

March 15, 2012

Julie Ann Carter
Utah Division of Oil, Gas & Mining
1594 West North Temple
Suite 1210
Salt Lake City, UT 84116

MAR 27 2012

DIV. OF OIL, GAS & MINING

RE: Informal Conference - PR Springs ABI File No.: A6016FC Hearing, taken February 23, 2012

Dear Ms. Carter,

The official transcript in the above-mentioned matter was already processed and distributed by our office to all counsel. It was brought to the court reporter's attention that the header on the transcript was incorrect. We would like to clarify with this letter the following:

Page 1, line 1: "BEFORE THE BOARD OF OIL, GAS AND MINING" should read "BEFORE THE DIVISION OF OIL, GAS AND MINING".

Please keep this letter with your transcript as you would an errata sheet, making it apart thereof.

I apologize for the inconvenience this has caused you. If you have any questions, please contact me at: 800-288-3376, extension 3230 or you may e-mail me at ksnyder@depo.com.

Sincerely, Ambuly Anyah

Kimberly Snyder Atkinson-Baker, Inc.

CC: Denise A. Dragoo, Esq.

File

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BEFORE THE BOARD OF OIL, GAS AND MINING
 2
                    DEPARTMENT OF NATURAL RESOURCES
 3
                     IN AND FOR THE STATE OF UTAH
       IN THE MATTER OF THE HEARING
       ON LIVING RIVERS' PROTEST OF
 7
       RED LEAF RESOURCES' NOTICE OF
       INTENTION TO COMMENCE LARGE MINE
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       OPERATIONS FOR THE SOUTHWEST #1 MINE,
       M/047/0103, IN UINTAH COUNTY, UTAH.
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            TAKEN AT:
                       Department of Natural Resources
                       1594 West North Temple
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                       Salt Lake City, Utah
17
            DATE:
                    Thursday, February 23, 2012
18
            TIME:
                     9:13 a.m. to 11:23 a.m.
19
            REPORTED BY: Michelle Mallonee, RPR
20
21
      ATKINSON-BAKER COURT REPORTERS
       500 N. Brand Blvd., Third Floor
       Glendale, CA 91203
      (818) 551-7300
23
      www.depo.com
24
     FILE #A6016FC
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1 APPEARANCES		1	PRESENT FOR STATE OF UTA	H OFFICE OF ENERGY	DEVELOPMENT:
John R. Baza, Hearing Officer		2	Samantha Julian, Director		
Division of Oil, Gas and Mining			John Nowoslawski, Manager o	of Unconventional Energ	y
FOR HEARING OFFICER BAZA: EMILY E. LEWIS, ESO.		2	Development		'
EMILY E. LEWIS, ESQ. UTAH ATTORNEY GENERAL'S O	DEETCE	- 1	Gibson Peters, P.E.		
Natural Resources Division	1112	4	Oldsoff recess, r.c.		
1594 West North Temple		5			
Suite 300 Salt Lake City, Utah 84116					
Telephone: (801) 538-7200		б			
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Suite 300		11	LIVING RIVERS		
Salt Lake City, Utah 84116 Telephone: (801) 538-7200		12	Rob Dubuc	17	
Telephone: (801) 538-7200 ALSO PRESENT:		13	Elliott Lips	23	
5 Dana Dean, Associate Director,	. Mining	14	RED LEAF RESOURCES		
Division of Oil, Gas and Mining		15	Denise Dragoo	34	
Paul Baker, Environmental Man	ager	16	Bob Bayer	47	
Division of Oil, Gas and Mining Leslie Heppler, Engineer		17	THE DIVISION		
Leslie Heppler, Engineer Division of Oil, Gas and Mining		18	Steve Alder	49	
		19	Leslie Heppler	49	
Torn Munson, Hydrologist Division of Oll, Gas and Mining		20	Tom Munson	50	
LaVonne Garrison, Assistant Di	rector Oil and Gas		TOTAL PROFESSION	30	
SITLA		21	DISCUSSION LESS BULLETS	NO OFFICER DATA	F2
Sonja Wallace		22	DISCUSSION LEAD BY HEARI	ING OFFICER BAZA	53
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Earlene Russell, Administrative Division of Oil, Gas and Mining	Assistant	24			
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FOR RED LEAF RESOURCES, INC		1	DDOCEE	DINCS	
DENISE A. DRAGOO, ESQ.		1	PROCEE		
SNELL & WILMER		2	(9:13 a,ı	m.)	
15 West South Temple Suite 1200		3	777		
Salt Lake City, Utah 84101-15:	31	4	HEARING OFFICER	R BAZA: Folks, let's	go ahead an
Telephone: (801) 257-1900		5	get started. Good morn	ing to you all. My na	me is John
LANCE LEHNHOF, ESQ.		6	Baza, director for the Div		
CARMAN LEHNHOF, ISRAELSEN, 299 South Main Street,	LLP	7	for this particular confer		-
Sulte 1300		8	just going to read a few		
Salt Lake City, Utah 84111 Telephone: (801) 534-4435					
ALSO PRESENT:		9	we'll start into the actua		
Dr. Laura Nelson, Vice President,	Energy and Environmental	10		to establish kind of	
Development Red Leaf Resources, Inc.		11	tone of this meeting. Th	nis room is small by o	design. I
Jeff Hartley		12	want it to be somewhat	more intimate. I wa	nt it to be
Hartley & Associates		13	more of a discussion and	d not necessarily a fo	rmal back
		14	and forth, although I am		
Fran Amendola			which you will hear abou		
Norwest		1 5	William you will rical about		inally
Norwest Bob Bayer JBR Environmental		15	The court seems to		DOI: V
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February 23, 2012. This hearing is being conducted at 2 the Department of Natural Resources Building in Salt Lake 3 City at -- well, it's almost 9:15 now. It was scheduled 4 to start at 9:00. 5 The purpose of the hearing is two-fold, First

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of all, to provide an opportunity for those who have submitted comments regarding the Division's conditional tentative approval of the Red Leaf Resources' Notice of Intention to commence large mine operations for the Southwest #1 Mine M/047/0103, to present the basis for their comments, and to provide the operator, the applicant, and the Division a chance to respond to those comments.

And two, within a reasonable time frame after the hearing, I, as a hearing officer, will issue a final appealable order, determining whether the applicant has met the relevant rules and a Final Notice of Intention should be approved for the Southwest #1 mine.

The scope of the information and comments that we are going to receive today during this proceeding, I'm going to limit to those comments that were presented in the November 18, 2011, Living Rivers' protest to the tentative decision to approve the Notice of Intention to commence large mining operations for the Red Leaf Resources Southwest #1 mine. And I'm going to list those

63G-4-207, "Any person may file a signed written petition to intervene in a formal proceeding." To date, the hearing officer has not received the written petition from anyone seeking to intervene in this proceeding.

Pursuant to Utah Code Annotated Section 63G-4-202(3), "Any time before a final order is issued, the presiding officer may convert a formal adjudicated proceeding to informal adjudicated proceeding if it is in the public interest and does not unfairly prejudice the rights of any party."

As hearing officer, I've determined that converting this hearing from formal hearing to informal hearing is in the public interest and does not unfairly prejudice the parties. Additionally, the parties have stipulated to the conversion and have agreed that the formal notice satisfies any relevant notice requirements for the informal hearing.

So, the hearing will be conducted informally pursuant to Utah Code Annotated Section 63G-4-203, Procedures for Informal Hearing; Utah Administrative Code R647-5-106, Procedures for Informal Phase; Utah Administrative Code R647-5-107, Exhaustion of Administrative Remedies.

In the event there is a conflict between Utah 25 Code Section 40-8-1 et seq. and Implementing Rules for

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four identified areas for you that were included in that 2 letter to the Division. 3

First, Living Rivers alleges that, "The NOI fails to account adequately for the possible existence of susceptible groundwater resources in the area of the mine. Second, the NOI fails to account for the possible impacts to groundwater in the area of the mine. Third, that there's no evidence that Red Leaf intends to obtain or that DOGM intends to require a groundwater permit from the Division of Water Quality, as required by DWQ 11 regulations. And fourth, the NOI fails to provide 12 adequate information to show that the design of the EnShale capsules will be sufficient to prevent leakage of petrochemicals into the area surrounding the mine, and 15 specifically into local perched groundwater aguifers.

There was also a comment presented from Jennifer Spinti, of the Institute for Clean and Secure Energy, I do not believe she is here today, so I am going to forego that comment regarding that letter that we received.

20 So pursuant to Utah Code Annotated Section 40-8-13(d)(3) and Utah Code Annotated Section 63G-4-201, 22 the Division noticed the hearing as a formal hearing. 23 And this hearing will commence as a formal hearing before

Pursuant to Utah Code Annotated Section

1 Large Mining Operations at Utah Administrative Code R647, 2 the Utah Administrative Procedures Act shall govern.

3 Pursuant to Utah Code Annotated Section 4 63G-4-103(f), the parties to this hearing are the protestants, Living Rivers, through their representative 6 Western Resource Advocates; the applicant, Red Leaf 7 Resources; the Division of Oil, Gas and mining; and then, of course, any agreed person who submitted and was 9 granted intervention prior to conversion of the 10 proceeding from formal to informal, which there are none.

Pursuant to Utah Code Annotated Section 63G-4-203(1)(g) and Utah Administrative Code R647-5-106(9), intervention in this informal proceeding is prohibited.

Pursuant to Utah Code Annotated Section 63G-4-203(1)(c), "The parties shall testify, present evidence, and comment on the issues presented in their previous comments to the Division."

So the procedure for today's hearing will be as follows -- and frankly, I'm limiting this to a two-hour time frame. And I'm going to ask the parties to minimize their comments to that two-hour time frame in this order: First, I'm going to ask the Division to provide a brief history of the permit leading up to this hearing, which I

anticipate should take ten minutes or less. Then I'm

Page 9

HEARING ON LIVING RIVERS' PROTEST OF RED LEAF RESOURCES FEBRUARY 23, 2012

1	going to ask Living Rivers to present the basis for their	1	some new issue that needs discovery, or something like
2	comments and their protest. And I'm going to ask them to	2	that, we would reserve that right.
3	do that in approximately 20 minutes. And then I'm going	3	HEARING OFFICER BAZA: I understand.
4	to ask Red Leaf Resources to have an opportunity to	4	MS. DRAGOO: Thank you.
5	address those comments. And I'm also going to ask that	5	HEARING OFFICER BAZA: I think we probably
6	you do that in 20 minutes. And then finally, I'm going	6	should introduce the people speaking for the parties.
7	to allow the Division to have an opportunity to address	7	First of all, for the Division, I assume it will be
8	the comments in an additional 20 minutes.	8	principally Mr. Alder?
9	Now, recognizing that there may be some leeway	9	MR. ALDER: Steve Alder. I'll be appearing
10	in that and that we're going to try to do this in two	10	for helping the Division; although I think we'll
11	hours, hopefully there will be a little bit of time left	11	handle it pretty much individually by the Division people
12	to resolve any unresolved issues.	12	who did the review. They'll make their own comments as
13	Earlene, I'm going to ask you to help me with	13	appropriate. Paul Baker will do a brief introduction of
14	some time keeping here, if you could.	14	the mine first.
15	So post hearing: After the hearing, and	15	HEARING OFFICER BAZA: Okay.
16	reviewing the information in the Division's file at the	16	MR. ALDER: With Paul, we have I could
17	date of the decision, the evidence and testimony	17	introduce the people. Leslie and Tom will be addressing
18	presented, and any additional information requested, the	18	the hydrologic issues.
19	hearing officer will issue an order determining whether	19	HEARING OFFICER BAZA: Okay, And when you make
20	the applicant has met the relevant rules and whether a	20	your comment, I'll ask that you give your full names so
21	final permit shall be approved. After the issuance of a	21	the court reporter can pick that up.
22	final order by the hearing officer, the parties may	22	And then for Living Rivers, it will be?
23	appeal the decision, pursuant to R647-5-106 part 17.	23	MR. DUBUC: Yes, good morning. I'm Rob Dubuc.
24	I would also again indicate to you that this is	24	I'm counsel for Living Rivers. This is Elliott Lips, who
25	informal. It is an intimate setting. I would ask	25	will be testifying. And my colleague, Joro Walker, will
23	informal. It is all intimate setting. I would ask	20	
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	Page 10		Page 12
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1	parties to be respectful of each other's comments. And	1	be here as well.
2	parties to be respectful of each other's comments. And note that we have some time frames that we're going to	2	be here as well. HEARING OFFICER BAZA: Sounds great.
2	parties to be respectful of each other's comments. And note that we have some time frames that we're going to try to constrain ourselves to.	2	be here as well. HEARING OFFICER BAZA: Sounds great. And for Red Leaf Resources?
2 3 4	parties to be respectful of each other's comments. And note that we have some time frames that we're going to try to constrain ourselves to. But also that, in my own opinion, the purpose	2 3 4	be here as well. HEARING OFFICER BAZA: Sounds great. And for Red Leaf Resources? MS. DRAGOO: Denise Dragoo, here on behalf as
2 3 4 5	parties to be respectful of each other's comments. And note that we have some time frames that we're going to try to constrain ourselves to. But also that, in my own opinion, the purpose that I would hope to achieve out of this as a hearing	2 3 4 5	be here as well. HEARING OFFICER BAZA: Sounds great. And for Red Leaf Resources? MS. DRAGOO: Denise Dragoo, here on behalf as counsel for Red Leaf Resources. Laura Nelson, as company
2 3 4 5 6	parties to be respectful of each other's comments. And note that we have some time frames that we're going to try to constrain ourselves to. But also that, in my own opinion, the purpose that I would hope to achieve out of this as a hearing officer is determining was there anything in the	2 3 4 5	be here as well. HEARING OFFICER BAZA: Sounds great. And for Red Leaf Resources? MS. DRAGOO: Denise Dragoo, here on behalf as counsel for Red Leaf Resources. Laura Nelson, as company representative. Fran Amendola, who prepared the Notice
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1 County. It's in central Uintah County near the Seep 1 formal review. We didn't send another formal review 2 Ridge Road. 2 letter. Rather, we communicated with the operator. And 3 The operator is proposing to mine -- the entire 3 they made a few changes to the application until the 4 proposed disturbed area is 1477 acres on three sections 4 Division issued a tentative approval, a conditional 5 of land. It's primarily land that's owned by the Trust tentative approval, in October of 2011. That then went 6 Lands Administration, although there is private to public notice. And it was published in Salt Lake City 7 7 and Vernal newspapers. 8 Just a general overview of what would happen in 8 The public notice period ended November 28, 9 a mining operation. First, the land would be cleared. 9 2011, and the Division received several letters: The one 10 Soil would be removed and stockpiled. There would be 10 that we're discussing today, of course, from Western 11 pre-stripping of overburden where required and that 11 Resource Advocates; a comment letter from Jennifer Spinti 12 material would be removed. And the oil shale ore would from the University of Utah; we received two letters from 13 be blasted, removed, crushed in preparation for 13 the Governor's Resource Development Coordinating 14 constructing cells, capsules where the oil shale would be 14 Committee: and several letters in support of the project. 15 processed. And once these capsules are basically 15 I think that's the basis of what I would have to excavated, the operator would put in a layer of what they 16 16 present 17 call bentonite amended soil, or BAS. It would be a 17 HEARING OFFICER BAZA: Okay. And did you 18 three-foot layer of BAS. And that would be covered on 18 mention the date upon which you issued the tentative the bottom by a steel pan. And that would then be 19 approval and when that notice went out? 20 20 covered by 13 feet of gravel. And then the oil shale ore MR. BAKER: That was in October of 2011. Again, 21 would be put back into the capsule and -- crushed and put 21 I don't have the exact dates. back into the capsule. And the entire capsule would be 22 HEARING OFFICER BAZA: Okay. Excuse me for just 23 surrounded by this 13 feet of gravel, and on the outside, 23 a minute. I'm just trying to pull up information on my 24 the three-foot area of bentonite amended soil. 24 tablet here. 25 As the ore is put back into the capsule, there 25 On the 20th of October, it looks like the Page 14 Page 16 are also pipes that are put in that would help -- or that tentative decision to approve was sent out by the 2 would be used to heat the oil shale ore. And then they 2 Division. 3 would go through the process of heating that and 3 MR. BAKER: Okay. That sounds about right. 4 extracting oil or the kerogen. And once the capsule 4 HEARING OFFICER BAZA: Okay. Anything else, 5 was -- once that process was complete, eventually there Paul or the Division? 6 would be another tier, another level put on top of that 6 MR. ALDER: No. one. And basically, the process would be repeated. And 7 HEARING OFFICER BAZA: Okay. this process of constructing the capsules proceeds over a 8 8 MR. BAKER: No, I don't think so. Not for now. g several-year period. HEARING OFFICER BAZA: Why don't we go ahead, 10 Like I say, covering that 1400 or so acres, and I believe the next item I indicated is we would hear 11 there would also be a shop and office buildings, oil 11 from Living Rivers, Mr. Dubuc. And again, 20 minutes, 12 storage facilities, things like that. 12 but we'll allow for some leeway there. 13 When once the capsules have been allowed to 13 STATEMENTS FROM LIVING RIVERS 14 cool, they will be graded and then soil will be placed on 14 MR. DUBUC: We will be as succinct as possible. 15 top of them, and the area reseeded and revegetated. I'm 15 Good morning, Mr. Baza. As I said, my name is 16 sure we'll be getting into more details of exactly what Rob Dubuc. What I will do is I have a brief prepared 17 the mining operation will be. But that's kind of the 17 opening statement. And then Mr. Lips will testify on a 18 basis of it. 18 few issues, specifically those addressed in our comment 19 The Division originally received the application 19 letter. 20 in April of 2011. And I don't remember exactly what 20 Living Rivers' task today is admittedly a 21 month the first review went out -- a few months later. I 21 difficult one, and that's to convince you to overturn 22 said I didn't look up those dates, and I apologize for 22 your agency's decision to recommend approval of Red that. And following that review, the Division received, 23 Leaf's NOI; to say, more or less, that your agency made a 24 I believe it was two more submittals that were reviewed. 24 mistake; and to direct your agency personnel go back and And they were reviewed really more informally than with a redo the recommendation. No agency director would take Page 15 Page 17

