAN JENSEN: If it would help, if you want to take five minutes off the record here and --

MS. WALKER: No, I think I understand. I just want to make sure that I'm doing what you are asking. So if I'm not, please interrupt.

So Mr. Norris, I'd like to know what your understanding of the NOI says about the fate of the extraction chemical that is -- well, let's just start there. Is that question clear?

MR. NORRIS: Yes. The NOI expresses the fate of

the process fluid, the spent process fluid that's being disposed in the environment being disposed with the tailings in the dumps and in the mine pit itself, as both will -- both will dissolve and then be gone.

MS. WALKER: So in order to -- I mean, do you agree with that assessment?

MR. NORRIS: Well, jumping ahead to all of the things I was going to be discussing as to how I got there, no, I don't believe that is going to be the case.

But the process of coming to the conclusion that that is not a realistic appreciation of what's going to happen to the spent processing fluids required me to assess the materials that are involved, the relative quantities of them that might be involved, and what the fate and transport -- the realistic fate and transport of those materials, given their properties, is likely to be.

And that process for the bulk of the spent processing fluid, that part of it that's water, is fairly straightforward. That part of it that is the organic component, d-limonene and its related compounds, required an investigation of their physical properties and their fate and transport, in the general sense, in the environment and in various media -- water, gas, and that kind of thing. It's a straightforward fate and transport problem of a particular material. So you go to the

properties of those materials.

We can't look at another mine where this has been done because it has never been used this way before. So you have to go to fundamental, non-mining related data sources, which are not unusual for someone who has spent a decade dealing with contaminated water supplies of all kinds of different materials.

You start with an MSDS. To the extent that they don't have the information that you need, you go to other reliable sources to get answers to the issues that are important for this setting, for this material, to draw the conclusions that you did. In doing that, I've come to the conclusion that no, the idea that all of the water and all of the extracting chemical are simply going to evaporate and not be disposed in the mine is very unrealistic.

CHAIRMAN JENSEN: Excuse me, and I apologize. Mr. Norris you've used the word, I believe you are saying "fate"?

MR. NORRIS: "Fate and transport."

CHAIRMAN JENSEN: And what do you mean by that? I apologize. This is for my education.

MR. NORRIS: Sure. That's fine.

The terms "fate" and "transport," when applied to contamination situations, involves what is going to

happen to the material, what is its fate? And what kind of transport is going to occur while those things are going on?

CHAIRMAN JENSEN: Got it. Thank you.

MS. WALKER: And why do we care about fate and transport?

MR. NORRIS: If you have a material that has no negative impacts, you really probably don't care about fate and transport.

When you have evidence that there can be negative impacts from the materials, such as an MSDS sheet that talks about the material being toxic to aquatic organisms, then clearly, if this material may be transported to an aquatic environment, then the fate and transport becomes very important because there may be negative consequences as part of resolving the fate and transport.

MS. WALKER: Okay. In so in terms of the present PR Springs mining operation, what aspects of the fate and transport of various materials were you concerned about?

MR. NORRIS: The bottom -- the bottom line is, is this a material that if it is put into -- in some way gets into groundwater for delivery at some point in the future to a seep or a spring, if it's going to get into

the groundwater and at some point flow, even ephemerally, in the stream, if it's going to be in organisms that come in contact with it that some other organism is going to eat, then you need to approach the question of: Can it get there? And do we have the information that tells us can it get there, and in what kind of quantities?

So you start -- the typical process that you go for analyzing something like this is a little different when the contamination problem doesn't exist yet, and it only may exist when it is if you have a contamination problem and you are trying to figure out, given this situation, where it is to go.

In this case, you start with: What are the materials that you are dealing with? What are their physical properties so that you can start to make some statements of understanding regarding how the material may migrate, how it may move?

Early on, you would at least establish whether or not there's some kind of ecological or biological concern about the material. If there isn't any, then it doesn't really make a lot of difference if it's moving through the system. But to figure out what's the end of it, what's the final impact to surface water or groundwater or an ecosystem or an organism, you would have to know how much of the material is being released,

in what forms it's being released, at what concentrations. You need to know what the avenues of transport are. Is it going to collect in a pool of water where cattle moving across the area can drink it? Is it going to move directly as runoff into a stream? Is it going to move into groundwater and be transported through a stream or to a seep, or something like that, like groundwater? So you need to characterize the pathways that are going to be available.

And then you need to evaluate, to the extent that you can, what may happen to it between where it is disposed and where it shows up again in the environment.

So there's the initial material that needs to be characterized, there's the pathways that are available to it, and there are the issues, the things that happen to it on its way. If it gets into groundwater, is it going to be diluted? Is there a chance that it's going to have soil bacteria chew on it and biodegrade it? If it's something that evaporates and it evaporates into the atmosphere and sunlight degrades it, what are the products of that process, and are they of concern? So it's a sequential look at everything that is involved.

So for this investigation that I did, once I knew what the materials were, I started the process of trying to understand what they were as pure materials,

what their impacts potentially are in terms of whether or not it's immaterial. And that's why we started with the MSDSs, is because routinely, that's where you start when you start this process because there are generally available product that at least starts you on your search for what the properties are that are needed and what potential dangers there are that you need to be concerned about. That kind of is why we started where we did.

As far as the use of MSDSs, they are every bit as standard and routine a form of summary data as looking at a chemical analysis, as evaluating head measurements that are taken in the well. They are a generalized synopsis of the chemicals that you are investigating. And they are probably the first starting point in this kind of an investigation.

I found through the years that what they almost never should be is the stop point of that initial investigation because an MSDS is not designed to answer all of the questions of fate and transport. And you almost always have to go to backup or supplemental data sources to give you the understanding that you need of materials.

MS. WALKER: So are you qualified to talk about the physical properties of a particular compound that are described on an MSDS sheet?

MR. NORRIS: Absolutely.

MS. WALKER: And does that qualification relate to the fate and transport of that chemical in various settings?

MR. NORRIS: Very much so.

MS. WALKER: And can you explain why, please?

MR. NORRIS: Well, actually, perhaps an example. And D-limonene is a good example of the importance of knowing the physical properties of the materials, both those that are included in the MSDSs and those we have to go find somewhere else. D-limonene, as I said, was immiscible, it doesn't mix with water. So it will remain a separate chemical than water. It doesn't dissolve to high concentrations of water. Dissolution is something different than mixing. But it will dissolve into water. And the chemicals that are shown on the analysis that we were given with it also dissolve into water, some of them to much higher concentrations than the D-limonene itself does. So the solubility of the material in water gives you one way of transporting the chemicals as a dissolved species. And where the water goes, so will the chemical go.

The fact that it doesn't mix with water means that it can move independently of water, particularly since it's not as dense as water. We're not disposing of

this thing in a pond or a lake where this D-limonene will rise to the surface and just float to the surface like droplets of oil in water. It's mixed with the spoil tailings. It's being transported to the mine with the tailings. And the environment that it's in there is that it's in what we call a "porous media." It exists in the spaces between the sand grains. Where it's saturated, it exists -- the spent processing fluid occupies all of the pore spaces, or virtually all of the pore spaces.

Somewhere above the place where it specify -- or occupies all the pore spaces, you will go into a zone where there is air as well as liquid in the pore spaces. And higher yet, you'll reach the point where it's almost entirely air.

In a pond situation, the vapor pressure, one of the physical properties that's important -- it may be on an MSDS or you may have to go somewhere else -- but the vapor pressure is a physical parameter that gives you an idea of how fast it will evaporate at an air surface. But we're not at an air surface. Where the droplets of the D-limonene are in the pore space with the water, it is not going to evaporate there because there is nowhere for it to evaporate to. The water can be completely stationary. But because the droplet of D-limonene is less dense than the water, it will try to rise, float

through the water towards the surface.

Now, stopping it from doing that are going to be places where the spaces between the grains are smaller than other spaces. So that droplet may be able to move through a big pore and rise to the top of that pore, but then there's a choke point. It's called a "pore throat."

Whether or not that droplet can continue to move is a function of its viscosity and its surface tension with respect to water. Physical properties you have to know about if you are going to know what happens to this material once it's been put in the mine.