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On top of that, there is the pressure that the industry is bringing to allow it to develop these resources as guickly as possible. Red Leaf wants certainty. They want a streamlined permitting process, and they want approval in months, not years. We're all aware of the political rhetoric surrounding development 8 of these resources, that Utah is the Saudi Arabia of oil shale, that the state is open for business for tar sands and oil shale development, and that we need to push for mining these resources to help free our country from its dependence on foreign oil.

In a letter sent to you a few weeks ago, Red 14 Leaf contends that we shouldn't even be here today, that our concerns are non substantive, that all the issues that we raise relate to groundwater quality, and that these issues can and will be dealt with through the groundwater discharge permit process at DWQ.

But as you know, it's not that simple. While 20 there is overlap between the oversight provided by the two agencies, when it comes to issues such as impacts to groundwater, each of those agencies has its own set of regulations and its own requirements to account for any possible impacts to the environment, including groundwater.

economic climate, risky ventures tend to scare away investors. But those labels are accurate. The process that Red Leaf has proposed has never been done before on any scale, let alone the one outlined in the NOI. It is first of a kind and it is experimental. And as Mr. Lips will outline, the risks associated with it are not limited to economic ones.

You've been provided a brief outline of Red Leaf's proposal, but let me put it in some perspective. In its NOI, Red Leaf has stated that it plans to build a 1.0 series of capsules. Each capsule will cover 450,000 square feet over ten acres in size, 130 feet tall. To 13 give you some perspective on the scale, that's a capsule 14 that's 12 1/2 times as large as the building we're sitting in and three times as tall. But the proposal is not to build one of those capsules, it's to build 118 of 17 them, 68 of the capsules in the bottom layer and 50 additional capsules stacked on top of that bottom. 19 That's a total of 1219 acres worth of capsules covering 20 over 53 million square feet, almost two square miles.

21 Underlying virtually all the company's claims that this process is environmentally -- is that this process is environmentally benign, that these capsules are safe and that they will not leak petrochemicals and leechate into the environment, either during the heating

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As we noted in our protest, for your agency, those requirements require you to make sure that the NOI adequately accounts for both presence of groundwater, under R347-4-106(8) (sic), and for the impacts of that groundwater, under R347-4-109(1) (sic). And it is those 6 regulatory responsibilities that bring us here today.

Let me make a brief editorial aside about the regulatory framework that your agency is using to regulate oil shale and tar sands. In the current 10 regulations, both of these come under the heading "Non Coal" -- regulations that work much better for more 11 12 traditional hard rock mining. Unfortunately, the non 13 coal regs don't take into account the experimental nature 14 and the new technologies associated with oil shale and 15 tar sand mining. As we've seen so far, each of these 16 proposed mines is unique, not just from -- unique not just from hard rock mining but from each other. And I'd 18 like to take this opportunity to request a meeting with you and your staff in the next few months to discuss some 20 possible changes to these regulations that would be a 21 better fit for these new industries.

22 Now, I understand that companies such as Red 23 Leaf would prefer not to have their activities characterized as "first of a kind" or "experimental" 25 because both of these labels imply risk. In today's

process or once the capsules have cooled and settled.

Let me state flat out we dispute that claim and we dispute the company's right to make it. Fact of the matter is that the closest the company has come to building one of these capsules is a pilot project approximately 1/10th of the proposed size of a single one of these capsules. Without disclosing results of whatever testing the company did on that pilot project or proposing a conservative protective approach, it now makes the claim that not only will these capsules work for their intended purpose, but that the capsules will be impermeable. And they're asking you to allow them to go from a 1 1/2 acre pilot project to a 1219 acre production with no steps in between. There's no plan for ramp-up of the scale of this project or to build several scale-sized capsules to see if they will work as designed. Instead, 17 Red Leaf wants it all and they want it now.

The fact of the matter is that the company is pushing too hard and it's trying to take shortcuts through the approval process. Let me give you an example of how Red Leaf's rush to obtain approval has been 22 counterproductive.

Your agency based its decision to approve the NOI, in part, on Red Leaf's assertion that, "The operation of the proposed capsules will not result in

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discharge of pollutants nor is it probable that discharge will result; therefore, Red Leaf does not believe that it has a duty to apply for a groundwater discharge permit."

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4 Several weeks before your agency issued its 5 tentative approval of the NOI, DWQ notified both the 6 company and your agency that a complete groundwater permit application would, in fact, be required. In other 8 words, your agency's approval was premised on incorrect 9 information; namely, that DWQ agreed with Red Leaf that no discharge of pollutants would result, based on the 10 11 capsule design. 12

Not only that, because your agency relied on that premise, your personnel was deprived of the information they needed to fulfill DOGM's regulatory obligations, information that's still being provided to DWQ today. But that's directly pertinent to determining if this proposal will impact groundwater in the area of

18 19 A full two months after you issued your 20 tentative approval, Red Leaf submitted a 195-page 21 groundwater application to DWQ. That application 22 contains a significant amount of information that wasn't 23 contained in the approved NOI, but that your agency 24 should have had before it made its recommendation to

approve this mine. Even with that additional

insufficient to conclude that there are not groundwater resources that will be impacted by the proposed mining operation.

4 As a way of background, a little bit on the 5 geology. The Parachute Creek Member of the Green River Formation is the surface bedrock formation throughout the majority of Red Leaf parcels. This member contains the Mahogany Oil Shale zone from which the raw ore would be extracted. Open-pit mining operations would extend to a depth of 250 feet below the ground surface. Underlying the Parachute Creek Member is the Douglas Creek Member of 12 the Green River Formation.

13 The groundwater permit application states that 14 the depth to the shallowest occurrence of groundwater 15 known is 600 feet below the ground surface and 350 feet 16 below the bottom of the open pit. However, there's 17 insufficient information in the NOI to support this 18 statement and, in fact, some information that contradicts 19 it. The NOI states that it is unlikely -- only states 20 that it is unlikely that the Parachute Creek and Douglas 21 Creek contains significant quantities of water, although 22 the NOI acknowledges that its presence in these rocks can 23 not be ruled out. 24

On a regional basis, the groundwater permit application states that the Douglas Creek Member

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information, DWQ has not only asked Red Leaf to provide more information, but it's also asked the company to expand its modeling to see what the long-term effects on groundwater would be.

The company's data show, for instance, that the spent shale will generate high pH leachate. And the model that the company ran only went out to 30 years.

As I noted, Mr. Baza, this is information that your agency should have had before it made its recommendation to approve the mine. At a minimum, we are asking you to take a step back and allow the permitting process to run its course and to allow DWQ to obtain the information it needs to make its decision.

But ultimately, we're asking you to direct your personnel to reconsider their recommendation in light of this new information so that any recommendation they make is as informed as possible. To do anything else would be a violation of your obligation under Utah law.

At this point, I'll turn to Mr. Lips, who will outline in detail why the NOI fails to meet DOGM's regulatory requirements,

MR. LIPS: Thank you, Mr. Baza. I appreciate the opportunity to present these comments. I am Elliott Lips, for the record.

The information presented in the NOI is

potentially contains the uppermost aguifer in the Green

2 River Formation in the eastern Uinta Basin. In fact, as

reported in both the NOI and the groundwater permit

application, the BLM considers both the Parachute Creek

5 and Douglas Creek Members as key aquifers in the general

6 Uinta Basin area. Furthermore, the groundwater permit

application acknowledges the presence of groundwater in

8 the Douglas Creek aquifer and discusses the movement and

areas of discharge in the southern and northern parts of 10

the Uinta Basin.

And finally, the groundwater permit application provides data from nearby wells that have identified groundwater occurrence that, "Likely reflect localized perched aquifers associated with lenses of permeable bedrock in the Douglas Creek Member of the Green River Formation."

In spite of this, the NOI provides three lines 18 of evidence in support of their conclusion for the 19 absence of groundwater in the Parachute Creek and Douglas 20 Creek. First, the NOI reports that there are no USGS mapped springs issuing from either of these members in or near the parcels. This is insufficient evidence upon which one can conclude that there are no agulfers. Not all springs are mapped by the USGS. And this is not the

standard for determining the presence or absence of

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groundwater. More importantly, the NOI does not contain the results of a thorough, systematic seep and spring inventory of the parcels and nearby areas.

Furthermore, the NOI states -- citing Price and Miller, a published report -- discussing springs issuing from the Green River Formation.

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The second line of evidence in support of their conclusion for absence of groundwater, the NOI reports that exploration drilling by Red Leaf Resources did not encounter groundwater. Six holes were drilled for a proposed 1656-acre mine area, which is insufficient to establish the presence or absence of groundwater. The NOI did not contain the drill logs, so it's not possible to know what was or was not recorded during drilling.

or geologist simply does not make observations one way or the other regarding the presence or absence of groundwater. If this is the case, the lack of observation of groundwater does not allow one to conclude that there's an absence of groundwater. In fact, the groundwater permit application reports that the holes were drilled with water as a circulation medium and that small quantities of water might not have been observed.

Often during exploration drilling, the driller

In addition, the statements made by Red Leaf in the NOI that the wells did not encounter groundwater is However, the NOI also reports that the first porous unit occurs approximately 50 to 100 feet below the Mahogany in the Douglas Creek Member. In fact, Figure 5 of the groundwater permit application shows the Douglas Creek Member approximately 55 feet below the Mahogany oil shale zone. In the Texas (sic) Seep Ridge Unit No. 2 well, less than two miles west of the Red Leaf Resources, reports the Douglas Creek Member 49 feet below the Mahogany.

In summary, the record is incomplete. And what information exists indicates that there is the potential for groundwater in localized perched aquifers in the Douglas Creek Member approximately 50 feet below the floor of the proposed mine and/or in fractures in the Parachute Creek Member.

Red Leaf relies on the presumption that the capsule design, particularly the bentonite amended soil, or BAS layer, will prevent migration of fluids from the ore. This presumption is key to Red Leaf's belief that there will be no impacts to water resources.

In support of the groundwater permit application, Red Leaf evaluated seepage of precipitation through the upper BAS layer that will occur after the mining has ceased and the capsules are reclaimed with a cover of overburden and vegetated top soil.

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contradicted by the recent groundwater permit
application, which reports that water was encountered
during drilling in one hole, RL-1, in fractures near the
top of the hole. This confirms the presence of
groundwater in the Parachute Creek Member of the Green
River Formation.
The groundwater permit application reports water

The groundwater permit application reports water at 600 feet below the ground surface in the Red Leaf water well; however, neither the NOI nor the groundwater permit application provide information about this well, such as its location, a geologic log, how the well was completed, or results of aquifer tests, if conducted.

The third line of evidence provided in the NOI is a summary of nearby wells on file with the Utah Division of Water Rights. This provides little pertinent information to the question of aquifers in the parcels to be mined by Red Leaf because there are no drill logs, no information on the geologic formations in which the wells were completed, and no information on groundwater that was encountered at shallower depths.

With regard to projected impacts to groundwater, the NOI states that, "Groundwater is not susceptible to any impacts from the mining and retorting operations because it is isolated from these operations by several hundred feet of low permeability marlstones."

The seepage was evaluated using the Hydrologic Evaluation of Landfill Performance, or HELP computer program, from the U.S. Army Corps of Engineers. The results of Red Leaf's analysis indicate that seepage of precipitation through the upper BAS layer into the spent ore will be, for the base reclaim case, 1683 gallons per year per capsule. For the non-vegetated case, seepage and precipitation water through the upper BAS layer will be 73,772 gallons per year per capsule. They also looked at a case of increased precipitation. Under that scenario, the seepage through the upper BAS layer is 44,319 gallons per year per capsule.

First, the NOI does not discuss any of these seepage analysis results. In fact, these seepage results completely contradict statements made in the NOI that, "The capsules are designed to be fully contained." And, "fully isolated from the environment by design, both during operation and following reclamation." And, "water will not enter the hydrocarbon recovery zone of the capsules."

More importantly, Red Leaf did not evaluate the quantity of leechate that will percolate through the lower BAS layer. Clearly, the BAS layer is not impermeable. So it's logical to conclude that water will seep down through the spent ore and ultimately through

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8 (Pages 26 to 29)

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the lower BAS layer. In fact, the DWQ recognizes that this is possible. And in a letter to Red Leaf Resources dated February 10, 2012, instructed Red Leaf to conduct additional analysis using the HELP model to evaluate this exact scenario.

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It's clear that even under the best-case conditions, that in which the BAS layer remains intact during the heating and extraction process, Red Leaf's underlying presumption that the capsules are sufficient to prevent migration of fluids is unsupported by their own data and analysis. Furthermore, the NOI fails to provide information that the BAS layer will remain

Red Leaf proposes to recover the oil that is 15 liberated from the rock as a result of being heated in capsules constructed on site. The crushed ore will be placed in the capsule in layers with heat-conducting pipe. The liberated oil will be collected in pipes and in a pan at the bottom of the capsule and directed to a sump.

Red Leaf claims that all of the oil and volatile hydrocarbons will be contained by constructing the capsules with a three-foot layer of bentonite amended soil, BAS, and a 13-foot layer of gravel between the BAS and the ore.

The NOI is further incomplete because it does not address the loss of integrity of the proposed BAS as a result of the heating and extraction process.

4 Specifically, the ore will be heated to a temperature of

725 degrees Fahrenheit. The NOI does not discuss the 6 impact that this will have on the integrity of the BAS.

7 In fact, Norwest, one of the Red Leaf's consultants.

8 recommended that this exact issue be evaluated. Furthermore, Red Leaf adknowledges that the integrity of 9

10 the BAS is compromised by heat and states, "To keep the 11 BAS seal functioning, the BAS needs to be protected from 12 the heat that is introduced into the capsules from the

13 heating pipes."

14 Second, a loss of 40 to 45 feet in thickness in 15 the ore will exert stresses on the BAS. The groundwater 16 permit application states that the knuckle design will 17 keep the BAS in compression during and after settling, 18 and thereby prevent shear failures. However, Red Leaf has not provided the results of any geotechnical analysis 20 or testing to support this assumption.

MS. RUSSELL: Twenty minutes has expired.

22 MR. LIPS: Okay. I have just a few more minutes. I have, like, three minutes. Thank you. 23

2.4 The groundwater permit application simply states

that, "The information provided below on laboratory

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During the heating and extraction process, the ore in the capsule loses approximately 40 to 45 feet in total height. The initial thickness of the ore in each tier is 100 feet.

This method of recovering hydrocarbons from oil shale is a new concept that has never been demonstrated at the scale that Red Leaf proposes. In order to evaluate this new and untested design, the Division and the public must rely on either the results of a pilot project using the same construction and operation or on the results of sufficient and appropriate laboratory analysis and modeling. Unfortunately, the NOI fails to provide information on either of these.

Red Leaf has constructed a test facility under its exploration permit. However, the NOI contains no information about the results of this test facility. Specifically, there is no report of the evaluation of the capsule design. No discussion of potential scaling effects. No discussion of the liner or liner systems that were used and how they might differ from what is currently being proposed. No discussion of the geometry of the test capsules. No discussion of the BAS and how it was constructed. No analysis of the integrity of the BAS during heating and extraction. And most importantly, no evaluation of any seepage from the capsules.

testing, pilot capsule investigation, and modeling are 2 high-level summaries of separate investigations and 3 reports."

4 Without providing the actual reports, it's not 5 possible for the Division, DWQ, or the public to evaluate 6 the validity of the claims made by Red Leaf. Specifically, Red Leaf fails to demonstrate how 8 compressive stresses will extend from the sides of the 9 BAS to the center over distances of up to 900 feet. 10

In addition, the groundwater permit application states that the BAS layer is predicted to stay intact, in part due to the surcharge load from the weight of the second tier capsule. This load would not exist for the uppermost tier, and thus, compression of the BAS would be significantly reduced.

As described and shown in the drawings in the NOI, the BAS will remain intact during the settling of the ore. It is not possible to reduce the volume of the ore by 40 to 45 feet and not cause displacement of the BAS. As shown by Red Leaf, the BAS would have to undergo an approximate six percent volumetric change in order to remain intact. The documents do not contain an analysis of how this volumetric change, if it actually occurs, will affect integrity of the BAS. If the BAS does not undergo a volumetric change, there will be cracks as a

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result of differential settlement and movement to submitted as an appendix to the NOI. It's Appendix S. 2 accommodate the displacement of the BAS. This movement And we've attached that as Exhibit D to our materials. of the BAS will compromise its integrity. But just going through our response, we just have gone through item by item the four issues that 4 The NOI does not discuss how the differential 5 settlement of the ore in the capsules and the resulting 5 Director Baza raised and are raised in the Living Rivers stresses it will apply to the BAS will affect the letter. 7 Going through that, first, the question about integrity of the BAS. The NOI does not discuss the effect that the volatile organics, gas pressure, or whether the NOI adequately accounts for local groundwater degradation by steam and/or saline or alkaline fluids resources. And basically, this is a very simple 10 requirement under the Division's rules. There are just will have on the BAS. 11 In summary, the information presented in the NOI two requirements. First, identification of depth to 12 is insufficient to conclude that the integrity of the BAS 12 groundwater. That's identified -- if you look at Exhibit 13 B of your packet, the NOI, pages 37 through 38 identify will not be compromised during the heating and extraction 14 process or an evaluation of what impacts will occur if those -- the depth to groundwater. 15 the BAS integrity is compromised. Thank you. 15 In addition, Red Leaf meets the requirements, 16 MR. DUBUC: That concludes our prepared remarks. 16 simple requirements, of R647-4-109, which require an 17 Do you have any questions? impact statement and simply require that the operator 18 HEARING OFFICER BAZA: You know, I do have some provide a narrative description of the groundwater 19 questions. But I am going to wait to hear from both Red impacts. Those are set forth at pages 40 through 42, 20 Leaf and the Division before I start asking that. 20 attached as Exhibit C -- very clearly set forth. 21 So Denise, I'll turn the time over to you. 21 The Division issued an executive summary 22 STATEMENTS BY RED LEAF confirming that Red Leaf had met these requirements. 23 MS. DRAGOO: Great. Thank you, Director Baza. That executive summary, dated October 5, 2011, is 24 I think the fatal flaw in the discussion that attached as Exhibit E. It confirms that the records of the nearby wells, which are retained by the Division of we've just heard is the failure of Living Rivers to Page 36 Page 34 acknowledge that the groundwater discharge permit is a Water Rights, reflect the depth of the groundwater. And

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condition to the October 20th tentative decision. For some reason, the comments submitted on November 18th, which was nearly a month later, don't even acknowledge the fact that Condition No. 1 of that October 20th decision was that Red Leaf should go ahead and obtain the 7 groundwater discharge permit from the Division of Water Quality. Despite that fact, they presented those comments and suggested that, in fact, Red Leaf was not 10

going to obtain the groundwater discharge permit.

We think that was such a fatal flaw that the comments submitted were not even substantive. And we suggest, in fact, that the Division should have gone ahead and finalized the Notice of Intent in November following the end of the 30-day comment period because the comments submitted by Living Rivers were simply not substantive.

Overall, Red Leaf contends it has met the 19 statutory requirements and the regulatory requirements, 20 which were much more narrowly focused than those 21 discussed by Mr. Lips. We've prepared a response, which 22 I'll provide to you here, in writing which shows the excerpts from the NOI and the groundwater permit that address concerns. Living Rivers fails to acknowledge the 25 fact the groundwater permit application has been

it's reflected in 2(d), "Isolated Perched Aquifers," as a 1312-foot deep well. So they identified the depth of groundwater. That's all that is required.

In addition, the Division confirmed at that time and agreed with Red Leaf's conclusion that groundwater is not susceptible to mining operations because it's isolated by several hundred feet of low permeability marlstone.

So it was very clear that Red Leaf met the requirements, and the Division properly issued the Notice of Intent on those two bases.

13 With respect to the concerns raised by Living Rivers that the Parachute Creek and Douglas Creek Formations, members of the Green River Formation, are not adequately analyzed. There's a very detailed hydrologic report provided in both the NOI and also in Appendix S. This information confirms that there's not, on the basis of both the USGS mapped springs that show that there are none in this area and also that the water source is located within a one-mile radius, confirm that this 22 area -- basically provide an adequate analysis of these 23 members. That's provided in Exhibit G. And the full 24 hydrology report is set forth in Appendix S.

There was also a concern raised by Living Rivers

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- that there was some groundwater encountered in drilling. 2 But this was just a very little groundwater. We've 3 addressed this on page 2 and added the discussion from 4 Appendix S, which confirms that there was a small amount 5 of water encountered in drilling those six core holes, but only in one of the six core holes. Small quantities of water were observed, but they're not significant and 8 they're not in the water bearing -- any major water 9 bearing horizon would have been recognized in this core 10 hole drilling. 11 The well logs are set forth. Contrary to 12 Mr. Elliott's (sic) suggestion, they are set forth in 13 Figure 6 of the groundwater quality discharge application 14 that's attached as Exhibit I. 15 Finally, the Notice of Intent provides a summary
- 16 of the nearby water wells that are on file with the Utah 17 Division of Water Rights. Those are attached as Exhibit K. And contrary to the allegations of Living Rivers, 18 19 these wells are clearly identified in the state 20 engineer's database location. And that database, you 21 could simply take administrative notice of that. But if 22 you need those database records, we've pulled them and we 23 can provide them for the record, if you'd like. 24 There's also a concern raised by Living Rivers

that the statements regarding isolation of groundwater

are inaccurate and confusing. And this is really not the

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addition, of course, there was the October 20th decision of tentative approval of the Division, which confirmed that this entire permit was conditioned on obtaining a groundwater discharge permit. That discharge permit application was submitted as Appendix S. And once again, that's in the record.

The letter also states that -- from Living Rivers -- states incorrectly that Red Leaf does not intend to obtain and the Division does not intend to require a groundwater discharge permit. That's clearly not correct. Apparently, Living Rivers didn't carefully review the October 20th tentative approval, which was dearly conditioned on the Division of Water Rights' issuance of the groundwater permit.

In terms of the allegations that the EcoShale design will not prevent contamination, this issue is addressed very thoroughly in the groundwater discharge application submitted as Appendix S and under consideration of the Division of Water Quality. There are probably -- well, there are some 15 pages of detailed analysis regarding this and set forth, as noted in our letter, at pages 25 through 40 of Appendix S. Sections 11, 12, and 13 of that groundwater discharge permit application addressed the design and also addressed the issues raised by Norwest.

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Page 40

2 case. The NOI provides a summary of the existing 3 literature in this area, which shows that there is a porous unit. About 50 to 100 people live in the Mahogany zone. However, this permeability is not uniform 6 throughout the formation. And in Red Leaf's research, they found -- in core testing, they found no evidence of 8 groundwater resources in this area. In addition,

9 although Living Rivers suggests that there's inconsistencies in the data, they present no evidence to 11 support its protests that there are groundwater resources 12

in this area. In addition, Red Leaf Resources contests the definition of "aquifer." In fact, Living Rivers provides no definition of aguifer. The definition that's appropriate in this case is that set forth by the Department of Environmental Quality. They define an aquifer as, "A geologic formation that contains sufficiently saturated permeable material to yield usable quantities of water to wells and springs." And based on that definition, there are no water resources that are affected in this area.

As we indicated, Living Rivers has relied on outdated information. The initial NOI, which was submitted in April, was updated in September. And in

Norwest initially made some recommendations regarding the design of the EcoShale system. And they made those recommendations with respect to the April 21 NOI that was submitted. That's been revised since in the NOI dated September 1, 2011, and addressed specifically, again, in the groundwater discharge permit application.

So we just -- in sum, the requirements of the Division of Oil, Gas and Mining, with respect to this issue and the Notice of Intent, are much more narrowly 1.0 focused than those of the Division of Water Quality. The 11 Division has appropriately conditioned the issuance of 12 the NOI on the Division of Water Quality's determination as to whether -- analysis of the application and 14 determination whether they should issue a permit, 15 groundwater discharge permit, or whether one is not even 16 required. 17

So the function of the Division of Water Quality is, of course, much more detailed. They have many more detailed requirements. And in terms of the integrity of the process, that's been detailed in great length in three sections of the groundwater discharge permit. And it's really something that's up to the Division of Water Quality now. It's something in their expertise.

The narrow focus of the Division of Oil, Gas and Mining Notice of Intent is to satisfy those two

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protest letter. And I think that, again, if you are requirements, depth to groundwater, which was clearly going to consider this and accept this document, then you identified, and secondly, provide an environmental 3 assessment of groundwater resources. And that was need to provide Living Rivers with an opportunity to 4 provided. Those requirements are very simple, very 4 respond. 5 HEARING OFFICER BAZA: Well, I think there are straightforward. And the applicant has met those 6 some concerns that I have about seeing the document for requirements. And the Division determined correctly that 7 7 those requirements were met. the first time today. So once again, we encourage the Division to And I'm assuming you're seeing it for the first 9 9 time as well. approve the Notice of Intent as conditioned on MR. DUBUC: Absolutely. 10 October 20th and not wait until the Division of Water 10 HEARING OFFICER BAZA: So I'm not really opposed 11 11 Quality issues or decides not to issue its permit. 12 12 to having it included as part of this consideration, but The overall objectives of the two programs are 13 very different. Division of Water Quality focuses it would probably be wise to have you take a look at it 14 specifically on water quality and on the integrity of the and then give me some kind of input, maybe in the form of a, you know, response letter to this. 15 process. The Division is more concerned about providing 15 16 a general description of groundwater resources and 16 MR. DUBUC: If we could have just a reasonable 17 addressing redamation. 17 time to respond to this. MS, DRAGOO: We'll withdraw it. That's fine. 18 18 I don't know. We may want -- Fran, since we've 19 got some extra time, do you want to address the issues 19 We'll withdraw it. We made the statement for the record. 20 regarding the integrity of the bentonite amended soil 20 And the record, it's all in. 21 layer and the EcoShale patent to design? 21 MR, DUBUC: The cat's kind of out of the bag. 22 MR. DUBUC: Before we do that, I would like to 22 Mr. Baza was reviewing this as you were talking. I mean, 23 object to the introduction of this document at this time. it was inappropriate to introduce this. But the cat is 24 This was -- we stipulated to this as being an informal out of the bag. And I feel at this point, Living Rivers 25 should have an opportunity to respond. hearing. Page 42 Page 44 MS. DRAGOO: Well, we don't feel it's MS. DRAGOO: Right. MR. DUBUC: There was no provision for submittal inappropriate to introduce it. It's simply a summary of of written testimony. what's already in the record. You presented your 4 4 And Mr. Baza, if you are going to consider this, argument. 5 then I feel that the only adequate measure to counter HEARING OFFICER BAZA: Denise, would you have a 6 this is to give us an opportunity to respond to this problem, though, if Mr. Dubuc has a chance to look at 7 document. Otherwise, you should exclude this from the this and then provide me with some kind of written 8 record and not consider this in your deliberations. response to what's in here? 9 9 MS. DRAGOO: I'd suggest that Mr. Lips just read MS. DRAGOO: Perhaps a short period of time. 10 his statement into the record. And if it's a problem, I 10 MR. DUBUC: The regulation provides sufficient 11 can simply read mine into the record, which I just did. 11 framework for responses, generally ten business days or 12 The only thing this does is summarizes the response of 12 some sort. 13 Red Leaf Resources to the specific four issues that were 13 MS. DRAGOO: Yeah, that's really basically our summary of what's in the record. We'll withdraw it. 14 raised by Director Baza and were also raised in the 14 15 letter of Living Rivers. So all this does is simply 15 MR. DUBUC: Again, I think it's too late. The 16 assemble the information that's already in the record. cat's out of the bag. 17 HEARING OFFICER BAZA: Give me a minute. 17 It simply copies, for the convenience of the hearing 18 18 officer, the references in the Notice of Intent and in MS. DRAGOO: All right. 19 the groundwater permit. There's nothing new in that 19 HEARING OFFICER BAZA: Tell you what we're going to do: Just in the interest of time here, I'm going to 20 letter. 20 21 21 let Emily take a look at this. And before you withdraw MR. DUBUC: But again, this was prepared by 22 it, before you say that it's not -- it shouldn't be legal counsel, submitted by legal counsel. Are you 23 introduced, or whatever, I'd like to hear from the saying that it's totally devoid of any legal opinion of 24 Division and allow the Division to take their 20 minutes, any sort? What Mr. Lips did was provide technical testimony clarifying the assertions that we made in our unless --Page 43 Page 45