I've already discussed the fact that the vapor density -- which it turns out after all of the investigation I did, both MSDSs and the others, the other references that are cited in my testimony and I believe are exhibits -- is that the vapor density is not only denser than air, it's between four and five times as dense as air. That means that when that droplet gets to the surface of the water in the pore space, it may now evaporate. But all it does when it evaporates is it pushes air above it out. It doesn't float. It doesn't continue moving out of the pore space anymore. So you can envision it's going to create a vapor cap on top of this system that will tend to keep oxygen out.

Oxygen figures into the equation, because in

looking at the material and finding out what its properties are, you know that under certain circumstances it will biodegrade in an aerobic environment in the presence of oxygen.

If it's disposed of in a situation where it creates its own vapor seal against oxygen getting in, you are cutting off the opportunity for one of the fates of this material. That it will biodegrade is less likely to happen. And because it's more dense, it creates more back pressure on the next droplet that comes.

MR. PAYNE: Mr. Chairman, may I interrupt? I believe Counsel's question was why he was qualified. And we've had a five- or ten-minute explanation. I'm not sure what question he's answering. The question is why he was qualified.

Am I incorrect, Ms. Walker? You asked him why he was qualified to be able to testify on this, and I'm not sure where he's taking us. Can you help me?

CHAIRMAN JENSEN: I think the question she asked was: Are you qualified? It was kind of a self-serving question. He answered "Yes."

MR. PAYNE: And then there was a "why," I thought, after that. But that's not where this question -- that's not -- the answer that we're hearing at the moment isn't a "why" question. It's a technical

explanation.

May I suggest that they take five minutes and just get a game plan together as where they're going?

MR. GILL: I need a five-minute, even if they don't have a game plan.

CHAIRMAN JENSEN: We'll be in recess for five minutes.

(A break was taken from 3:53 p.m. to 4:13 p.m.)

CHAIRMAN JENSEN: Let's go ahead and go back on the record.

Ms. Walker.

MS. WALKER: Okay. So I'm going to repeat the question that Mr. Payne said that I asked, which is: Why are you qualified to talk about the physical properties of multiphased contaminants?

MR. NORRIS: I would say my qualifications start with my academic training. In the course of doing my undergraduate and graduate work in the geology department, I had -- probably at least 50 percent of my formal course work training was in chemistry of one kind or another.

After leaving the academic world and going to work for major oil companies, I went through a comparable level of training in fluid flow, chemistry, multiphase transport of organic chemicals through porous media,

including not just production, but also disposal and contamination problems involving gas phase, liquid phase, viscosity differences, all the different properties of multiphase materials, how they react with each other, how they move with each other through porous media.

When I did my Ph.D. course work, in particular my dissertation was involved in translating the physical and chemical characteristics that I'd worked with for the first 15 years of my professional career into computer programs that would allow the computer to simulate the physical chemical reactions of multiphase flow through porous media.

In the 25 years since I left the laboratory for supercomputing and hydrogeology, a major portion of my professional career, both before and after founding Geo-Hydro, has been working on contamination problems associated with either industrial facilities or actual dumps, many of which involve separate phase liquids, non-aqueous phase, immiscible liquids, both lighter than water and denser than water, with various levels of solubility and other physical properties, including the design of remediation systems which require, in some cases, injecting yet other fluids with other properties in the porous media in an attempt to decontaminate the soils that you are dealing with.

This would be part and parcel of my academic training, my industrial training, and my practice for well over 35 years.

MS. WALKER: So you have expertise as a geologist?

MR. NORRIS: Yes.

MS. WALKER: And as a hydrologist?

MR. NORRIS: Yes.

MS. WALKER: And as a geochemist?

MR. NORRIS: Yes.

MS. WALKER: And you have expertise in the fate and transport of multiphased contaminates in waste disposal sites?

MR. NORRIS: In particular in porous media, yes.

MS. WALKER: Okay. And is your testimony about the fate and transport of multiphase contaminates and porous materials?

MR. NORRIS: Yes.

MS. WALKER: Are you a toxicologist?

MR. NORRIS: I am not.

MS. WALKER: Do you work with toxicologists?

MR. NORRIS: Yes.

MS. WALKER: Are you familiar with their concerns?

MR. NORRIS: Very much so. Their concerns --

many of the properties that they are concerned with about contaminants are the same ones I am concerned with fate and transport. I am familiar with the terminologies. I am familiar with the general materials regarding toxic characteristics of the contaminants that they do their toxicological work and interpretations on.

MS. WALKER: Are you qualified to talk about the biodegradation of compounds?

MR. NORRIS: I'm not qualified to do a biodegradation study in a laboratory.

I am qualified to assess the physical aspects of the potential for biodegradation in terms of how those processes occur in porous media and what types of other materials and other substances can impact those processes. So I'm very familiar with biodegradation. I understand what biodegradation means, what it needs. I can read the results of a report on biodegradation. You wouldn't want me in the laboratory doing the study.

MR. DUBUC: Are you qualified to talk about whether conditions in porus materials are anaerobic?

MR. NORRIS: I am qualified to tell you whether or not the conditions in the porous media are likely to be anaerobic or aerobic and what implications that might have on bioremediation.

MS. WALKER: When you discuss -- let me back up

just a second.

Do you regularly use MSDS and similar materials in your professional -- well, in your occupation?

MR. NORRIS: Yes. They are a fundamental tool for working in contamination situations, either existing or potential.

MS. WALKER: Okay. So in what aspects do you rely on the information in these sheets?

MR. NORRIS: It depends on what my activity is when I'm looking at an MSDS sheet. For a situation like this one, where I'm looking specifically at fate and transport in porous media, I'm focusing on two things. One, the physical properties that affect fate and transport of a particular chemical; and two, is there at least evidence that at some level or another this particular material may be of interest to a toxicologist?

MS. WALKER: And by "interest to a toxicologist," what do you mean?

MR. NORRIS: Is there evidence from reliable sources that this chemical has toxicological -- toxicological effects on organisms, plants, ecosystems, or not? So for the purposes of this study, those are the things I focused on.

I also look at MSDSs from the safety standpoint. If I'm being asked to advance a core boring into a waste

facility, a disposal area that has a substance that may be explosive, that may be combustible, that may be toxic -- and believe me, you want to know whether or not something is going to be toxic if you are drilling in and may be in danger of smelling materials so that you know what kind of personal protective equipment to have.

For this project, I'm not worried about personal protective equipment. I'm not worried about how to fight a fire with material. But in other situations, that might be material I would rely on from an MSDS sheet. They keep you alive.

MS. WALKER: So I'm a little bit mystified how to proceed here because then I would like to move that Mr. Norris be accepted as an expert to testify on these matters.

CHAIRMAN JENSEN: It's been moved by Ms. Walker that Mr. Norris be admitted as an expert for purposes of this hearing.

Mr. Alder.

MR. ALDER: Mr. Chairman, would you indulge some questions about his experience as it relates to the impact of chemicals in the natural environment? Or perhaps we could have questions directed to him by his counsel.

I don't think he's made a connection between the

potential toxicological or toxicity and any knowledge he has as to how that is transported into concerns in the environment, either in groundwater or for wildlife or other purposes.

CHAIRMAN JENSEN: Mr. Hogle?

MR. HOGLE: Sure. I think it's clear enough. He can testify about the transport of materials based on their solubility and vapor pressure, and that kind of thing.

But what he can't testify to is, is that something is toxic. What he said he could testify to is whether something would be of interest to someone who is an expert in that area of the toxicologist. So the most he can say is that something may be of interest to a toxicologist. He can't say that it is, in fact, toxic.

MS. WALKER: Mr. Chairman, we are prepared to submit as exhibits -- in fact, they are on our exhibit list and in our exhibit packet -- all the MSDS sheets and the similar materials on which Mr. Norris relied.

Now, it's my understanding that to the extent that he talks about something being toxic, it's not his independent evaluation of that, but finding it from a credible source. The question is: Is he qualified to say that it's a credible source? And then he quotes it as, on its face, an indication of whether something has

certain impacts or whether certain warnings are associated with it.

CHAIRMAN JENSEN: Well, I think for purposes of this hearing, we'll admit Mr. Norris as an expert with respect to his degrees and with respect to his work experience. And with respect to toxicology or other matters, it will simply go to the weight of his testimony. Let's move on.

MS. WALKER: Okay. So with regard to these exhibits, and the numbers are -- do you know the numbers?

MR. DUBUC: We can find them out.

MS. WALKER: We'll found them out.

But there are 20 MSDS sheets and hazardous -- I guess you would call them web pages associated with the hazardous -- help me out here, Mr. Norris. The hazardous...