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1	MS. DRAGOO: Sure, that's fine.	1	the drilling encountered water at depths, or any rock
2	HEARING OFFICER BAZA: that would be a	2	types, that suggested that they had sufficient
3	problem here.	3	permeability to host or contain groundwater.
4	MS. RUSSELL: I'm counting that Red Leaf has	4	The recharge area for all of these aquifers has
5	taken about 15 minutes of their time, a little less than	5	been any aquifers that might have been there have bee
6	15 minutes of their time. If you want to allow them time	6	long eroded away. We're at the edge, virtually, of
7	after that to continue their allotted time, that's fine.	7	the east
8	MS. DRAGOO: Sure. We'll reserve our some	8	THE REPORTER: I'm sorry. "At the edge of"?
9	rebuttal.	9	Your voice is dropping again.
10	HEARING OFFICER BAZA: Rebuttal to what? You	10	MR. BAYER: the edge of the east Tayaputs,
11	said you wanted to have Fran talk about something. Do	11	T-A-V-A-P-U-T-S, Plateau, with the south edge the
12	you want to take a minute to do that? I mean, because	12	exposures of these shallow formations through much of
13	obviously, Living Rivers had Elliott talk. And I don't	13	the all of Parachute Creek and the Douglas Creek
14	know if Fran has some additional material.	14	aquifer that could serve as significant recharge area
15	MS. DRAGOO: Right. And Fran, I guess I would	15	have long been eroded away. There is a big canyon down
16	like you to address a couple of issues. One is the	16	there to the south. So it's not surprising that there's
L 7	question of the isolation of groundwater and the question	17	no water encountered.
8	about the additional water that was found and that was	18	Is that what you wanted to talk about, Denise?
19	reported in the groundwater discharge application. And	19	MS, DRAGOO: Yes, That's correct, I think
20	that's basically addressed in both the NOI and in	20	that's good.
21	Appendix S regarding that B group (phonetic) and	21	HEARING OFFICER BAZA: Denise, was there
22	encountering of the water at that time. Do you want to	22	anything else you wanted to cover?
23	go through that?	23	MS. DRAGOO: I think that's probably it. Maybe
2 4	MR, AMENDOLA: Let me make a recommendation	24	we could go on to the Division's presentation.
25	because Bob really represents the hydrologic component of	25	HEARING OFFICER BAZA: All right, Steve. We'll
	Page 46		Page 4
1	the application and is the primary author of the	1	turn the time over to you now.
2	groundwater discharge permit. I think Bob should address	2	STATEMENTS BY THE DIVISION
3	the issue of groundwater and the presence or absence of	3	MR. ALDER: We thought just briefly, I would
4	any of the isolation.	4	just preface our response to say that we thought it was
5	MS, DRAGOO: Okay.	5	appropriate to provide an opportunity for public comment
6	MR. BAYER: The RL-1 drill hole excuse me.	6	on these issues and to have a hearing to address them.
7	Did the RL-1 I'm sorry. I'm easily distracted. Has	7	Although they are groundwater issues, and groundwater
8	to do with hair loss.	8	issues are dealt with under the permit that has been
9	The RL-1 drill hole did, indeed, encounter some	9	applied for with the Division of Water Quality, there is,
L 0	waters in the very top of the bedrock in the hole. It is	10	of course, an obligation under our statute and rules to
11	drilled in a draw or a small drainage. And given the	11	investigate and determine the compatibility of the NOI
2	time of year it was drilled, the observations the Norwest	12	application with requirements to protect groundwater and
. 3	geologist reported to me were that it was fracture-hosted	13	to indicate what mitigation would be taken if there is a
. 4	water, it did not persist to depth, and the fracturing	14	potential
L 5	was related to weathering and erosion. It certainly does	15	The requirements are pretty brief. The
16	not fit the description of an aquifer that has been	16	requirements at DWQ are much more extensive and,
7	described elsewhere in the Basin. And this is quite	17	generally, we believe they are the experts in that area.
. 8	common in the areas like this, where you can get what we	18	But I would ask just briefly the Division to address the
9	call compartmentalized groundwater	19	concerns that have been raised by Red Leaf.
0	THE REPORTER: I'm sorry, "departmentalized"?	20	And you can go first, if you'd like, Leslie, and
21	Could you speak up a little bit? I couldn't hear you	21	introduce yourself.
2	after "whatever we call departmentalized."	22	MS. HEPPLER: I'm Leslie Heppler. And per
.3	MR. BAYER: Okay. It's quite common to have a	23	direction by John at the beginning, we're limiting
2 4	little compartmentalized groundwater in a shallow	24	ourselves to November 18, 2011, by Western Resource
5	subsurface like this, or it can occur. However, none of	25	Advocates the letter.
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13 (Pages 46 to 49)

And one of the areas that was brought up was HEARING OFFICER BAZA: Okay. 2 2 R647-4-106, "Operation Plan," which states, "The operator MR. ALDER: And with regard to the rule that shall provide a narrative description, referencing maps requires impact assessment and discussion of mitigation, did they satisfy those requirements? or drawings, as necessary, of the proposed operations," including Item No. 8, "Depth to groundwater, extent of MR. MUNSON: Yeah. R647-4-109, "Impact overburden material, and geologic setting." Assessment. The operator shall provide a general 7 narrative description identifying potential surface and This information was provided in the NOI in the form of a map, a geologic map, that I was able to double subsurface impacts." And specifically No. 1 "Impacts to check with an Open-File report that was published by UGS. the Surface and Groundwater Systems." They have provided a very detailed -- not a general -- narrative in regards 10 The report number was 549DM. And the geologic data was 11 correct. to surface water impacts, and provided quite detailed 12 There was also a typical cross section that was surface water designs using definitely industry standards 13 13 provided for the area that referenced the overburden in regards to that information and have met the 14 material. And there was narrative in the plan that requirements of that rule, from our perspective. 15 described the depth to groundwater per our rule. I MR. ALDER: Would there be a storm water --16 followed -- I followed -- I followed our rules as 16 MR. MUNSON: -- storm water plan, a designed 17 written. I have no further comment. 17 storm water plan using all the appropriate -- and 18 MR. MUNSON: My turn? actually, we do not have specific storm events, designed 19 MR. ALDER: Yes. 19 storm events. So they just used what is considered a 2.0 MR. MUNSON: I'm Tom Munson. I'm the surface standard design event, and actually went above and beyond 21 water hydrologist for the Division. what we would have required for that design. And very 22 My requirements in regards to the rules are appropriately designed a system which will work, I 23 found under R647-4-105, "Maps, Drawings, and thought, very well based on my technical expertise of 29 24 Photographs," 1.12. And it states, "Perennial streams, years as a surface water hydrologist working on hundreds springs, and other bodies of water, roads, buildings, of mines. Page 50 Page 52 landing strips, electrical transmission lines, water MR. ALDER: I didn't mean to cut you off. Thank wells, oil and gas pipelines, existing wells, bore holes, you. We didn't get your resume in here. 3 and other existing surface or subsurface facilities 3 MR. MUNSON: No, I can give you one, if you'd within 500 feet of the proposed mining operations." 4 like. 5 MR. ALDER: I believe the Director is familiar They identified those in relationship to their 6 6 comment that states that the NOI reports there are no with your expertise. USGS mapped springs issuing from either of these And Leslie, were there any -- did you see any formations in or near the parcels. They say, "There's reason, did you concur that there was no potential for 9 9 insufficient evidence upon which to conclude there are no groundwater impacts from the mines? 10 aguifers that will be impacted by the mine. Not all 10 MS. HEPPLER: Yeah. Based on their design of springs are mapped by the USGS. And for this and other 11 using a bentonite amended soil and also the natural 12 reasons, reference to such maps is not a standard for 12 occurring geology, anywhere from five feet of a low 13 determining the absence -- presence or absence of transmissivity shale that is naturally occurring all the 14 groundwater." way up to the 500 feet that has been found at particular 15 Our rules don't require, do not identify a locations, it's belt and suspenders. There is double 16 specific methodology or -- a specific methodology for 1.6 protection there. identifying springs. And there is no standard, per se, 17 MR. ALDER: So you felt that rule was satisfying 18 for doing that. The method that they chose is acceptable 18 the --19 to the Division. That, and based on any of their MS. HEPPLER: Yes, that is correct. 20 observations of the field, would have been recorded. In MR. ALDER: That's all we have. 21 21 conversations with them, they said that. And there was Unless you have more, Paul, that you want --22 22 no evidence of any springs or seeps within 500 feet of MR. BAKER: No. 23 23 the property. DISCUSSION LED BY HEARING OFFICER BAZA 24 24 So from my perspective, they address that HEARING OFFICER BAZA: I have just a set of question, meeting the requirements of our rules. inquiries that I'd like to make. And I'm probably going Page 53 Page 51

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to start with the Division and work backwards, then, to mine, the overburden, the type of reclamation -- a lot of 2 Living Rivers. 2 things that aren't at issue here. But with regard to 3 Just for everybody's knowledge, Steve said that 3 groundwater, again, in the application, it's pretty 4 I was familiar with Leslie and Tom's expertise and limited. But we're limited to the rules, if that's your background. I think through various things that are question, and whether or not it complies. And the rules 6 happening with the Division, I'm also familiar with 6 are not very specific. 7 Mr. Bayer's and Mr. Lips' background and expertise as 7 HEARING OFFICER BAZA: Well, that last statement well. So I'm not unfamiliar with any of those things. 8 8 of yours was probably very telling, that the rules are 9 I guess my first question would go to you. 9 not very specific. And I'm glad that you brought up the 10 Mr. Alder, maybe with the help of Division staff. 10 R647-4-109. It's been raised already. 11 Living Rivers, I mean, one of the first 11 How does -- maybe this is a question for 12 statements out of Mr. Dubuc's mouth was that the Division 12 Mr. Baker. How does the staff use that impact 13 made a mistake. So I'd kind of like to hone in on what 13 assessment? What conclusions are expected to be drawn 14 the rulings say or the statute says about the Division's 14 from that? 15 responsibility relative to a large mining NOI. What are 15 MR. BAKER: Well, we would look at the impact 16 we supposed to do with it? Does it specify how we are 16 assessment and determine what mitigation needs to be 17 supposed to analyze that and what our responsibility is 17 done, as it says in the rules; the degree of impact that 18 to the public and the state for that? there might be and how that would affect the environment; 19 MR. ALDER: Well, I think the answer to that 19 and whether mitigation is required and what degree of 20 question is that the rules that address a large mine NOI 20 mitigation. 21 cover everything from five acres and larger to Kennecott 21 HEARING OFFICER BAZA: I'm putting you on the copper mine. And the regulations themselves are quite 22 22 spot here. Where in the rules does it talk about 23 general and not very specific. And so it requires the 23 mitigation? 24 expertise and experience of the Division's hydrologist 24 MR. BAKER: It's in 109. 25 and geologist, such as have testified, to kind of adapt 25 HEARING OFFICER BAZA: 109? Page 54 Page 56 the rules to the circumstances. And that's not to say 1 MR. BAKER: 109.5. 2 that they should lessen the analysis, it's just that it's HEARING OFFICER BAZA: So Part 5. I think it 3 very general. It's under Rule 647-4-109 that requires says, "Actions which are proposed to mitigate any of the 4 that the operator -- so the application and the NOI 4 above-referenced impacts." 5 should "provide a general narrative description 5 MR. BAKER: Yes. 6 identifying the potential surface and or subsurface 6 HEARING OFFICER BAZA: Okay. So you would make impacts, including impacts to surface groundwater an analysis of those impacts. You'd identify potential 8 systems, potential impacts to species" -- that's not an mitigations. And does that become inclusive, then, as issue here -- "and impacts to the soil resources." That 9 9 part of the tentative approval? 10 apparently has not been raised in the objections. And 10 MR. BAKER: That information should be included 11 then finally it says at the end, "Actions which are 11 in the NOI, whatever mitigation plans are required. 12 proposed to mitigate any of the above-referenced 12 HEARING OFFICER BAZA: So through some kind of 13 impacts." 13 iterative process, you are going back and forth to the 14 So it is really pretty basic, just, you know, operator, and you're saying, "This is what's appropriate what are the impacts and what's been done to affect them. 15 for mitigation. You should include it in your NOI." 16 There is no restriction that says you have to have a 16 MR. BAKER: Yes, that's right. 17 certain number of monitoring wells. And so it's on the HEARING OFFICER BAZA: Okay. This is another 17 18 operator and the operator's understanding that these 18 question for the Division. And this might be a hard one 19 mines are going to be certainly subject to a great deal 19 to answer, so think about this for a minute. 20 of scrutiny to make sure that they provide a good, solid 20 So how much information is adequate? Whether it 21 application that addresses those issues. And the 21 refers to groundwater resources or the bentonite amended 22 Division also looks at them to make sure that they do, to 22 soil or anything like that. I mean, we're all 23 their professional expertise. And that's really it. 23 scientists -- or at least most of us are scientists. And 24 In addition, the application requires additional I'm sure we would like to get as much information as 25 information about depth to groundwater, the size of the possible.