MR. NORRIS: Hazardous substance database.

CHAIRMAN JENSEN: Let me ask you this: Are they MSDS sheets with respect to chemicals that are involved in this process, every one of them?

MR. NORRIS: Yes, they are.

MS. WALKER: Okay. And the hazardous substance database is collected by the Environmental Protection -- no.

MR. NORRIS: No. It's, the National Institutes

of Health hazardous substances database, is the other major source that I relied upon.

CHAIRMAN JENSEN: So Ms. Walker, I understand that you are moving to admit these MSDS sheets that are published with respect to chemicals that were involved in this process upon which Mr. Norris has reviewed and relied on?

MS. WALKER: Correct. And there's the addition of the IRIS, which stands for...

CHAIRMAN JENSEN: Let's deal with the MSDS sheets first.

MS. WALKER: Okay.

CHAIRMAN JENSEN: Counsel.

MR. HOGLE: Sure. We would object based on testimony that we've already heard from Mr. Norris. These are OSHA required. They're done for workplace safety concerns. The information regarding, you know, harm to aquatic life, it is based on full concentrations. We're not talking about full concentrations in this case. So we think it's irrelevant and it's unfairly prejudicial because it portrays something that's not happening out -- that's going to be happening at the mine.

CHAIRMAN JENSEN: Mr. Alder.

MR. ALDER: Well, I think Mr. Norris' prefiled testimony also states that this information is not

reliable for the purposes for which it's being offered. And I guess that can go to the weight of the exhibits. But we would object to their being offered as evidence for the purposes of indicating a risk to the environment that was not properly evaluated by the Division, since he hasn't established that they're relevant for that purpose.

CHAIRMAN JENSEN: Ms. Walker.

MS. WALKER: I think Mr. Norris talked about how he routinely uses MSDS sheets in the course of his work. I also think that the company supplied them to the Division of Water Quality. So they thought they were relevant to that extent.

So while they may not be perfect -- and certainly Mr. Norris is prepared to talk about why he investigated further. So we're not relying simply on the MSDS sheets but using those as a starting place. You know, just because evidence isn't perfect doesn't mean it's not admissible. And part of his testimony is a critique of those, but that doesn't mean they shouldn't be admitted as exhibits. How can you talk about them if they are not admitted as exhibits?

I also think the company has laid the groundwork for the relevance of these sheets because they were the ones who supplied them in part, I suppose, to show that

the chemical is safe.

But the question is: Is the chemical safe? And does the NOI contain an analysis of whether it's safe or not? And in Mr. Norris' expert opinion, these sheets are an excellent way of addressing that.

CHAIRMAN JENSEN: Well, it seems to me that the sheets may be relevant with respect to what Mr. Norris looked at and relied on, and I think he's entitled to testify to that.

With respect to any other use for the MSDS other than his analysis and his opinion, I'm not sure that I see the relevance.

MR. PAYNE: May I also comment?

CHAIRMAN JENSEN: Go ahead.

MR. PAYNE: I guess the question, Ms. Walker, not is, is it that are they safe because that's not the criterion in the rules. It said: Are these materials deleterious? It seems to me that these MSDS sheets can simply point us to a direction of possibly analyzing whether they need to be considered deleterious, but they cannot be definitive as to whether these materials may or may not be deleterious. Would that be a correct...

MS. WALKER: Yes, I stand corrected. And I would add something else, which is I think they also tend to show whether the NOI adequately describes potential

impacts to the environment. So they don't definitively characterize what those impacts will be, but they tend to show whether or not the NOI adequately described those -- they call them "projected impacts to surface water, groundwater, and soils," and whatnot. And so that's what they're being used for.

CHAIRMAN JENSEN: It seems to me that gets to what petitioner's contention is, which, I take it, will be disputed by Earth Energy and by the Division.

I'm inclined to admit them. And we'll -- as a Board, we'll determine the relevance and the weight that we're going to give to the MSDS. But we understand that Mr. Norris has reviewed those and relied on them in getting to some opinions, which we hope we're going to get to here this month.

MS. WALKER: So if I understand, Mr. Chairman, you are saying the MSDS sheets are admitted. But we also have the hazardous substance database information and the IRIS information. So we have these 20 exhibits. The bulk of it is the MSDS, but there's these additional sources that Mr. Norris thinks are important as well.

CHAIRMAN JENSEN: I've limited it to the MSDS. Now, let's take the next.

MS. WALKER: Okay. Let's take the next step.

CHAIRMAN JENSEN: All right.

MR. HOGLE: Can we identify the exhibit numbers?

MS. WALKER: Yes. They are 110 to 128. That's the whole packet.

CHAIRMAN JENSEN: 110 to 128 are the MSDSs?

MS. WALKER: No. That's the whole packet. But Rob will get you the numbers in just a second. And I think we can --

CHAIRMAN JENSEN: Okay. If we could get the exhibit numbers. And these are going to be -- they'll be marked Exhibit P. And this will be as to the MSDS sheets.

MR. DUBUC: Mr. Chair, the MSDS sheets are Exhibit 110 -- Living Rivers' Exhibit 110, 112, 114, 117, 119, 120, 122, 123, 125, 127, and 128.

CHAIRMAN JENSEN: All right. For the record, Exhibits P-110, 112, 114, 117, 119, 120, 122, 123, 125, 127, and 128 are admitted.

MS. WALKER: Mr. Norris, what other sources did you rely on in your expertise?

MR. NORRIS: For the D-limonene, I did look at the US EPA IRIS, I-R-I-S, all caps, database for the substance. That's the only chemical I went to that database for because that database is focused entirely on human impacts. And I did not perceive that human impacts was really a concern at this particular disposal site.

But just for completeness' sake, I did look at that entry. So there was one IRIS web page that I believe is an exhibit.

The other exhibit, or the other source, that I used routinely was the National Institutes of Health, NIH, entries into their hazardous substances database. That database is very valuable for hydrogeologic purposes for a couple of reasons. One, it has a quite complete set of physical properties of the chemicals, beyond what an MSDS will routinely have with it. And second of all, it surveys and reports the literature on non-human impacts of the substance to particular organisms, to -- yeah, to particular organisms. And also general discussions of the properties of the materials in terms of biodegradation, abiotic degradation, and bioconcentration. So that's one reason I went to the NIH database because of that breath of data that they have.

MR. PAYNE: May I ask, Mr. Chairman?

Mr. Norris, the acronym IRIS stands for?

MR. NORRIS: I'm sorry. As I sit here today, I --

MR. PAYNE: Would it stand for Integrated Risk Information Systems?

MR. NORRIS: That would be what stands for, yes. Thank you.

MS. WALKER: So I'd like to move to admit Exhibits 111, 113, 116, 118, 124, 126, which are the hazardous substance database printouts of the chemicals that are in the extraction fluid.

CHAIRMAN JENSEN: Is that from the NIH?

MR. NORRIS: Yes.

CHAIRMAN JENSEN: You are not asking for admission on anything on the IRIS?

MS. WALKER: I was going to get to that.

CHAIRMAN JENSEN: But he's testified that it didn't have -- so he didn't pay any addition to it. So we're not going to receive that.

MS. WALKER: Okay.

CHAIRMAN JENSEN: Now, let me ask a question. The company, as part of their NOI, provided -- submitted the MSDS sheets.

Would the company, would it have any reason to submit these NIH sheets or even to go look at them?

MR. NORRIS: If they had retained my services, they would have had me -- I mean, I would have looked at them and I would have shared with them what --

CHAIRMAN JENSEN: I think it's pretty clear they didn't retain your services.

MR. NORRIS: Yes. The MSDS sheets alone do not provide sufficient information to be able to do the fate

and transport determinations of this material. So without relying only on the MSDSs, you can't evaluate the NOI. You cannot evaluate how these materials are actually going to behave in the environment.

MR. HAROUNY: May I ask a question, Mr. Chairman?

CHAIRMAN JENSEN: Mr. Harouny.

MR. HAROUNY: Are you suggesting that the Division of Water Quality did not even look at any toxicity issues regarding these materials?

MR. NORRIS: I mean, I don't know what they looked at. I looked at the materials that the company provided them. I looked at their findings page. The findings page does not indicate that they looked beyond what the company provided them in the demonstration. Whether they looked at something else, I don't know. I have no indication that they did, but they might have.

MR. HAROUNY: But the basis of your research, then, is via sheets that they provided?

MR. NORRIS: The MSDS sheets they provided, the additional MS sheets that I filed, and the National Institutes of Health reports. That's what I relied on.

MS. WALKER: If I may clarify. It's my understanding that the company presented two MSDS sheets to the Division of Water Quality. So it's not that the

Division of Water Quality submitted them. The company submitted them to Division of Water Quality.

MR. HAROUNY: I understand. What I'm saying is they had the same information that the expert witness here had, so yes.

MR. NORRIS: They had access to the data. As far as I know, they did not have access to anything outside of what the company gave them.

CHAIRMAN JENSEN: Actually, you don't know what they did or didn't do --

MR. NORRIS: I don't.

CHAIRMAN JENSEN: -- isn't that correct?

MR. NORRIS: That's correct.

CHAIRMAN JENSEN: Counsel.

MR. HOGLE: Yeah, I would object to the admission of the HSDB sheets for the reasons we've mentioned.

But also, if you look -- I don't know if you have the exhibits. But if you look at these, I'll take the first one identified -- which is Exhibit 111. It says "Best Sections." It says, "For other data, click on the table of contents." So this is an incomplete record. It's an incomplete document.

And as I researched it and found the full record on some of these, there's information that has been

omitted that, if we're going to consider this, the other information should be considered along with it.

So I would object to the admission of these for the reasons that we've already said, but also because it's just an incomplete record. And it's unfair to present an exhibit that is incomplete.

CHAIRMAN JENSEN: Mr. Alder.

MR. ALDER: I think we're getting to the area now that is within the purview of the Division of Water Quality, and we're second-guessing their determination. And we're overlooking the question of whether or not the Division appropriately made inquiries at a level required by the rules and whether it appropriately relied on findings and decisions of DWQ. And so I think this is within the information that we moved to strike earlier and that it's not appropriate. And frankly, I don't know that it's appropriate for the Board to hear testimony on that.

At the very least, I would urge the Board -- understand that from the Division's point of view, we admit up front that we have no expertise in -- the information submitted suggested whether these are complete or not, whether or not the science is adequate or supported for the purpose it's being used by Mr. Norris. And with a further objection, I don't think

Mr. Norris, again, has established that he has expertise in using this material to establish environmental harm in the environment. Whether he's used this information for porosity and other purposes, I don't know. But we haven't heard that testimony.

MS. WALKER: I think he actually did specifically say that, that the information on the MSDS was insufficient to determine the fate and transport of the multiphase fluid in the porous material, and that he had to go to these materials in order to find out that information. And that information is exactly what lies in this area of expertise. It's things like vapor density and pressure, and fluid density, and that sort of thing.

MR. ALDER: I understand that. My question wasn't whether or not he's used this information. It was whether or not he had experience or expertise in using this material to evaluate environmental harm. I mean, he said he's said he's not a toxicologist. I don't know that he's established he has expertise in environmental toxicology.

MS. WALKER: We already admitted that he didn't.

MR. ALDER: Okay.

MS. WALKER: The point of -- the point of relying on these sheets is to determine whether or not

the materials are deleterious and whether there is an adequate description in the NOI of the projected impacts.

CHAIRMAN JENSEN: Board members?

MR. GILL: Yeah. I'm having trouble linking what they're talking about to what they want to present. So my thinking is why don't we hold the decision on whether this is admissible or not until they've had a chance to show us some foundation or relevance to the Division.

CHAIRMAN JENSEN: How about if we do this: For the time being, we'll deny the admission. But you won't be precluded from again asking for admission at the conclusion of Mr. Norris' -- or at the conclusion of your case to see if you can link it up and understand it. So you're not precluded from giving it another whirl.

Let's move on.

MS. WALKER: Okay, just to be clear: He's going to talk about something like vapor density, and it came off of one of these sheets.

CHAIRMAN JENSEN: He's been talking about vapor density now for the last hour, and I think he's entitled to continue to talk about vapor density. What application that's going to have, we're still waiting to get there.

MR. PAYNE: Mr. Chairman, would it be

appropriate to admit these solely for the purpose of establishing vapor density, but not necessarily for the purpose of establishing toxicity, as that has not been addressed?

CHAIRMAN JENSEN: Is that what they do, though?

MR. PAYNE: I guess I'm asking them if it's vapor density they need to get from these.

MR. NORRIS: Certainly vapor densities, viscosities, surface tensions.

MR. PAYNE: So these are the parameters.

MR. NORRIS: Henry's Law Constant. Those would be the strictly physical properties, I think, that I got from those websites.

MR. PAYNE: Seems to me, Mr. Chairman, that's simply factual information. We should be able to admit if that's all that these will be relied upon to show.

CHAIRMAN JENSEN: I guess they could stipulate to that.

I'm concerned about the objection here that it's a partial document.

MS. WALKER: A way to get to address that issue is, you know, to the extent that he repeats certain facts that are presented on those documents in his expert testimony.

CHAIRMAN JENSEN: If it's to toxicology, he

can't repeat it and become the expert. That just isn't going to happen. If that's where you're trying to go with it to leg up, you aren't going to get there. I think Mr. Alder has a valid objection to his becoming an expert when he testifies about toxicology.

And if that's the reason for trying to admit those, that's bootstrapping, trying to get where you can't get otherwise.

MS. WALKER: Does that mean that a document can never stand on its own just for what it says? Because we would like to admit them for what they say in addition to what Mr. Norris uses them for.

MR. GILL: Ask the lawyers to respond.

CHAIRMAN JENSEN: Counsel?

MR. HOGLE: Sure. I agree with Mr. Chairman. It's bootstrapping. There's a big problem with the fact that this is a partial document. But if they're admitted for anything, it should only be within the realm of the witness' expertise, as Mr. Payne mentioned. So it shouldn't be admitted for anything else.

MR. ALDER: I suppose the Division would support Mr. Payne's modified solution to the problem. We still feel that it puts us at this disadvantage and makes this more of a Division of Water Quality hearing. But to the extent that Mr. Norris needs that information to see if

he can tie it to evidence of transportation -- transporting, I suppose we should allow them that expert prerogative.

Withdraw the objection if it were modified in that respect.

MR. PAYNE: Perhaps, Mr. Chairman, we should proceed as Mr. Gill outlined and hear whatever expert testimony remains from -- to come from Mr. Norris and decide on relevance after we hear that.

CHAIRMAN JENSEN: All right. We'll do that.

MS. WALKER: Okay. So it's my understanding that the materials that you -- I just have to present a little bit of background here because we're sort of starting back on our main, sort of, cataloging here of our testimony.

But you were talking about these additional sources in addition to the two MSDS sheets that the company gave to us because they had given them to the Division of Water Quality. And I believe you found out -- you were talking about additional information in those MSDS sheets that was relevant to the fate and transport of multiphase fluids and a porous material.

MR. NORRIS: I'm unclear on the question. Are you talking about additional information on the two -- that the company provided?

MS. WALKER: Let me ask it a different way.

Did the two MSDS sheets that the company provided talk about surface tension?

MR. NORRIS: No.

MS. WALKER: Or viscosity?

MR. NORRIS: No.

MS. WALKER: And do you consider these physical characteristics to be important to understanding fate and transport of the chemical?

MR. NORRIS: Yes, particularly in a multiphase system.

MS. WALKER: Okay. Were you able to find out any information on surface tension and viscosity?

MR. NORRIS: Yes. To get that information, I went to National Institutes of Health hazardous substances database.

MS. WALKER: Okay. And what chemicals did you look at in this analysis?

MR. NORRIS: I looked at orange terpenes as a separate substance. I looked at D-limonene. And I looked at each of the other substances that the chemical analysis provided by the company indicated would be part of the mixture that might be used.

MS. WALKER: So in presenting -- well, what does the NOI say about which of the chemicals Earth Energy

will actually use to extract bitumen from the ore sands?

MR. NORRIS: The only substance that they specifically mention by name is D-limonene.

MS. WALKER: Did the MSDS sheets refer to other chemicals?

MR. NORRIS: Yes. In addition to D-limonene, there were, I think, somewhere around eight additional chemicals. My supplemental testimony lists them individually. I don't recall them right off hand now. Pinene was one of them. I'd have to look at the exhibits or the written testimony to recall them by name.

MS. WALKER: And did you look up information on each one of those?