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15 (Pages 54 to 57)

But when do you reach a point as a Division MR. BAYER: Can I add? Since the groundwater 2 staff member and say, "This is good enough. We've got application was brought up and the water encountered in 3 enough information to make a decision"? Hole RL-1 was also brought up, I neglected to say before 4 MR. BAKER: I think that has to be something that, that water stopped flowing shortly before the hole 5 that the staff member judges based on their professional was completed. And no more water was encountered. So 6 experience. And I don't know how to answer it any better it, indeed, was compartmentalized from the source of 7 than that. The people that we have are highly educated shallow groundwater. Certainly not usable, except for 8 and experienced, and they can make those judgments. the mice, maybe, that ran by at night. 9 HEARING OFFICER BAZA: And you are talking about MR. ALDER: From the definition, "aquifer" is 10 10 yourself and Tom and Leslie? not a term used in the general rules. HEARING OFFICER BAZA: I realize that. It talks 11 MR. BAKER: Well, me as a biologist. But Tom 11 12 12 and Leslie as hydrologist and geologist, yes. about "groundwater resources," correct. 13 HEARING OFFICER BAZA: Sure, Okay, So it is 13 Denise, you've referenced the groundwater permit information -- application and permit information and 14 somewhat of a judgment call, but you use your best 14 15 15 professional expertise to make that judgment call? analysis being done by DWQ. 16 16 MR. BAKER: Yes, absolutely. Since the Division issued its October 20 17 HEARING OFFICER BAZA: Okay. Let me turn to Red 17 tentative decision, in Red Leaf's mind, how does that DWQ 18 Leaf Resources now. Like I said, I'm going in reverse 18 analysis and decision making integrate with what the 19 Division of Oil, Gas and Mining must do? 20 20 I think, Denise, one of the things you said was MS. DRAGOO: Right. This goes back to the 21 21 that water resources are defined by usable water. October 20th tentative decision. And basically, there the Division simply required that the permit be submitted 22 MS. DRAGOO: "Aquifer," the term "aquifer," 23 right. 30 days prior to the commencement of operations. So it's 24 HEARING OFFICER BAZA: Oh, okay. Can you clear that the Division is relying on the Division of 25 darify that for me a little bit? Water Quality to make the determination as to whether or Page 60 Page 58 1 MS. DRAGOO: Yes. Well, throughout the protest not, you know, the groundwater discharge permit is required, the type of permit, whether it's going to be of Living Rivers, they continue to assert that certain, for instance, porous units were aquifers. And that's not permit by rule, a site specific permit, or maybe no the case. An aquifer is defined under the Department of permit at all. So the Division of Oil, Gas and Mining 5 Environmental Quality rules as, "A geologic formation conditioned its tentative approval October 20th on, that contains sufficient saturated permeable material to really, the Division of Water Resources -- or Water yield usable quantities of water to wells and springs." Quality in making that determination. 8 That's R317-6-1.1. And that's the definition that was HEARING OFFICER BAZA: And you also indicated relied on by Red Leaf Resources in preparing its NOI and 9 that -- I think one of your comments was that DOGM should 10 relied upon by the Division in determining that there 10 not wait on a DWO decision for final approval of the NOI. 11 11 MS. DRAGOO: Right. were basically no water resources, groundwater resources 12 12 affected. HEARING OFFICER BAZA: And that's based on the 13 fact that the approval of the Division would then be HEARING OFFICER BAZA: Okay. So I'm not wanting conditioned on whatever decision DWQ has to make? 14 to put words in your mouth. But would it be Red Leaf's 15 opinion that because they couldn't define or they MS. DRAGOO: Right. That's correct. So, for instance, the Division of Oil, Gas and Mining, there's a 16 couldn't identify usable water, that the information 17 whole series of federal, state, and local permits that included in the NOI was good enough? 18 MS. DRAGOO: Yes, exactly. have to be obtained. But the NOI can go forward before, 19 HEARING OFFICER BAZA: Okay. for instance, a building permit is issued by the local 20 zoning authority, or whatever. The fact that the MS. DRAGOO: There was adequate information. 21 For instance, the six core holes were drilled. They Division's rules specifically provide that -- you know, found a little bit of water, but not sufficient to be just because you obtain a Notice of Intent, that doesn't 23 usable. And so it didn't meet the definition of an mean that it obviates the need to comply with other 24 aquifer. Department of Environment Quality rules or permits, 25 HEARING OFFICER BAZA: Okav. conditions, that type of thing. Page 59 Page 61

16 (Pages 58 to 61)

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So obviously, the operator has the duty to go 2 ahead and comply with all those requirements. And so we 3 would urge that the NOI be issued, subject to that -- to 4 the determination by the Division of Water Quality 5 whether or not a permit is required and the type of 6 permit. 7 HEARING OFFICER BAZA: Okay, I'm going to 8 transition now to Living Rivers. Yeah, we've got plenty 9 10

Mr. Dubuc, you had a statement, I believe, when you started out, that Division of Water Quality and the Division of Oil, Gas and Mining are somewhat separate agencies of state government with somewhat separate responsibilities?

15 MR. DUBUC: Yes, sir,

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HEARING OFFICER BAZA: Would that indicate to you that we shouldn't be talking to each other?

MR. DUBUC: Oh, no. If that's the impression I gave, I certainly didn't mean to give that. I think that's one of the difficulties that we have seen in the past and will continue to see, is how do those two agencies interact with each other?

We recognize that there are limited resources and areas of expertise in each of those agencies. But a great deal of what the Division of Water Quality does,

a great deal of overlap between them. And there's a gray 2 area.

3 HEARING OFFICER BAZA: So is it your assertion as part of this proceeding that we shouldn't make a decision until Water Quality finalizes theirs?

MR. DUBUC: Absolutely. I think that is absolutely premature. Even to make it conditioned, how do you give final approval conditioned on something that could totally change the game? There is a basic assumption in the NOI that a groundwater permit would not be required. It states that. We've talked to the Division of Water Quality. They say the groundwater

There's a very elaborate process that goes into a groundwater application, 195 pages worth of process, and it's still not enough. None of this was in the NOI. None of this was considered by your Division before it made a tentative approval. I don't see how that can be an informed decision.

permit is not going to be required.

20 Yes, the permitting process has to go through its normal course of back and forth between agencies. 22 And only then is it appropriate for your agency to make a

23 final decision.

24 HEARING OFFICER BAZA: Mr. Baker, is the water 25 quality application included as part of the Division's

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for instance, in the area of groundwater, is really 2 needed to inform the Division of Oil, Gas and Mining --3 and the impacts to groundwater. And those impacts are required -- the assessment of those impacts are required by your regulations. And I am hard-pressed to say how 6 your Division can make a decision in a vacuum.

If you have a Division of Water Quality over here saying, "We don't have enough information. We need more. We haven't made up our mind what kind of permit, if we're going to need a permit," I'm hard pressed to see how your agency, four months in advance of today, could have said, "This is fine. This meets our requirements."

Again, we would like to meet with you at some point outside of this forum to discuss the regulation of these new extraction processes. But it's almost like you need to work with each other in some sort of tandem, that the Division of Oil, Gas and Mining can reach a point in its deliberative process, and it then must turn to its 19 sister agency and their expertise to inform it, to fill in the gap of what your agency is not able to derive in terms of information. And until that process is complete, I think that a final decision by your agency is premature.

And that's what I was trying to say is we recognize that there are different agencies, but there is records on the NOI now?

MR. BAKER: It is included as Appendix S, as has been discussed earlier.

But I think there are two separate processes 5 here. The Division has its own processes and has its own rules. And we have to make a determination whether we believe the NOI meets the requirements of the R647 rules. And that's where we issued our conditional approval -our tentative approval.

HEARING OFFICER BAZA: Now in the course of your analysis of the NOI, between the time it was submitted in April and when you issued the tentative approval in October, that six months, I mean, does the staff have conversations with the folks at Water Quality? Do they interact?

MR. BAKER: Yeah, they do. You know, I'm not sure exactly how much they did in this particular case.

HEARING OFFICER BAZA: Tom or Leslie, can you answer that, how much interaction you had?

MR. MUNSON: Well, I've had conversations with them, you know, off and on about a number of things. specifically about Red Leaf. And I would -- from my perspective, I'm surface water. So I didn't really have as much interaction regarding that. But Leslie had.

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17 (Pages 62 to 65)

MS. HEPPLER: Yeah, I probably talked to them Division of Water Quality never once rendered an opinion two or three times by the phone in conversations that that that was true or not. However, we contended on 3 lasted anywhere from a half an hour to an hour. behalf of Red Leaf that for certain reasons that are very 4 HEARING OFFICER BAZA: If they presented a clear in the rules and the letter that made the -- which concern about the groundwater permitting, or something 5 is in the public record over at DWQ and is appended to --6 like that, would that tailor your decision on the NOI -it's an appendix in the NOI -- said simply -- we describe 7 and did it? the geology, we describe the groundwater setting, et 8 MS. HEPPLER: Not on our approval on the NQI, cetera. It says simply because of the definitions within Q We've met -- what has been submitted to us has met our the groundwater rules, we don't believe this facility has 10 rules. But in this same frame, just because we give them 10 the potential to impact groundwater; therefore, no, we 11 approval for this doesn't mean they can speed down the 11 don't believe a permit is needed. That was the strategy 12 12 highway. They have to meet all other regulations. So that was proposed because -- and we still contend that 13 you can't say, "You can't get your driver's license the way that the groundwater rules are written, that 14 until" -- you know, you can't do those inferences. You 14 that's a reasonable argument. 15 can't hold one up based on the other. 15 The Division of Water Quality rejected that 16 MR. DUBUC: May I respond? 16 argument in a letter and said, "No, you've got to have --17 HEARING OFFICER BAZA: Yeah. Let me hear what 17 you've got to submit a permit application." So then we 18 18 did that. you have to say. 19 MR. DUBUC: Again, a basic premise of the NOI 19 The document that we provided complies with the 20 20 rules as best we can. And it's true that the Division of that your agency approved was that a groundwater permit 21 Water Quality has asked some additional questions, all of application would not be required by the Division of 22 Water of Quality. And it states as much, that there will 22 which will be addressed, will be addressed appropriately. 23 23 be no groundwater impacts. There are some very experienced senior 24 The Division of Water Quality did not notify scientists that have done the modeling work, et cetera, 25 your Division that a groundwater application would be that's been referenced. And Red Leaf is very confident Page 66 Page 68 required until approximately two weeks before you made a that they responded to all of those questions that were 2 decision. So it's impossible for any of that information mentioned by Mr. Lips in his testimony, that they have 3 to have been considered in your deliberations. And recently sent out in their letter. again, this groundwater application, this 195-page I'd also point out that the groundwater 5 5 document, was not submitted until after two months after discharge permit is only part of the DWQ permitting 6 that tentative approval. So how the information in here process. They also have to -- if they're going to regulate this as a facility that might discharge to 7 could have been considered by your Division is hard to 8 see. groundwater, they have to issue what's called a 9 MS. DRAGOO: Could we respond to that --9 "construction permit." That's totally within their regulatory purview. And they will have to do that. And 10 HEARING OFFICER BAZA: Let's hear. 11 MS. DRAGOO: -- as well? 11 they will have review plans and designs sufficient, on 12 Actually, Bob Bayer wrote that letter. top of whatever is in the groundwater discharge permit, 13 as necessary, to issue that construction permit. That is MR. BAYER: Let's talk about where this whole 14 business of a groundwater permit is not required to get clearly in their purview for regulating any kind of waste 15 started. It began in a conversation at a pre-design water treatment facility or anything else. That's where

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Page 67 Since the groundwater rules were written, I

Department of Environmental Quality.

that authority comes from.

I just remind you, Director Baza, as a former

Board member, that the Utah Mine Reclamation Act

specifically states -- and I can't quote it -- something

like, you know, except for matters of what related to

authority regarding water quality resides with the

water quality, the Division has authority over basically

protecting the environment or whatever. However, the

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conference, which Leslie Heppler was in and several folks

I made the argument to the Division of Water

Quality -- rightfully or wrongfully, it was a technical

argument -- that basically given the containment here,

might not require a permit at all. That got some nods

So the Division never once opined -- the

we're talking about a fully-contained surface facility,

that on a strict reading of the rules, the DWQ rules

from DEQ were present as well.

and kind of, "Well, that's interesting."

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commented on them heavily on behalf of the Utah Mining answer when you know the basics of what resource is 2 Association almost 25 years ago. That has been a 2 there. 3 consistent approach. And the relationship that's been 3 And I guess the fact that these are perched or 4 described here today by the Division staff has been the 4 somehow isolated or discontinuous doesn't diminish their same relationship, the same process that has worked very importance, either, with regard to the R647 rules or from effectively for the last 25 years. a hydrologic standpoint. And, you know, quite frankly, HEARING OFFICER BAZA: Let me turn a little bit there's been a lot of discussion about what is or isn't 8 to the groundwater, or the hydrologic science. I'm an aquifer. And the R647-4-109 impact assessment doesn't 9 afraid that I know just enough about that to be reference "aquifer," it references "subsurface impacts." dangerous. But I have some questions. And maybe this is And then it goes on to projected impacts to groundwater a combination of Mr. Lips and Mr. Bayer who can help systems. And that would include these compartmentalized 12 answer this. 12 groundwater systems. That's how it was described. And 13 I think there's been some comment about 13 it would include small or perched or isolated aquifers. 14 compartmentalized groundwater and perched aquifers. What 14 Those are part of the groundwater system that requires 15 I know of that is it would almost seem to me that a 15 under R647-4-109 the Division -- 'There shall be a 16 perched aquifer, by definition, is somewhat isolated. general narrative description identifying potential 17 What's your thought on that, Mr. Lips? 17 impacts, subsurface impacts." 18 MR. LIPS: I think that's an accurate 18 And so you know, I think that it's appropriate 19 generalization or a characterization that perched 19 to recognize that these are groundwater systems that have 20 aquifers or, as Mr. Bayer described, these 20 the potential to be impacted by this operation. And compartmentalized occurrences of groundwater would be 21 21 that's sort of the answer to your question. 22 differentiated from those that have a larger aerial 22 HEARING OFFICER BAZA: Okay, You talked a fair extent that may extend over several miles or tens of 23 amount in technical specificity about seepage results miles. So they're typically smaller in aerial extent and 24 from the capsules, integrity of the BAS, things like 25 thickness. that. Are those things that are analyzed as part of the Page 70 Page 72 1 HEARING OFFICER BAZA: So maybe you could help 1 DWO permit approval, or ... 2 me understand a little bit. I mean, Red Leaf Resources 2 MR. LIPS: They were submitted as part of the 3 is a mining company that will have some surface impacts. permit application to DWQ in December. And that permit They are characterizing this as they will have limited application has been attached to and incorporated with 5 impact on the hydrologic groundwater resources of the the Division NOI. 6 area. They are looking at that. They are considering 7 What do you see as the potential damage? I it. And, in fact, that was one of the comments that the 8 mean, if -- let's say that the contaminant, somehow --8 DWQ made to Red Leaf on February 12, 2012, was asking for 9 hydrocarbon was to seep into one of these perched additional analysis specifically on that issue of seepage aquifers. What are we talking about the magnitude of 10 and the modeling of seepage of precipitation into and 11 that kind of impact? What ultimately could happen? 11 ultimately out of these containment capsules. 12 MR. LIPS: Well, I think the potential impact. 12 So it is an issue. I believe, based on the fact 13 it's difficult to say unless you know how big or how 13 that the information was submitted to DWO and that 14 extensive that groundwater occurrence is, and 14 they've commented on it and asked for additional particularly, where that water would discharge to the 15 information, I think it's safe to assume they are looking surface. And if there are contaminants that are 16 at that 17 introduced into that groundwater system as a result of 17 MS. DRAGOO: Could we respond to that, Director this proposed operation, then the question becomes: 18 Baza? 19 Where do those contaminants potentially go? Are there 19 HEARING OFFICER BAZA: Well, my next question is 20 small occurrences of discharge points from these 20 for you. So let me hear what you have to say. localized groundwater systems that are used by wildlife 21 MS. DRAGOO: Okay. Fran, could you address the 22 or avian species? Do these groundwater systems connect 22 quality assurance plan? 23 to surface flow? And what are the potential impacts to 23 MR. AMENDOLA: My name is Fran Amendola. downstream surface water systems? Those are the types of 24 As part of the application that was submitted to questions that you can only begin to ask and attempt to groundwater quality, there's been a QA\QC plan that has

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19 (Pages 70 to 73)