MR. NORRIS: Yes. I looked through MSDS sheets and looked in the National Institutes of Health database.

MS. WALKER: And so what does the -- how does the NOI characterize the extraction chemical that they are going to -- well, I guess I should say extraction chemicals that they are going to use to extract bitumen from the ore sands?

MR. NORRIS: It's either referred to simply as the extracting chemical or the extracting substance, or something nonspecific as to what it is in the letter from the company to the EPA that referenced D-limonene alone.

MS. WALKER: What did they say about its

physical characteristics?

MR. NORRIS: They indicate that it is immiscible.

MR. GILL: It's what?

MR. NORRIS: Immiscible.

MR. GILL: Meaning?

MR. NORRIS: It does not mix with water.

MR. GILL: Okay.

MR. NORRIS: They indicate that it is volatile just in an unquantified, qualitative way that it evaporates readily.

The MSDS sheets indicate that it floats on water, has a density less than 1. I don't recall that the NOI independently, including the MSDS sheets, referenced that at all.

MS. WALKER: So can we talk about the NOI statement that they expect the extraction chemical to evaporate?

CHAIRMAN JENSEN: Could you speak into the mic.

MS. WALKER: I'm sorry. I'd like to talk about the statement in the NOI that the expectation is the extraction chemical will evaporate from the process tailings. Did your investigation collaborate that statement?

MR. NORRIS: First, I'd like to back up.

One more characterization that was in the NOI was the indications alternatively that the extraction chemical was either insoluble in water or very poorly soluble in water. That would be another physical characteristic that's particularly important.

The characterization or the representation that the D-limonene will entirely evaporate from the tailings that are being moved to the mine and to the waste dumps, I think, is unsupported with any data in the NOI and, I believe, is inconsistent with the physical properties of the material as I came to investigate them when viewed in the context of the positioning of this material in a porous media, and not just in open exposure to the atmosphere.

MS. WALKER: So --

CHAIRMAN JENSEN: May I ask a question, Mr. Norris?

If it floats on water, why doesn't it evaporate? It's on top of any moisture.

MR. NORRIS: If you are pumping the material into a holding pond, then it will rise to the surface of the water and quickly evaporate. The material, the portion of it that is dissolved in the water, will have to undissolve, if you will, in order for it to evaporate. When you are putting the material into a porous medium,

you don't have the free access to the atmosphere that you do on a pond.

If you have a droplet of the material that is sitting next to air in a pore in the material, it can evaporate. But if two inches below that you have a particle -- not a particle, a bubble of the material, it can't evaporate until and if it is able to migrate through the pore system to get to the top in order to be in contact with the air in order to evaporate.

MR. HAROUNY: Mr. Norris, you said this is immiscible. How could it be dissolved in water?

MR. NORRIS: It is immiscible. That doesn't mean it can't dissolve in the water. It doesn't mix in water. It's like oil and water. But molecules of oil floating on -- I mean, a film of oil floating on water can dissolve molecules into the water. You can have a solubility and not be able to physically mix. They are two separate physical phenomena.

MR. HAROUNY: Why do you have this material on two separate phases and water?

MR. NORRIS: That relates back to the property that I was talking about, the surface tension. The two substances, water and this material, have an affinity for their own molecules, and a measure of that affinity is surface tension. And if the surface tension is

sufficiently different between the two materials, then they tend to form separate beads.

MR. HAROUNY: Now you are talking about two different regimes. You are talking from -- you are going from atmospheric pressure down to below ground level, a different type of pressure, which changes the surface tension all together.

MR. NORRIS: It can very much so, yes.

The pressure differences, if we look at -- an 18-inch lift that is put out in the mine, for example, is not going to be great enough to affect that immiscibility. If you are talking about an aggregate of 80 feet of this material and a free-standing column of the mixed water and stuff, there might be different immiscibility considerations at the bottom of that.

Typically, I would think the temperature is going to have a bigger effect on the surface tension than pressure will in this case.

MR. HAROUNY: Is this chemical not a naturally occurring chemical? Don't they have a bunch of them in orange groves in Florida laying on the ground?

MR. NORRIS: The chemical is naturally occurring. It's found in orange peels, it's found in pine needles. It's found in a variety of sources. Yes, it is chemically occurring -- I mean, naturally

occurring.

MR. HAROUNY: So what is the toxicity of it to groundwater in Florida, for example, where I've seen piles and piles of orange piles, feet-high near certain orange juice factories?

MR. NORRIS: I'm unclear whether and how to answer that question, given the discussions over whether what I read in the natural -- National Institutes of Health documents relating to toxicity, just as reporting what's in those documents is something I'm allowed to do.

The material, I can tell you from having reviewed these documents, both the D-limonene and all of the other compounds that are part of the mix, have been evaluated for toxicity for a far wider range of environments and substances than I'm used to seeing in these kinds of documents. But normally, that kind of data, in my experience, is limited to rats and mice, for the most part -- maybe an occasional minnow. The variety of organisms that have been tested for toxicity up to the point of lethal exposures is extremely broad in the case of these materials.

So somebody somewhere has been interested in exactly that question. And they have investigated it. But I'm not allowed to offer much interpretation, other than the information is there that I looked at, and I

found it interesting.

MR. HAROUNY: So are you aware of orange peels in Florida being considered as hazardous material?

MR. NORRIS: No.

MR. HAROUNY: Thank you.

MS. WALKER: Mr. Norris, is the extraction chemical like an orange peel?

MR. NORRIS: It is found in orange peels. It has to be extracted from it and concentrated in order to make the pure chemical.

MS. WALKER: And I'm not sure that we decided that you couldn't talk about the MSDS sheets at all.

Is there an indication on those sheets that the chemical has toxic properties?

MR. HOGLE: I would object on the same grounds that we've already covered.

CHAIRMAN JENSEN: Sustained.

MS. WALKER: So returning to this point of whether the, in your expert opinion, the chemical -- let me back up a second.

So the NOI states that the chemical will evaporate rapidly when exposed to air. Does that say anything about whether it will evaporate when it's not exposed to air?

MR. HOGLE: Can I ask where you are looking at

in the NOI?

MS. WALKER: Page 17.

MR. NORRIS: They have -- in particular, the point you mention, they do qualify the evaporation rate on an exposed-to-air basis. And they did not -- they do not, in any place that I am aware of, discuss the problems or the difficulties with evaporation from a porous media as opposed to just exposing the chemical to air.

MS. WALKER: So in your understanding of how they're going to dispose of the waste processed ore, is all of it going to be exposed to air?

MR. NORRIS: No. The upper surface of any one point of the tailings pond -- or the tailings pond -- the tailings itself will, obviously, be exposed to air. But it's going to be a pile of porous material. Prior to placement in the mine, it's going to be disposed in the mine in various descriptions of what it is, but certainly, in layers as it's being disposed. And only the top of any particular layer is directly in contact with air.

MS. WALKER: So in terms of what the fate and transport of the chemical will be in the porous material, what is your assessment of that?

MR. NORRIS: Based upon the materials in the NOI

and that we have discussed from the National Institutes of Health and the MSDSs, the transport to the mine of this chemical from the spent processing fluid can be transported to the mine in three -- in three -- through three mechanisms. One is as the dissolved chemical in the water. The second would be potentially as free phase chemical mixed with the water, not miscibly mixed, but physically distributed throughout the porous media. And third, it will be transported to the mine bound to the residual bitumen that was not successfully extracted.

MR. HAROUNY: Mr. Norris, what is the temperature differential that takes it from a liquid phase to a gaseous phase?

MR. NORRIS: It can make that transition easily at room temperature.

MR. HAROUNY: I'm sorry?

MR. NORRIS: Easily at room temperature, it will evaporate against air.

MR. HAROUNY: So all of this stuff could evaporate as soon as it becomes, what, the temperature differential between night and day?

MR. NORRIS: The free-phase material will not evaporate or flash while it's mixed with the water. When a droplet of it moves up in contact with air, it will evaporate. So in a porous media where you have droplets

of this material in water, in the rock, that material won't evaporate until it comes in contact with air.

MR. HAROUNY: But you are talking about the rock that's going to be removed and processed.

MR. NORRIS: We're talking about the sand grains after it has been processed, the pile of loose sand that comes out of the process. The pile of loose fines that comes out of the process has this water and this chemical in it. We're talking about what happens to that chemical, the spent fluid.