HEARING ON LIVING RIVERS' PROTEST OF RED LEAF RESOURCES FEBRUARY 23, 2012 been submitted with respect to the BAS layer and the 1 HEARING OFFICER BAZA: Did you have something 2 construction of that BAS layer. And basically what the more to say to that? OA/OC plan does is outlines a procedure that will define 3 MR. LIPS: Just a quick darification and how the BAS will be constructed and to achieve the comment. permeability level that were -- we had in the design. 5 That the HELP model run, that it was based on And that permeability is 10 to the minus 7. And that is the permeability of 1 times 10 to the minus 7 for the a particular piece of information that the Division of BAS. And the numbers that I cited are from the HELP Water Quality is very interested in. They will also be model results of what penetrated through. So this is involved with monitoring the performance of that QA/QC looking at the bottom of the BAS layer. So your model plan to confirm that we can achieve that level of results did show that even under this best case scenario 10 11 containment in the capsules. of what you call conservative assumptions, there would be 12 Couple other things I wanted to mention. We 12 sufficient seepage of precipitation water through the BAS 13 talked about the HELP model and the penetration of 13 in significant quantities in terms of gallons per year. 14 moisture. The HELP model was actually designed to look MR, AMENDOLA: I'd like to verify your at the cover of the capsules. And when we talk about 1.5 numbers --16 "cover," we need to be thinking about, about a foot of 16 MR. LIPS: Oh, sure. soil, two feet of overburden, three feet of BAS, and 17 MR. AMENDOLA: -- from that. But you also 18 about 13 feet of insulation or gravel material before you 18 stated numbers that represented a non-revegetated 19 even get to the spent shale. And the HELP model really 19 condition. 20 does look at how moisture moves into that cover material. 20 MR. LIPS: Right. 21 And what we saw after modeling the area and the 21 MR. AMENDOLA: And we have a very strict 22 capsules for a 30-year time period using conservative commitment with the Division of Oil, Gas and Mining to parameters was that we saw .01-inch of moisture entering have revegetation performance standards. So the the three feet of BAS. And there was some comment about likelihood of us having an exposed surface for an does that -- you know, we need to look at that over a extended time period, which that worst-case scenario you Page 76 Page 74 longer time period. That has come up. We're going to might be referring to is not a very probably case. address that as part of the response to the Division of MR. LIPS: Understand. 3 Water Quality. HEARING OFFICER BAZA: And I don't want to get 4 But realize that when we did the modeling, we into a tennis match between experts here. 5 used very conservative parameters, we used high moisture MR, BAYER: It was getting fun. 5 6 6

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or precipitation values. And we still ended up with 0.01-inch penetration into the BAS. That doesn't even get into the 13 feet of insulation that we have before we reach the spent ore.

So we're looking at that very dosely. We're going to continue to look at it.

But even running the model for a long time, it doesn't say that you'll get greater penetration because, like weather, the model results will incorporate cyclical events, wet periods, dry periods. So that front of moisture will move. Sometimes it will recede, and sometimes it will again move forward or lower into the 18 BAS -- or maybe not even reach the BAS.

So that issue that you raised is certainly 20 something that we're looking at. But I think the 21 integrity of the BAS is a very important aspect of the project and it's supported by design. But it's, most importantly, going to be supported by a QA/QC program that's going to help confirm that we can achieve that 25 design.

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HEARING OFFICER BAZA: I appreciate your

comments on both sides. I think they're valuable.

But I'm going to pose a question to you, Denise, and maybe additionally to Paul and Steve. 10

But hypothetically, let's say we moved ahead with a final approval on the NOI while Water Quality is still finishing up their analysis of the groundwater permit. And let's go further to hypothetically say that something in their analysis suggests a change in mining operation or design or something else.

How does that get addressed as a change to the NOI and the Division's approval of that?

MS. DRAGOO: Well, in the event that that was required, you could certainly modify the NOI. That 20 happens quite a bit. Conditions occur or circumstances occur, and the NOI is -- there's a new condition.

22 In fact, Red Leaf Resources committed to the 23 Division to notifying them in the event that their monitoring plan would change, or something to that effect as a result of the NOI -- sorry, as a result of the --

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MR. ALDER: Could you speak up a little bit? I MR. ALDER: Yeah, well, there are two different 2 can't hear. things. With regard to the question about whether an 3 MS. DRAGOO: Sure, I was just saying that Red amendment gives public notice, that depends on whether 4 Leaf Resources has committed to getting back to the it's defined as a "revision" or an "amendment." A Division in the event that the Division of Water Quality revision requires public notice and an amendment would requires additional monitoring, or something to that 6 not. 7 effect. So they could simply modify the Notice of But I was -- with regard to the other question 8 Intent. that you asked. Prior to the mining beginning, then 9 MR. ALDER: I hope Director Baza can hear now. 9 there would be that opportunity for making changes to the 10 MS. DRAGOO: Right. But there's no need to stop 10 permit and, depending whether it was an amendment or 11 the process until all of the permits are in place. And 11 revision, public notice. the Division is protected because the actual mining 12 12 But then after operations begin, I didn't want 13 cannot commence until the groundwater discharge permit is 13 you to have the impression that the only requirement is 14 issued or until the Division of Water Quality makes a 14 that impact analysis. Because there are the requirements 15 determination that one is not required. 15 in the rules for operational practices and reclamation HEARING OFFICER BAZA: Paul, Steve, is that how 16 16 practices that have minimum standards which require 17 the process usually works? 17 protection of the environment for deleterious materials 18 MR. BAKER: Yes, it is. If the Division of 18 and protection of hydrology systems, if those are 19 Water Quality was to make some requirements that would 19 observed. And hopefully, the monitoring is sufficient 20 require a modification to the plan, then we would have 20 enough that we become aware of that. Then the permit 21 Red Leaf submit an amendment. 21 would need to be modified to address those issues as well 22 HEARING OFFICER BAZA: And that's all to be done because the mine has to comply with those practices. 23 before mining operations commence, correct? 23 HEARING OFFICER BAZA: We're approaching our two 24 MR. BAKER: Before -- it depends on what aspect 24 hours here. I need to consult with counsel for just a 25 of the operation it affected. Theoretically, they could minute. So if you kind of hang loose for me while we Page 78 Page 80 begin, say, stripping topsoil, or something like that. 1 step outside. 2 But anything that was affected by the requirement from 2 (A break was taken from 11:10 a.m. to 11:14 a.m.) 3 Water Quality would need to be delayed until that was 3 HEARING OFFICER BAZA: Okay. Thanks for taken care of indulging me. First of all, let me ask the court 4 5 HEARING OFFICER BAZA: You had a comment, Mr. 5 reporter. You don't need to include this on the record. 6 Dubuc? 6 (A discussion was held off the record.) MR. DUBUC: Well, the problem with that, 7 HEARING OFFICER BAZA: In terms of the document 8 Mr. Baza, is oftentimes those things are done behind the 8 that was submitted by Denise today. Yes, I was looking 9 scenes. Your Division noted earlier that several at it while you were talking. From what I could see of informal conferences took place that are not part of the 10 10 the document, you basically narrated much of what was 11 11 said in the letter, anyway. 12 If changes are going to be made to the NOI, then 12 MS. DRAGOO: Exactly. 13 I think the public has a right to comment on those. And 13 HEARING OFFICER BAZA: And the appendices that oftentimes, those types of changes -- the process is not 14 you included appear to be documents that have already 15 set up to facilitate that. And that is the danger of 15 been submitted as part of the NOI. There might be 16 what you are suggesting. 16 something different in there. 17 MS. DRAGOO: That's not correct. It's a public 17 But in due regard for the fact that we don't 18 process. There's a C1-C2 Form that's submitted. That's 18 want to spring anything on anybody and we don't want any 19 a public process amending the NOI. It's not done behind surprises at this, I would say why don't I give you, 19 20 closed doors. It's all part of the public record. Living Rivers, the seven days that the court reporter has 21 You'll find that in the Division's -- on their website. 21 to give me a transcript to craft a response to what that 22 MR. DUBUC: Not to have a tennis match, but 22 document is. And, you know, you don't have to belabor 23 there's a difference between being on the record and 23 it. Keep it brief. But at least give me an idea of what 24 being subject to public notice and comment. 24 you think is in there, whether you object to it or not. 25 HEARING OFFICER BAZA: Steve? 25 MR. DUBUC: So a week from today, is that what Page 79 Page 81

21 (Pages 78 to 81)

1	you are?	1	these documents come in to me.
2	HEARING OFFICER BAZA: Yeah. Because Michelle	2	MS. LEWIS: And just as a clerical note, the
3	will try to get me the transcript within a week. And I	3	appeal is at 106(17) not (9).
4	certainly will not finalize a decision on this before	4	HEARING OFFICER BAZA: Thanks.
5	then.	5	MS. NELSON: Director Baza, as the proponent for
6	MS. DRAGOO: And we'd have an opportunity to	6	Red Leaf and lead for Red Leaf here, would it be all
7	review that, as well, in the event it raises something	7	right if I made one final comment? I don't think it will
8	new?	8	introduce anything new.
9	HEARING OFFICER BAZA: I believe we should be	9	HEARING OFFICER BAZA: Okay. All right. Go
0	open with everybody. I mean, the things that are	10	ahead.
1	presented here are public documents. They're part of the	11	MS. NELSON: First of all, I just want to thank
2	Division's file. Your response will be part of the	12	you, especially for organizing our conference today. I
.3	Division's file. And you'll certainly be able to look at	13	do agree it is an important discourse and very
4	that as well.	14	informative.
5	MR. DUBUC: I will serve that on you and on the	15	I also want to note that we do respect Living
6	Division as well.	16	Rivers' concerns. And I think with that regard, we have
7	MS. DRAGOO: Thank you.	17	pursued a very diligent effort to address concerns, and
8	MR. DUBUC: Is electronic fine?	18	that we will do so, also, in the DWQ process.
9	MS, DRAGOO: Sure. That would be fine.	19	We do recognize that there are different
0	MR. DUBUC: Steve, electronic, my response? Is	20	agencies from which we must seek permits. And in
1	that fine?	21	response to the tentative approval, we did pursue that
2	MR. ALDER: Yeah, that's fine.	22	process with DWQ and in concurrence with their letter
3	HEARING OFFICER BAZA: So, since we're pushing	23	that they submitted to us, similar to how we'll pursue
4		24	all other processes. And it is our effort to be as
5	the time limit here, I need to conclude this. And I'll	25	
3	do this by saying that I'll take the evidence and the Page 82	25	transparent for the State so that they can fully review Page 8
1	information presented here, your answers to my questions	1	the efficacy of our process in the field. And I think
2	under advisement. And within a reasonable amount of	2	that the documents that we've provided not only meet the
3	time, I'm going to issue a final order on this,	3	Division's rules, but also, I think, fulfilled that
4	determining whether the applicant met the relevant rules	4	obligation on the part of Red Leaf.
5	and if a final Notice of Intention should be approved.	5	And the reason I wanted to mention that is
6	Again, that will not happen before the week that it takes	6	because Mr. Dubuc did dispute or did state that he
7	me to get the transcript and your response and all of	7	disputed Red Leaf's ability to make that claim. And so I
8	that. So all of that will be under consideration.	8	thought it was important that we also be able to say that
9	I'd like you to know that any party who	9	we are committed to that diligent effort and that we
. 0	participated in the hearing today has an appeal right.	10	ought to have a right to make that claim. Thank you.
1	And they may appeal that final order within ten days of	11	
2	the day I issue it, pursuant to Utah Administrative Code	12	Well, I appreciate everyone's attendance today
3	R647-5-106 Part 9.	13	and also those people who are here to observe. We'll
4	I want to thank everyone that was here today. I	14	move forward on this. My intent is to make progress. So
. 5	think this has been constructive. It really has, for my	15	thank you.
6	benefit. I appreciate the hard work the Division has put	16	MS. DRAGOO: Thank you.
7	in. I know that Red Leaf has put a lot of hard work into	17	(The matter concluded at 11:23 a.m.)
8	this. I'm glad that we've had the opportunity to listen	18	
9	to Living Rivers and your comments and your concerns.	19	
0	And honestly, I am going to take all that under	20	
0	consideration as part of a final decision on this. So I	21	
1	appreciate it. I hope you've all found it somewhat	22	
2	appreciate it. I hope you've all found it somewhat	22	
22	constructive.	23	
21			

1	CERTIFICATE	
2		
3	State of Utah)	
4	County of Salt Lake)	
5	I, Michelle Mallonee, a Registered	
6	Professional Reporter and Notary Public in and for the State of Utah, do hereby certify:	
7	That the proceedings of said matter was	
8	reported by me in stenotype and thereafter transcribed into typewritten form;	
9	That the same constitutes a true and correct	
10	transcription of said proceedings so taken and transcribed;	
11	I further certify that I am not of kin or	
12	otherwise associated with any of the parties of said cause of action, and that I am not interested in the	
12	event thereof.	
13		
14	WITNESS MY HAND at Salt Lake City, Utah, this 28th day of February, 2012.	
15		
16 17		
1.0	Michelle Mallonee, RPR, CSR	
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21 22		
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24 25		
23		
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1	BEFORE THE BOARD OF OIL, GAS AND MINING
2	DEPARTMENT OF NATURAL RESOURCES
3	IN AND FOR THE STATE OF UTAH
4	ODICIN
5	ORIGIN
6	IN THE MATTER OF THE HEARING
7	ON LIVING RIVERS' PROTEST OF RED LEAF RESOURCES' NOTICE OF
8	INTENTION TO COMMENCE LARGE MINE OPERATIONS FOR THE SOUTHWEST #1 MINE,
9	M/047/0103, IN UINTAH COUNTY, UTAH.
10	
11	
12	
13	
14	
15	TAKEN AT: Department of Natural Resources
16	1594 West North Temple Salt Lake City, Utah
17	DATE: Thursday, February 23, 2012
18	TIME: 9:13 a.m. to 11:23 a.m.
19	REPORTED BY: Michelle Mallonee, RPR
20	
21	ATKINSON-BAKER COURT REPORTERS 500 N. Brand Blvd., Third Floor
22	Glendale, CA 91203 (818) 551-7300
23	www.depo.com
24	FILE #A6016FC