MR. HAROUNY: So your testimony is that the base of the sandpile will have this material suspended in it somehow in the upper portion. And whatever is exposed to the surface is going to be evaporated.

MR. NORRIS: Wherever the material is directly at the surface of the pile, it will evaporate very quickly. As you move down into the pile and you have a mix of air and water in the pore spaces where a droplet of the material is adjacent to pore spaces that have air in it, it will be able to evaporate there. But having evaporated, it won't be able to get out because it's five times as heavy as air. So it will sit in that pore space.

MR. HAROUNY: Are these ponds -- I suppose the ponds are lined ponds?

MR. NORRIS: There are no ponds. This material is being dumped out on top of the ground.

MS. WALKER: Mr. Norris, can you just explain --

CHAIRMAN JENSEN: Excuse me, may I ask a question? I'm a little mixed up here.

I thought I heard you say that it has a density of less than 1, that it's lighter than water.

MR. NORRIS: The liquid is lighter than water. The vapor is very much heavier than air. So the liquid will try to move vertically up. But any liquid that makes it to an air-bearing pore and does evaporate, it will tend to stay exactly there. It will not move any further.

CHAIRMAN JENSEN: Even if it's exposed to air?

MR. NORRIS: Unless there's wind causing it to stir, or something. But it is five times as heavy as air. It will just sit down in a pore and tend to inhibit, one, oxygen from getting down into the system to help degrade it, and two, as more evaporates and you fill a higher and higher column, then that starts to back pressure against any other particles that come up. And it won't evaporate as readily against the back-pressured solvent as it did in the original air-occupied space.

CHAIRMAN JENSEN: Go ahead.

MS. WALKER: Yes. I guess we need a little more

explanation here.

What happens to the processed sands or tailings, as they're sometimes called, after the bitumen is extracted from them, according to the NOI?

MR. NORRIS: According to the NOI, they are discharged into a stockpile area adjacent to the processing plant. And then from that stockpile area, they are trucked either to the waste dumps or the rock dumps or back to the mine, depending on the stage of operation.

At the mine, they'll be laid out in lifts of pretty nonspecific detail and then will be covered over with more tailings material and rock materials as the pit refills.

MS. WALKER: Okay. And is the mine lined?

MR. NORRIS: No.

MS. WALKER: Are the waste piles lined?

MR. NORRIS: I have read things in the NOI that make it unclear to me as to whether the stockpiles next to the plant are going to be lined or not. I think they are. But there are other places where it doesn't quite seem like that's the case. So I'm unclear on that.

The stockpiles of the process, from my reading of the NOI, may or may not be lined. But the mine definitely is not going to be lined. The rock piles are

not going to be lined.

MS. WALKER: Okay. So what does the NOI say about the amount of extraction fluid or chemicals that are going to be disposed of in the mine and the waste dumps?

MR. NORRIS: The comments are entirely qualitative. The word "some" is used, I believe, in some places, that "some" will go back to the mine. "Most" is recycled. I don't remember whether "trace" -- "trace" is used or not. But the language that is used is that it is a very small amount. But there's no quantification of that amount at all.

MS. WALKER: Does the NOI say anything about the concentration of the extraction of fluid in the ore -- the processed ores?

MR. NORRIS: No, it does not address anything with respect to concentrations at all.

MS. WALKER: Does it mention anything about possible mechanisms of transport of the chemical in the processed ores?

MR. NORRIS: No.

MS. WALKER: And did you try and estimate the amount of extraction chemical that would be disposed of with the processed ores?

MR. NORRIS: I made two rough calculations --

back of the envelope calculations, if you will -- based upon information that I was able to obtain outside the NOI.

One type of information was the actual solubilities of the chemicals within water that was available from the National Institutes of Health database. Given those solubilities and the nature of the process itself in attempting to recycle the water as much as possible and running it -- constantly exposing it to fresh chemical and keeping it in agitated contact with the chemical, I used the saturation limit of the various chemicals, summed those saturations, and used that as a total concentration that could be transported in the dissolved phase to the mine. That's one of the three mechanisms by which material can be transported to the mine. Using those assumptions and the flow rate from the NOI of 116 gallons a minute, that amounts to about 450 gallons a day.

The second attempt to get an idea of how much might be being transported to the mine was looking at information in public presentations by the company that it has made describing the ophus process, the process they're going to use here. And in those presentations they have used the figure of 98 percent recycling rate; that is, 2 percent of what goes through the process gets

lost.

Because we have the mix of the product in the letter from EER to US EPA of the percent of the extracting chemicals in the extraction fluid, we can figure out what a 2 percent loss amounts to when applied to the 116 gallons a minute that's being discharged with the tailings. And that amount with the 116 gallons a minute amounted to just over 2200 gallons per day. Those numbers are both based upon a production rate of 2000 barrels of bitumen a day because that's the rate that the 116 gallons a minute comes from.

So those are kind of a couple of brackets that are -- give some idea of, qualitatively, what might be going to the mine. The 2 percent figure is -- there's no way to break that out into which of the three transport mechanisms are involved in that number.

MS. WALKER: So, in your opinion, is information on the concentration of the extraction material and the processed ores necessary to an adequate description of project impacts to surface and groundwater?

MR. NORRIS: Absolutely. If you don't know how much of the material is going to the mine, then the entire process of quantifying what the impacts are when that material, and if that material, gets back to the surface -- you have to know how much you are starting

with, what the contents of the -- of the process chemical in the disposed, spent extraction fluid is as a start of that process.

MR. HAROUNY: Mr. Norris, is the 2 percent loss, you are considering all of that being lost without evaporation or shrinkage?

MR. NORRIS: I did assign that entire loss to being transported to the mine, yes. That is, for the 2 percent, an outside figure. But in this particular case, I'm deliberately trying to be conservative to see what kind of problem, theoretically, could be developing. I don't have a lot of faith in the 2 percent to start with because it's paired with a 95 percent water recovery in that presentation. And we know that the water loss is three times as great as they're using in that presentation.

So it's just how bad might it might be if it's 2 percent. And along with that was the assumption that 2 percent does go to the mine.

CHAIRMAN JENSEN: Ms. Walker, we've heard quite a bit of testimony here. Isn't the bottom line his testimony is that he disagrees, he's looked at these different chemical analyses and fate and transport, and he disagrees that it's all going to be evaporated? Is that where we get to?

MS. WALKER: Well, I think that his testimony has to do with whether the description of the impacts of the extraction chemical on surface and groundwater, the description of the projected impacts is adequate. And so the question is: Does the NOI contain the information necessary to disclose those projected impacts?

Now, part of that has to do with whether the characterizations that are in the NOI are accurate. But a lot of it has to do with is the information anywhere? For example, is the information on the concentration and the amount anywhere in the NOI? Because without that information, there's no -- there's no description. So then it also goes to whether or not there's the presence of a deleterious material.

So I don't think that's -- it's not a question of disagreeing so much as is the information there, and is it complete, and is it accurate?

CHAIRMAN JENSEN: Well, okay. Just really seems to me like just belaboring, and this is like a slow death. And I'm being facetious in trying to get what his bottom line is. And I think his bottom line is: He disagrees with the position of the applicant relative to what happens to this chemical material.

MS. WALKER: Well, I think that's certainly part of it. But the other part is -- and I had just asked

that question, is information on concentration necessary to a description. And to be honest, I was going to ask the same question relative to amount and mechanism and physical characteristics. And to a certain extent, that is the bottom line: Did the NOI meet the regulatory requirements?

So I don't think it's just a question of experts disagreeing, it's a question of whether the information is in there.

CHAIRMAN JOHNSON: Okay. Let's just keep trying to move it along. Go ahead with your questions.

MS. WALKER: Okay.

CHAIRMAN JENSEN: I'm certainly not trying to cut you off. I'm just asking if you can expedite the questions to get where you want to be. It would certainly be helpful to the Board.

MS. WALKER: Yeah, I agree. But I'm also trying to meet the requirement of establishing a foundation, and whatnot. So with that in mind, I do want to talk about leachate.

So I want to ask: What is leachate?

MR. NORRIS: Leachate is water or fluid that --

MR. GILL: Say that term again, please.

MR. HAROUNY: Leachate.

MR. GILL: Leeching.

MR. NORRIS: Leachate is water or fluid that is in contact with or has been in contact with waste.

MS. WALKER: And is leachate a concern for impact on surface -- a description -- is leachate relevant to a description of the impacts of mining activities on surface and groundwater?

MR. NORRIS: Yes, it is.

MS. WALKER: Is leachate constant, or does it change with time?

MR. NORRIS: It will change in time. In this particular case, there's the initial leachate, which is the spent processing fluid. That leachate will change in time as additional water comes in contact with the waste, either through precipitation, or infiltration of precipitation, or water entering the pits from adjacent rock. And that water and the initial leachate react with the rock and create new composition.

MS. WALKER: So where in the mining process or on the mine site is the leachate a concern?

MR. NORRIS: Leachate's a concern anywhere disturbed rock and/or process tailings are placed.

MS. WALKER: And where will they be placed?

MR. NORRIS: They will be placed outside the pit, in the dumps outside the pit. And they will be placed in the pit excavation itself.

MS. WALKER: So how long will the effects of evolving leachate last?

MR. NORRIS: Indefinitely in perpetuity. Until all of the reactions that will occur with the infiltrating water have been -- until all the materials with which the infiltrating water reacts have been consumed, why, leachate will continue to generate, and it will continue to change in composition.

MS. WALKER: Are there types of contaminants at the mining site that would be of concern in the leachate?

MR. NORRIS: There are three potential types. The organic chemicals that are in the extraction fluid itself would be of concern -- are a concern; the potential for organic constituents from the bitumen that's being returned to the mine, both the dumps and the pit itself; and then inorganic constituents that would be part of the leachate by virtue of the water source that they're using for their process water and that are librated by reaction of infiltrating water with the tailings and waste rock that are involved.

MS. WALKER: So were tests performed and reported in the NOI to determine the presence of organic compounds related to bitumen in the leachate?

MR. NORRIS: There were leaching tests performed that included, among the materials analyzed, organic

compounds that would be associated with the bitumen.

MS. WALKER: And what were the names of those tests?

MR. NORRIS: The two protocols that were used were the TCLP and the SPLP. The former is the Toxicity Characteristics Leaching Procedure, and the latter is the Synthetic Precipitation Leaching Procedure.

MS. WALKER: So what's your assessment of the leaching tests and the results?

MR. NORRIS: The tests that were performed, had they been performed properly according to protocols and reported with appropriate detection limits, would not have provided information regarding the composition of leachate that will form in the field. The tests are not capable of doing that. They are not designed for that purpose. So even if they had been done properly and reported properly, they wouldn't have told us what those concentrations are likely to be in the leachate.

It turns out that they either weren't done properly, they weren't in the right sample containers, they went past their holding times, and/or they were reported at detection limits that were above the limits that were of interest to Division of Water Quality.

MR. HAROUNY: Mr. Norris.

MR. NORRIS: Yes.

MR. HAROUNY: The leachates are mainly as a result due to existence of chlorides, correct?

MR. NORRIS: No.

MR. HAROUNY: High concentration of chlorides?

MR. NORRIS: No. Leachates can form of all kinds of concentrations. And if you have soluble chloride minerals in a rock, the leachate will have chloride in it. If you have little or no chloride but you have a lot of pyrite, then you can have a leachate that is virtually entirely a sulfate-based leachate.

In order to predict what the leachate is, you have to consider exactly what the rocks are, the minerals in the rocks, and test accordingly. But certainly, chloride is a material that can leach readily from rock materials, natural materials.

MR. HAROUNY: Chlorides, phosphates, pyrites. All of those can, correct?

MR. NORRIS: All of those can, yes.

MR. HAROUNY: The issue here is that this material is not being brought from outside or anything. You are saying the leachate that exists in the spot --

MR. NORRIS: Leachate will be generated in the spot. And actually further in, we'll get into why I perceive a concern here. But the issue with respect to the inorganic contaminants that come from the rock

material itself is that the material that's there has been thoroughly ground up with respect to the ore material. There is a much higher surface area. There is surface area of minerals that will be in contact with water that, for probably millions of years, have previously been isolated by water by the bitumen that's there. So you've got high surface areas, higher infiltration rates, and...

MR. HAROUNY: So is it the introduction of water that causes the leachates to precipitate, or is it the introduction of the D-limonene?

MR. NORRIS: The initial leachate will have the D-limonene in it. It is not going to be a reactant to the rock materials that are there. So it is a separate issue. That's why I identified three issues: The initial leachate that's being transported to the mine, the leachate that will form from water entering the mine and reacting with the rock materials to give inorganic constituents to the leachate, and then the potential for leaching organic chemicals from the residual bitumen that's in the rock.

MR. HAROUNY: So you are talking about the mine now and not about the surface, correct?

MR. NORRIS: Yes. This is the materials within the mine and within the rock --

MR. HAROUNY: Okay.

MR. NORRIS: -- rock areas.

MS. WALKER: So just to be clear, when you say "in the mine," what do you mean by that?

MR. NORRIS: Well, I tend to consider "in the mine" to be inclusive of both the pit area and the lateral areas where the waste rock is being disposed of. They are two very different environments.

When I say "the mine," if I don't say "the mine pit," I'm being inclusive of both those areas.

MS. WALKER: Okay. But you are talking about the materials that are put back in the mine?

MR. NORRIS: Yes.

MS. WALKER: Okay. So what tests were performed and reported in the NOI to determine the presence of organics related to the extraction chemical?

MR. ALDER: Objection to the question. Mr. Chairman, if I might.

At the risk of delaying matters, this information, I think he just testified, was not -- was at the request of DWQ. This was a test that was accepted and reviewed and used by DWQ, Division of Water Quality, and was not requested as part of what the Division relied on as they looked at DWQ's review.

But I think that, again, we're getting out of an

area that's relevant, at least so far as the Division believes it had a right to rely on the expertise of DWQ in asking for these tests, reviewing the tests, and determining their opinion based on those tests.

CHAIRMAN JENSEN: Mr. Hogle.

MR. HOGLE: I join in that objection for the same reason.

MS. WALKER: The tests were reported in the Permit by Rules submission, which is repeatedly referenced in the NOI in the context of a variety of subject matters, including ore processing, pit backfill, and whatnot. And those are all cited in our response memo to the motion in limine. And in the Division's motion, they also said that the Permit by Rule was properly part of the NOI.

So what Mr. Norris is commenting on are tests reported in the NOI. I think this hearing is about the adequacy of the NOI. And if we're not allowed to talk about the NOI, I don't understand how we can discuss the adequacy of it.

MR. ALDER: In response, the question is not -- the question is the adequacy of the NOI. But what you are doing with this type of question is attacking the adequacy of the DWQ Permit by Rule, which this Board really doesn't have jurisdiction to reverse or revise or

to find as inadequate. The Division of Water Quality found that that information was adequate and reached determinations based on that information -- Mr. Norris giving one side of view of the argument -- but they have already made a determination on this issue of groundwater quality.

MS. WALKER: I believe we established that the Division has independent obligations under Rule 106 and 110 -- 109, I'm sorry. And those obligations include a description of the impacts, the projected impacts of the mining operations on surface and groundwater. And so part of that description in the NOI is the results of these tests.

So either that aspect of the NOI should be stricken and no one should be able to talk about the tests, including some suggestion that they did describe a description -- I'm sorry, that they did -- I guess that they are -- or "constitute," that's the word I'm looking for. So that they constitute a description of the impacts to surface water and groundwater. But if the suggestion is they don't constitute a description, then the Division can't rely on them to suggest that they do.

CHAIRMAN JENSEN: Mr. Payne, did you have something you wanted to say?

MR. PAYNE: Yeah. I tend to agree with counsel

for petitioners. This is something that I believe should be explored, as the Division had an obligation to determine whether it was deleterious. Whether or not it was information generated for the water -- the Permit by Rule determination or for the Division, it's still, I believe, information the petitioners can rely on to make an allegation of adequacy of the NOI or inadequacy of the NOI.

CHAIRMAN JENSEN: Mr. Gill.

MR. GILL: I agree with Mr. Payne. I thought it was the form of the question. The way she asked the question, I thought, went to the DWQ. If she'd rephrase the question in the right format, I don't think we have this problem.

CHAIRMAN JENSEN: Overruled. Let's move on.

MS. WALKER: Okay. So do you want me to repeat the question, then?

MR. GILL: I think what I'm having trouble with in this, and the reason -- I'm responding because you asked.