1	APPEARANCES
2	John R. Baza, Hearing Officer
3	Division of Oil, Gas and Mining
4	FOR HEARING OFFICER BAZA:
5	EMILY E. LEWIS, ESQ.
6	UTAH ATTORNEY GENERAL'S OFFICE Natural Resources Division
	1594 West North Temple
7	Suite 300
8	Salt Lake City, Utah 84116 Telephone: (801) 538-7200
9	FOR THE DIVISION OF OUR CASE AND MINING
10	FOR THE DIVISION OF OIL, GAS AND MINING: STEVEN F. ALDER, ESQ.
	UTAH ATTORNEY GENERAL'S OFFICE
11	Natural Resources Division
10	1594 West North Temple
12	Suite 300
13	Salt Lake City, Utah 84116 Telephone: (801) 538-7200
14	ALSO PRESENT:
15	Dana Dean, Associate Director, Mining
	Division of Oil, Gas and Mining
16	Doub Dahon Davinson to be Manager
17	Paul Baker, Environmental Manager Division of Oil, Gas and Mining
18	Leslie Heppler, Engineer
19	Division of Oil, Gas and Mining
	Tom Munson, Hydrologist
20	Division of Oil, Gas and Mining
21	Taylorno Connicon Assistant Biraston Oil and Con
21	LaVonne Garrison, Assistant Director Oil and Gas SITLA
22	
	Sonja Wallace
23	SITLA
24	Earlene Russell, Administrative Assistant
	Division of Oil, Gas and Mining
25	

```
FOR RED LEAF RESOURCES, INC.
 2
      DENISE A. DRAGOO, ESQ.
      SNELL & WILMER
          15 West South Temple
          Suite 1200
 4
          Salt Lake City, Utah 84101-1531
          Telephone: (801) 257-1900
 5
      LANCE LEHNHOF, ESQ.
      CARMAN LEHNHOF, ISRAELSEN, LLP
         299 South Main Street,
 7
         Suite 1300
         Salt Lake City, Utah 84111
 8
         Telephone: (801) 534-4435
9
      ALSO PRESENT:
10
      Dr. Laura Nelson, Vice President, Energy and Environmental
      Development
11
      Red Leaf Resources, Inc.
12
      Jeff Hartley
      Hartley & Associates
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      Fran Amendola
14
      Norwest
15
      Bob Bayer
      JBR Environmental
16
17
      FOR WESTERN RESOURCE ADVOCATES:
18
      ROB DUBUC, ESQ.
      JORO WALKER, ESQ.
19
          150 South 600 East
          Suite 2AB
20
          Salt Lake City, Utah 84102
          Telephone: (801) 487-9911
21
      ALSO PRESENT:
22
      John Weisheit
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      Living Rivers
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      Elliott Lips
      Great Basin Earth Science, Inc.
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1	PRESENT FOR STATE OF UTAH OFFICE OF ENERGY DEVELOPM	ENT:
2 3 4 5	Samantha Julian, Director John Nowoslawski, Manager of Unconventional Energy Development Gibson Peters, P.E.	
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PROCEEDINGS

(9:13 a.m.)

HEARING OFFICER BAZA: Folks, let's go ahead and get started. Good morning to you all. My name is John Baza, director for the Division. I'm the hearing officer for this particular conference. Before beginning, I'm just going to read a few things, talk a minute, and then we'll start into the actual hearing portion of this.

First of all, I want to establish kind of the tone of this meeting. This room is small by design. I want it to be somewhat more intimate. I want it to be more of a discussion and not necessarily a formal back and forth, although I am creating some structure to this, which you will hear about in just a minute.

The court reporter is here, but is principally for my use. It's not necessary to have a transcript of this, but I know it would be hard for me to try to look back on this and work from written notes. So she's here. She's going to be making note of what you say. If she asks you to speak up at any particular time or slow down, please pay attention to that. And we'll try to work with her and make sure she's got a good record of what's happening today.

Let me start by saying today is Thursday,

February 23, 2012. This hearing is being conducted at the Department of Natural Resources Building in Salt Lake City at -- well, it's almost 9:15 now. It was scheduled to start at 9:00.

The purpose of the hearing is two-fold. First of all, to provide an opportunity for those who have submitted comments regarding the Division's conditional tentative approval of the Red Leaf Resources' Notice of Intention to commence large mine operations for the Southwest #1 Mine M/047/0103, to present the basis for their comments, and to provide the operator, the applicant, and the Division a chance to respond to those comments.

And two, within a reasonable time frame after the hearing, I, as a hearing officer, will issue a final appealable order, determining whether the applicant has met the relevant rules and a Final Notice of Intention should be approved for the Southwest #1 mine.

The scope of the information and comments that we are going to receive today during this proceeding, I'm going to limit to those comments that were presented in the November 18, 2011, Living Rivers' protest to the tentative decision to approve the Notice of Intention to commence large mining operations for the Red Leaf Resources Southwest #1 mine. And I'm going to list those

four identified areas for you that were included in that letter to the Division.

First, Living Rivers alleges that, "The NOI fails to account adequately for the possible existence of susceptible groundwater resources in the area of the mine. Second, the NOI fails to account for the possible impacts to groundwater in the area of the mine. Third, that there's no evidence that Red Leaf intends to obtain or that DOGM intends to require a groundwater permit from the Division of Water Quality, as required by DWQ regulations. And fourth, the NOI fails to provide adequate information to show that the design of the EnShale capsules will be sufficient to prevent leakage of petrochemicals into the area surrounding the mine, and specifically into local perched groundwater aquifers.

There was also a comment presented from Jennifer Spinti, of the Institute for Clean and Secure Energy. I do not believe she is here today, so I am going to forego that comment regarding that letter that we received.

So pursuant to Utah Code Annotated Section 40-8-13(d)(3) and Utah Code Annotated Section 63G-4-201, the Division noticed the hearing as a formal hearing. And this hearing will commence as a formal hearing before the Division.

Pursuant to Utah Code Annotated Section

63G-4-207, "Any person may file a signed written petition to intervene in a formal proceeding." To date, the hearing officer has not received the written petition from anyone seeking to intervene in this proceeding.

Pursuant to Utah Code Annotated Section
63G-4-202(3), "Any time before a final order is issued,
the presiding officer may convert a formal adjudicated
proceeding to informal adjudicated proceeding if it is in
the public interest and does not unfairly prejudice the
rights of any party."

As hearing officer, I've determined that converting this hearing from formal hearing to informal hearing is in the public interest and does not unfairly prejudice the parties. Additionally, the parties have stipulated to the conversion and have agreed that the formal notice satisfies any relevant notice requirements for the informal hearing.

So, the hearing will be conducted informally pursuant to Utah Code Annotated Section 63G-4-203, Procedures for Informal Hearing; Utah Administrative Code R647-5-106, Procedures for Informal Phase; Utah Administrative Code R647-5-107, Exhaustion of Administrative Remedies.

In the event there is a conflict between Utah Code Section 40-8-1 et seq. and Implementing Rules for

Large Mining Operations at Utah Administrative Code R647, the Utah Administrative Procedures Act shall govern.

Pursuant to Utah Code Annotated Section

63G-4-103(f), the parties to this hearing are the

protestants, Living Rivers, through their representative

Western Resource Advocates; the applicant, Red Leaf

Resources; the Division of Oil, Gas and mining; and then,

of course, any agreed person who submitted and was

granted intervention prior to conversion of the

proceeding from formal to informal, which there are none.

Pursuant to Utah Code Annotated Section 63G-4-203(1)(g) and Utah Administrative Code R647-5-106(9), intervention in this informal proceeding is prohibited.

Pursuant to Utah Code Annotated Section
63G-4-203(1)(c), "The parties shall testify, present
evidence, and comment on the issues presented in their
previous comments to the Division."

So the procedure for today's hearing will be as follows -- and frankly, I'm limiting this to a two-hour time frame. And I'm going to ask the parties to minimize their comments to that two-hour time frame in this order: First, I'm going to ask the Division to provide a brief history of the permit leading up to this hearing, which I anticipate should take ten minutes or less. Then I'm

going to ask Living Rivers to present the basis for their comments and their protest. And I'm going to ask them to do that in approximately 20 minutes. And then I'm going to ask Red Leaf Resources to have an opportunity to address those comments. And I'm also going to ask that you do that in 20 minutes. And then finally, I'm going to allow the Division to have an opportunity to address the comments in an additional 20 minutes.

Now, recognizing that there may be some leeway in that and that we're going to try to do this in two hours, hopefully there will be a little bit of time left to resolve any unresolved issues.

Earlene, I'm going to ask you to help me with some time keeping here, if you could.

So post hearing: After the hearing, and reviewing the information in the Division's file at the date of the decision, the evidence and testimony presented, and any additional information requested, the hearing officer will issue an order determining whether the applicant has met the relevant rules and whether a final permit shall be approved. After the issuance of a final order by the hearing officer, the parties may appeal the decision, pursuant to R647-5-106 part 17.

I would also again indicate to you that this is $\\ \text{informal.} \quad \text{It is an intimate setting.} \quad \text{I would ask}$

parties to be respectful of each other's comments. And note that we have some time frames that we're going to try to constrain ourselves to.

But also that, in my own opinion, the purpose that I would hope to achieve out of this as a hearing officer is determining was there anything in the Division's performance of the analysis and their review of the application that was not in accordance with the rules that we need to correct? And that's my principal purpose for wanting to do this hearing.

So let me ask: Does anybody have any questions before we start?

MR. DUBUC: Mr. Baza, we may take, if we may, a few more than 20 minutes. Just we weren't prepared for that limitation. I don't think it will be much more, perhaps five minutes, if that would be acceptable.

HEARING OFFICER BAZA: Okay. Yeah. I know there's going to be some slop here. I'm just trying to keep it within that two-hour time frame.

MR. DUBUC: Okay.

MS. DRAGOO: Mr. Hearing Officer, we had a question, too, about in the event that there's something technical and new that's brought up and it looks like we need to convert back to a formal hearing, we would reserve that right. So say that it looks like there's

1 some new issue that needs discovery, or something like that, we would reserve that right. 3 HEARING OFFICER BAZA: I understand. 4 MS. DRAGOO: Thank you. 5 HEARING OFFICER BAZA: I think we probably 6 should introduce the people speaking for the parties. 7 First of all, for the Division, I assume it will be 8 principally Mr. Alder? 9 MR. ALDER: Steve Alder. I'll be appearing 10 for -- helping the Division; although I think we'll 11 handle it pretty much individually by the Division people 12 who did the review. They'll make their own comments as 13 appropriate. Paul Baker will do a brief introduction of 14 the mine first. 15 HEARING OFFICER BAZA: Okay. 16 17

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MR. ALDER: With Paul, we have -- I could introduce the people. Leslie and Tom will be addressing the hydrologic issues.

HEARING OFFICER BAZA: Okay. And when you make your comment, I'll ask that you give your full names so the court reporter can pick that up.

And then for Living Rivers, it will be? MR. DUBUC: Yes, good morning. I'm Rob Dubuc. I'm counsel for Living Rivers. This is Elliott Lips, who will be testifying. And my colleague, Joro Walker, will

be here as well.

HEARING OFFICER BAZA: Sounds great.

And for Red Leaf Resources?

MS. DRAGOO: Denise Dragoo, here on behalf -- as counsel for Red Leaf Resources. Laura Nelson, as company representative. Fran Amendola, who prepared the Notice of Intent on behalf of Northwest. And Bob Bayer, who is our hydrologist and geologist.

HEARING OFFICER BAZA: Seated next to me is

Emily Lewis from the Attorney General's office, who will

be assisting me as legal counsel as a hearing officer.

Then in the back is Earlene Russell, who is just going to

staff the meeting for me. I think that identifies pretty

much everybody who wants to participate in the hearing.

So why don't we go ahead and have, first of all, the Division present a brief history of the application and the permit review.

STATEMENTS FROM THE DIVISION

MR. BAKER: I'm Paul Baker. And Steve Alder asked me to present a brief history and overview of the mine. I apologize that I didn't look up exact dates for when submittals were received and reviews were sent, but I'll do the best I can.

The mine is in -- the proposed mine is in Township 13 South, Ranges 22 and 23 East in Uintah

County. It's in central Uintah County near the Seep Ridge Road.

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The operator is proposing to mine -- the entire proposed disturbed area is 1477 acres on three sections of land. It's primarily land that's owned by the Trust Lands Administration, although there is private inholding.

Just a general overview of what would happen in a mining operation. First, the land would be cleared. Soil would be removed and stockpiled. There would be pre-stripping of overburden where required and that material would be removed. And the oil shale ore would be blasted, removed, crushed in preparation for constructing cells, capsules where the oil shale would be processed. And once these capsules are basically excavated, the operator would put in a layer of what they call bentonite amended soil, or BAS. It would be a three-foot layer of BAS. And that would be covered on the bottom by a steel pan. And that would then be covered by 13 feet of gravel. And then the oil shale ore would be put back into the capsule and -- crushed and put back into the capsule. And the entire capsule would be surrounded by this 13 feet of gravel, and on the outside, the three-foot area of bentonite amended soil.

As the ore is put back into the capsule, there

are also pipes that are put in that would help -- or that would be used to heat the oil shale ore. And then they would go through the process of heating that and extracting oil or the kerogen. And once the capsule was -- once that process was complete, eventually there would be another tier, another level put on top of that one. And basically, the process would be repeated. And this process of constructing the capsules proceeds over a several-year period.

Like I say, covering that 1400 or so acres, there would also be a shop and office buildings, oil storage facilities, things like that.

When once the capsules have been allowed to cool, they will be graded and then soil will be placed on top of them, and the area reseeded and revegetated. I'm sure we'll be getting into more details of exactly what the mining operation will be. But that's kind of the basis of it.

The Division originally received the application in April of 2011. And I don't remember exactly what month the first review went out — a few months later. I said I didn't look up those dates, and I apologize for that. And following that review, the Division received, I believe it was two more submittals that were reviewed. And they were reviewed really more informally than with a

formal review. We didn't send another formal review letter. Rather, we communicated with the operator. And they made a few changes to the application until the Division issued a tentative approval, a conditional tentative approval, in October of 2011. That then went to public notice. And it was published in Salt Lake City and Vernal newspapers.

The public notice period ended November 28,

2011, and the Division received several letters: The one
that we're discussing today, of course, from Western

Resource Advocates; a comment letter from Jennifer Spinti
from the University of Utah; we received two letters from
the Governor's Resource Development Coordinating

Committee; and several letters in support of the project.

I think that's the basis of what I would have to present.

HEARING OFFICER BAZA: Okay. And did you mention the date upon which you issued the tentative approval and when that notice went out?

MR. BAKER: That was in October of 2011. Again, I don't have the exact dates.

HEARING OFFICER BAZA: Okay. Excuse me for just a minute. I'm just trying to pull up information on my tablet here.

On the 20th of October, it looks like the

tentative decision to approve was sent out by the
Division.

MR. BAKER: Okay. That sounds about right.

HEARING OFFICER BAZA: Okay. Anything else,

MR. ALDER: No.

HEARING OFFICER BAZA: Okay.

MR. BAKER: No, I don't think so. Not for now.

HEARING OFFICER BAZA: Why don't we go ahead,

and I believe the next item I indicated is we would hear

from Living Rivers, Mr. Dubuc. And again, 20 minutes,

but we'll allow for some leeway there.

STATEMENTS FROM LIVING RIVERS

MR. DUBUC: We will be as succinct as possible.

Good morning, Mr. Baza. As I said, my name is

Rob Dubuc. What I will do is I have a brief prepared opening statement. And then Mr. Lips will testify on a few issues, specifically those addressed in our comment letter.

Living Rivers' task today is admittedly a difficult one, and that's to convince you to overturn your agency's decision to recommend approval of Red Leaf's NOI; to say, more or less, that your agency made a mistake; and to direct your agency personnel go back and redo the recommendation. No agency director would take

such a task lightly.

On top of that, there is the pressure that the industry is bringing to allow it to develop these resources as quickly as possible. Red Leaf wants certainty. They want a streamlined permitting process, and they want approval in months, not years. We're all aware of the political rhetoric surrounding development of these resources, that Utah is the Saudi Arabia of oil shale, that the state is open for business for tar sands and oil shale development, and that we need to push for mining these resources to help free our country from its dependence on foreign oil.

In a letter sent to you a few weeks ago, Red Leaf contends that we shouldn't even be here today, that our concerns are non substantive, that all the issues that we raise relate to groundwater quality, and that these issues can and will be dealt with through the groundwater discharge permit process at DWQ.

But as you know, it's not that simple. While there is overlap between the oversight provided by the two agencies, when it comes to issues such as impacts to groundwater, each of those agencies has its own set of regulations and its own requirements to account for any possible impacts to the environment, including groundwater.

As we noted in our protest, for your agency, those requirements require you to make sure that the NOI adequately accounts for both presence of groundwater, under R347-4-106(8) (sic), and for the impacts of that groundwater, under R347-4-109(1) (sic). And it is those regulatory responsibilities that bring us here today.