If the witness would refer to what the Division of Oil, Gas and Mining did or should have done. I'm hearing him say, "This is what DWQ should have done." I think it's more helpful to me to find out what the Division of Oil, Gas and Mining did or should have done.

And that's the kind of testimony I was coming to.

So I tend to agree with Mr. Alder, just personally. It was the form of the question. And I think you just need to refer to it in what the Division of Oil, Gas and Mining did, not in general to all, everybody.

MS. WALKER: Okay. So I said what tests were performed and reported in the NOI to determine the presence of organics related to the extracting fluid, so organics in the leachate related to the extracting fluid -- or the extraction chemical is what we are calling it.

MR. NORRIS: There were no analyses, whatsoever, of the spent extraction fluid that is being disposed in the mine pit or in the waste rock dumps with the tailings.

MS. WALKER: So what tests were performed and reported in the NOI to determine the presence of inorganic constituents in the leachate?

MR. NORRIS: The tests that were reported in the NOI were, again, TCLP tests and SPLP tests, which are not characteristic of leachate that were formed, and were not performed according to protocols, or in some cases, used the -- used detection limits that were above regulatory limits.

MR. HAROUNY: Do you have complete record of the tests?

MR. NORRIS: Complete records of the test?

MR. HAROUNY: Correct. Because you are inferring that it was not performed in accordance to certain things, or --

MR. NORRIS: The reports from the labs indicating, for instance, air space in some of the samples, holding times were exceeded. We don't have the -- we don't have the full packets for each of them. But the documents in the NOI report those shortcomings in the tests.

MR. HAROUNY: So you are making some assumptions.

MR. NORRIS: I'm reporting the materials that are in the NOI. She asked me what was in the NOI. And those are those are just repetitions of that information.

MS. WALKER: Just for ease of reference, where in the NOI are these statement made regarding the tests and the protocols in the heads based?

MR. NORRIS: They are in the demonstration for the Permit by Rule.

MS. WALKER: Is there any concern with inorganics?

MR. PAYNE: I'm sorry, can I get clarification

on that?

The demonstration for Permit by Rule is a Division of Water Quality determination. Is that included in the NOI? I was asking her to confirm for me.

MR. NORRIS: Right. That is part of the NOI.

MR. PAYNE: Is that correct, Mr. Alder?

MR. ALDER: It's an appendix.

MR. PAYNE: Thank you.

MS. WALKER: I think that I -- I was concerned that I heard you say the "Permit by Rule determination." And what we're talking about is a Permit by Rule submission by --

MR. PAYNE: Okay. So that submission is what's appendixed to the NOI?

MS. WALKER: Right.

MR. PAYNE: Thank you.

MR. ALDER: Well actually, the appendix to the NOI is the entire correspondence. And the information was not in the original application. It was requested by Division of Water Quality, if I'm speaking correctly, and that testing was supplied at the request. So it's all in the package. But it wasn't part of an application by the applicant to DWR as part of her response to requests for additional information.

MR. PAYNE: You mean DWQ?

MR. ALDER: Yes.

MS. WALKER: Okay. Is there any concern with inorganics in the initial leachate caused by process water shipped to the mine?

MR. NORRIS: Actually, it is the water that is being brought to the mine to make the process water that does create issues with respect to at least total dissolved solids in terms of the leachate. What limited information is in the NOI indicates that shallow water in the vicinity of the mine and that shows up at the closest springs has very low total dissolved solids, either based on what's reported in the literature, or based on the electrical specific conductance that has been measured for that water.

The water that's going to be used for process water is from a deep regional aquifer that, based upon the information that I've been able to infer from water quality statements in the NOI, is going to have substantially higher total dissolved solids than does the local shallow water. So what is going to the mine in the initial leachate is going to have the TDS of the deep regional aquifer, which is potentially substantially greater than that in the native water of the area. And I think that's a legitimate concern.

MR. HAROUNY: What's the difference? Could you

tell me the difference between shallow and deep? Where is the shallow aquifer and how deep is the aquifer?

MR. NORRIS: The shallower water resources are within a few hundred feet, perhaps less, of the land surface that are just local sand lenses or perched sand aquifers that are locally discharging. And those tend to have conductance measurements of 300 to 500.

The process water for operation is coming from, I believe, the Mesaverde, but at depths of, I think they said 1200 to over 2000 feet.

MR. HAROUNY: So the general TDSs could not be higher than 1200, 1300 maybe, max?

MR. NORRIS: I don't know for sure. But certainly it looked to me, from the materials that were in there, that we're talking something in the range of -- yeah, 1000, 1200, which could be three to four times what the shallow water has it in.

MR. HAROUNY: That's the water they use to drink in Midland, Texas.

MR. NORRIS: That's a lot like the water I drank as a kid. It's not that it's not potable water, the issue is are we adding TDS load to the Green River.

CHAIRMAN JENSEN: Let's take a five-minute break.

(A break was taken from 5:58 p.m. to 6:21 p.m.)

CHAIRMAN JENSEN: All right. Let's go back on the record.

Ms. Walker, with respect to your examination of Mr. Norris, how much longer do you think that you will be?

MS. WALKER: Well, things are going more quickly now.

CHAIRMAN JENSEN: Pardon me?

MS. WALKER: Things are going more quickly now. But we also have an obligation to get our testimony on the record.

CHAIRMAN JENSEN: Yes. So I'm just -- without holding you to an exact time, what's your best estimate?

MS. WALKER: Half an hour.

MR. PAYNE: It's not trying to push, it's trying to understand scheduling.

MS. WALKER: I just think if I'm wrong. If you'd asked me this morning --

CHAIRMAN JENSEN: Let me ask you this. We've been here now for all day, and the court reporter has been with us all day, and we've got hearings again tomorrow morning.

Would your preference be to finish up on your direct this evening, or would you prefer to finish your direct on another day?

MS. WALKER: I think it's up to you. We could go either way.

CHAIRMAN JENSEN: We'd like it to be your call. Which would you prefer?

MS. WALKER: I guess to finish up on another day.

CHAIRMAN JENSEN: All right. That's what we'll do, then. When we reconvene, you will still be on with Mr. Norris on direct. And he will be subject to cross-examination by the Division and the applicant.

MR. GILL: Mr. Chairman, might I just, if you wouldn't mind, ask the other counsel how they feel about that so that we know we're making as good a decision as we can?

MR. HOGLE: I overheard Mr. Norris say he was getting tired.

MR. GILL: He's what?

MR. HOGLE: I probably shouldn't have, but I overheard Mr. Norris tell Ms. Walker that he was getting tired. I think out of appreciation for that, it's okay. We're going to have to come back anyway. There's no way we're going to finish today, you know. So it would be good to get to a nice, logical stopping point. Another half hour would be fine for us. But if it's an imposition on the witness, then that's fine.

MR. DAVIS: And I would point out to Mr. Chairman, we would want -- I think to make a logical stopping point, if Mr. Walker and her witness completed their testimony, we would want to do our cross at the same time. Certainly wouldn't want to break it then and then do cross at some other day. So it probably makes sense to break.

CHAIRMAN JENSEN: Okay.

Mr. Alder.

MR. ALDER: Yeah, we're fine with that scheduling, Mr. Chairman.

CHAIRMAN JENSEN: All right. For the record, then, this matter will conclude for today's hearing. The case will remain open. And hopefully the attorneys will get together and work out some more -- another date or dates that we can hear this on. Unfortunately, we can't hear it tomorrow. We've got other matters that we need to hear, and we've still got a couple of pending matters that we, as a Board, will need to get resolved before February 28. So we apologize to the parties, but our plate is a bit full.

Thank you for your time. And we look forward to seeing you another day.

MR. ALDER: Thank you.

MR. HOGLE: Thank you.

MS. WALKER: Thank you.

MR. PAYNE: We're off the record, Mr. Chairman?

CHAIRMAN JENSEN: We're off the record.

(The matter recessed at 6:26 p.m.)

CERTIFICATE

State of Utah)
ss.
County of Salt Lake)

I, Michelle Mallonee, a Registered Professional Reporter and Notary Public in and for the State of Utah, do hereby certify:

That the proceedings of said matter was reported by me in stenotype and thereafter transcribed into typewritten form;

That the same constitutes a true and correct transcription of said proceedings so taken and transcribed;

I further certify that I am not of kin or otherwise associated with any of the parties of said cause of action, and that I am not interested in the event thereof.

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Michelle Mallonee, RPR, CSR