Let me make a brief editorial aside about the regulatory framework that your agency is using to regulate oil shale and tar sands. In the current regulations, both of these come under the heading "Non Coal" — regulations that work much better for more traditional hard rock mining. Unfortunately, the non coal regs don't take into account the experimental nature and the new technologies associated with oil shale and tar sand mining. As we've seen so far, each of these proposed mines is unique, not just from — unique not just from hard rock mining but from each other. And I'd like to take this opportunity to request a meeting with you and your staff in the next few months to discuss some possible changes to these regulations that would be a better fit for these new industries.

Now, I understand that companies such as Red Leaf would prefer not to have their activities characterized as "first of a kind" or "experimental" because both of these labels imply risk. In today's

economic climate, risky ventures tend to scare away investors. But those labels are accurate. The process that Red Leaf has proposed has never been done before on any scale, let alone the one outlined in the NOI. It is first of a kind and it is experimental. And as Mr. Lips will outline, the risks associated with it are not limited to economic ones.

You've been provided a brief outline of Red

Leaf's proposal, but let me put it in some perspective.

In its NOI, Red Leaf has stated that it plans to build a series of capsules. Each capsule will cover 450,000 square feet over ten acres in size, 130 feet tall. To give you some perspective on the scale, that's a capsule that's 12 1/2 times as large as the building we're sitting in and three times as tall. But the proposal is not to build one of those capsules, it's to build 118 of them, 68 of the capsules in the bottom layer and 50 additional capsules stacked on top of that bottom.

That's a total of 1219 acres worth of capsules covering over 53 million square feet, almost two square miles.

Underlying virtually all the company's claims that this process is environmentally -- is that this process is environmentally benign, that these capsules are safe and that they will not leak petrochemicals and leechate into the environment, either during the heating

process or once the capsules have cooled and settled.

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Let me state flat out we dispute that claim and we dispute the company's right to make it. Fact of the matter is that the closest the company has come to building one of these capsules is a pilot project approximately 1/10th of the proposed size of a single one of these capsules. Without disclosing results of whatever testing the company did on that pilot project or proposing a conservative protective approach, it now makes the claim that not only will these capsules work for their intended purpose, but that the capsules will be impermeable. And they're asking you to allow them to go from a 1 1/2 acre pilot project to a 1219 acre production with no steps in between. There's no plan for ramp-up of the scale of this project or to build several scale-sized capsules to see if they will work as designed. Instead, Red Leaf wants it all and they want it now.

The fact of the matter is that the company is pushing too hard and it's trying to take shortcuts through the approval process. Let me give you an example of how Red Leaf's rush to obtain approval has been counterproductive.

Your agency based its decision to approve the NOI, in part, on Red Leaf's assertion that, "The operation of the proposed capsules will not result in

discharge of pollutants nor is it probable that discharge will result; therefore, Red Leaf does not believe that it has a duty to apply for a groundwater discharge permit."

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Several weeks before your agency issued its tentative approval of the NOI, DWQ notified both the company and your agency that a complete groundwater permit application would, in fact, be required. In other words, your agency's approval was premised on incorrect information; namely, that DWQ agreed with Red Leaf that no discharge of pollutants would result, based on the capsule design.

Not only that, because your agency relied on that premise, your personnel was deprived of the information they needed to fulfill DOGM's regulatory obligations, information that's still being provided to DWQ today. But that's directly pertinent to determining if this proposal will impact groundwater in the area of the mine.

A full two months after you issued your tentative approval, Red Leaf submitted a 195-page groundwater application to DWQ. That application contains a significant amount of information that wasn't contained in the approved NOI, but that your agency should have had before it made its recommendation to approve this mine. Even with that additional

information, DWQ has not only asked Red Leaf to provide more information, but it's also asked the company to expand its modeling to see what the long-term effects on groundwater would be.

The company's data show, for instance, that the spent shale will generate high pH leachate. And the model that the company ran only went out to 30 years.

As I noted, Mr. Baza, this is information that your agency should have had before it made its recommendation to approve the mine. At a minimum, we are asking you to take a step back and allow the permitting process to run its course and to allow DWQ to obtain the information it needs to make its decision.

But ultimately, we're asking you to direct your personnel to reconsider their recommendation in light of this new information so that any recommendation they make is as informed as possible. To do anything else would be a violation of your obligation under Utah law.

At this point, I'll turn to Mr. Lips, who will outline in detail why the NOI fails to meet DOGM's regulatory requirements.

MR. LIPS: Thank you, Mr. Baza. I appreciate the opportunity to present these comments. I am Elliott Lips, for the record.

The information presented in the NOI is

insufficient to conclude that there are not groundwater resources that will be impacted by the proposed mining operation.

As a way of background, a little bit on the geology. The Parachute Creek Member of the Green River Formation is the surface bedrock formation throughout the majority of Red Leaf parcels. This member contains the Mahogany Oil Shale zone from which the raw ore would be extracted. Open-pit mining operations would extend to a depth of 250 feet below the ground surface. Underlying the Parachute Creek Member is the Douglas Creek Member of the Green River Formation.

The groundwater permit application states that the depth to the shallowest occurrence of groundwater known is 600 feet below the ground surface and 350 feet below the bottom of the open pit. However, there's insufficient information in the NOI to support this statement and, in fact, some information that contradicts it. The NOI states that it is unlikely — only states that it is unlikely that the Parachute Creek and Douglas Creek contains significant quantities of water, although the NOI acknowledges that its presence in these rocks can not be ruled out.

On a regional basis, the groundwater permit application states that the Douglas Creek Member

potentially contains the uppermost aquifer in the Green River Formation in the eastern Uinta Basin. In fact, as reported in both the NOI and the groundwater permit application, the BLM considers both the Parachute Creek and Douglas Creek Members as key aquifers in the general Uinta Basin area. Furthermore, the groundwater permit application acknowledges the presence of groundwater in the Douglas Creek aquifer and discusses the movement and areas of discharge in the southern and northern parts of the Uinta Basin.

And finally, the groundwater permit application provides data from nearby wells that have identified groundwater occurrence that, "Likely reflect localized perched aquifers associated with lenses of permeable bedrock in the Douglas Creek Member of the Green River Formation."

In spite of this, the NOI provides three lines of evidence in support of their conclusion for the absence of groundwater in the Parachute Creek and Douglas Creek. First, the NOI reports that there are no USGS mapped springs issuing from either of these members in or near the parcels. This is insufficient evidence upon which one can conclude that there are no aquifers. Not all springs are mapped by the USGS. And this is not the standard for determining the presence or absence of

groundwater. More importantly, the NOI does not contain the results of a thorough, systematic seep and spring inventory of the parcels and nearby areas.

Furthermore, the NOI states -- citing Price and Miller, a published report -- discussing springs issuing from the Green River Formation.

The second line of evidence in support of their conclusion for absence of groundwater, the NOI reports that exploration drilling by Red Leaf Resources did not encounter groundwater. Six holes were drilled for a proposed 1656-acre mine area, which is insufficient to establish the presence or absence of groundwater. The NOI did not contain the drill logs, so it's not possible to know what was or was not recorded during drilling.

Often during exploration drilling, the driller or geologist simply does not make observations one way or the other regarding the presence or absence of groundwater. If this is the case, the lack of observation of groundwater does not allow one to conclude that there's an absence of groundwater. In fact, the groundwater permit application reports that the holes were drilled with water as a circulation medium and that small quantities of water might not have been observed.

In addition, the statements made by Red Leaf in the NOI that the wells did not encounter groundwater is

contradicted by the recent groundwater permit application, which reports that water was encountered during drilling in one hole, RL-1, in fractures near the top of the hole. This confirms the presence of groundwater in the Parachute Creek Member of the Green River Formation.

The groundwater permit application reports water at 600 feet below the ground surface in the Red Leaf water well; however, neither the NOI nor the groundwater permit application provide information about this well, such as its location, a geologic log, how the well was completed, or results of aquifer tests, if conducted.

The third line of evidence provided in the NOI is a summary of nearby wells on file with the Utah Division of Water Rights. This provides little pertinent information to the question of aquifers in the parcels to be mined by Red Leaf because there are no drill logs, no information on the geologic formations in which the wells were completed, and no information on groundwater that was encountered at shallower depths.

With regard to projected impacts to groundwater, the NOI states that, "Groundwater is not susceptible to any impacts from the mining and retorting operations because it is isolated from these operations by several hundred feet of low permeability marlstones."

However, the NOI also reports that the first porous unit occurs approximately 50 to 100 feet below the Mahogany in the Douglas Creek Member. In fact, Figure 5 of the groundwater permit application shows the Douglas Creek Member approximately 55 feet below the Mahogany oil shale zone. In the Texas (sic) Seep Ridge Unit No. 2 well, less than two miles west of the Red Leaf Resources, reports the Douglas Creek Member 49 feet below the Mahogany.

In summary, the record is incomplete. And what information exists indicates that there is the potential for groundwater in localized perched aquifers in the Douglas Creek Member approximately 50 feet below the floor of the proposed mine and/or in fractures in the Parachute Creek Member.

Red Leaf relies on the presumption that the capsule design, particularly the bentonite amended soil, or BAS layer, will prevent migration of fluids from the ore. This presumption is key to Red Leaf's belief that there will be no impacts to water resources.

In support of the groundwater permit application, Red Leaf evaluated seepage of precipitation through the upper BAS layer that will occur after the mining has ceased and the capsules are reclaimed with a cover of overburden and vegetated top soil.

The seepage was evaluated using the Hydrologic Evaluation of Landfill Performance, or HELP computer program, from the U.S. Army Corps of Engineers. The results of Red Leaf's analysis indicate that seepage of precipitation through the upper BAS layer into the spent ore will be, for the base reclaim case, 1683 gallons per year per capsule. For the non-vegetated case, seepage and precipitation water through the upper BAS layer will be 73,772 gallons per year per capsule. They also looked at a case of increased precipitation. Under that scenario, the seepage through the upper BAS layer is 44,319 gallons per year per capsule.

First, the NOI does not discuss any of these seepage analysis results. In fact, these seepage results completely contradict statements made in the NOI that, "The capsules are designed to be fully contained." And, "fully isolated from the environment by design, both during operation and following reclamation." And, "water will not enter the hydrocarbon recovery zone of the capsules."

More importantly, Red Leaf did not evaluate the quantity of leechate that will percolate through the lower BAS layer. Clearly, the BAS layer is not impermeable. So it's logical to conclude that water will seep down through the spent ore and ultimately through

the lower BAS layer. In fact, the DWQ recognizes that this is possible. And in a letter to Red Leaf Resources dated February 10, 2012, instructed Red Leaf to conduct additional analysis using the HELP model to evaluate this exact scenario.

It's clear that even under the best-case conditions, that in which the BAS layer remains intact during the heating and extraction process, Red Leaf's underlying presumption that the capsules are sufficient to prevent migration of fluids is unsupported by their own data and analysis. Furthermore, the NOI fails to provide information that the BAS layer will remain intact.

Red Leaf proposes to recover the oil that is liberated from the rock as a result of being heated in capsules constructed on site. The crushed ore will be placed in the capsule in layers with heat-conducting pipe. The liberated oil will be collected in pipes and in a pan at the bottom of the capsule and directed to a sump.

Red Leaf claims that all of the oil and volatile hydrocarbons will be contained by constructing the capsules with a three-foot layer of bentonite amended soil, BAS, and a 13-foot layer of gravel between the BAS and the ore.

During the heating and extraction process, the ore in the capsule loses approximately 40 to 45 feet in total height. The initial thickness of the ore in each tier is 100 feet.

This method of recovering hydrocarbons from oil shale is a new concept that has never been demonstrated at the scale that Red Leaf proposes. In order to evaluate this new and untested design, the Division and the public must rely on either the results of a pilot project using the same construction and operation or on the results of sufficient and appropriate laboratory analysis and modeling. Unfortunately, the NOI fails to provide information on either of these.

Red Leaf has constructed a test facility under its exploration permit. However, the NOI contains no information about the results of this test facility.

Specifically, there is no report of the evaluation of the capsule design. No discussion of potential scaling effects. No discussion of the liner or liner systems that were used and how they might differ from what is currently being proposed. No discussion of the geometry of the test capsules. No discussion of the BAS and how it was constructed. No analysis of the integrity of the BAS during heating and extraction. And most importantly, no evaluation of any seepage from the capsules.

The NOI is further incomplete because it does not address the loss of integrity of the proposed BAS as a result of the heating and extraction process. Specifically, the ore will be heated to a temperature of 725 degrees Fahrenheit. The NOI does not discuss the impact that this will have on the integrity of the BAS. In fact, Norwest, one of the Red Leaf's consultants, recommended that this exact issue be evaluated. Furthermore, Red Leaf acknowledges that the integrity of the BAS is compromised by heat and states, "To keep the BAS seal functioning, the BAS needs to be protected from the heat that is introduced into the capsules from the heating pipes."

Second, a loss of 40 to 45 feet in thickness in the ore will exert stresses on the BAS. The groundwater permit application states that the knuckle design will keep the BAS in compression during and after settling, and thereby prevent shear failures. However, Red Leaf has not provided the results of any geotechnical analysis or testing to support this assumption.

MS. RUSSELL: Twenty minutes has expired.

MR. LIPS: Okay. I have just a few more minutes. I have, like, three minutes. Thank you.

The groundwater permit application simply states that, "The information provided below on laboratory

testing, pilot capsule investigation, and modeling are high-level summaries of separate investigations and reports."

Without providing the actual reports, it's not possible for the Division, DWQ, or the public to evaluate the validity of the claims made by Red Leaf.

Specifically, Red Leaf fails to demonstrate how compressive stresses will extend from the sides of the BAS to the center over distances of up to 900 feet.

In addition, the groundwater permit application states that the BAS layer is predicted to stay intact, in part due to the surcharge load from the weight of the second tier capsule. This load would not exist for the uppermost tier, and thus, compression of the BAS would be significantly reduced.

As described and shown in the drawings in the NOI, the BAS will remain intact during the settling of the ore. It is not possible to reduce the volume of the ore by 40 to 45 feet and not cause displacement of the BAS. As shown by Red Leaf, the BAS would have to undergo an approximate six percent volumetric change in order to remain intact. The documents do not contain an analysis of how this volumetric change, if it actually occurs, will affect integrity of the BAS. If the BAS does not undergo a volumetric change, there will be cracks as a

result of differential settlement and movement to accommodate the displacement of the BAS. This movement of the BAS will compromise its integrity.

The NOI does not discuss how the differential settlement of the ore in the capsules and the resulting stresses it will apply to the BAS will affect the integrity of the BAS. The NOI does not discuss the effect that the volatile organics, gas pressure, or degradation by steam and/or saline or alkaline fluids will have on the BAS.

In summary, the information presented in the NOI is insufficient to conclude that the integrity of the BAS will not be compromised during the heating and extraction process or an evaluation of what impacts will occur if the BAS integrity is compromised. Thank you.

MR. DUBUC: That concludes our prepared remarks.

Do you have any questions?

HEARING OFFICER BAZA: You know, I do have some questions. But I am going to wait to hear from both Red Leaf and the Division before I start asking that.

So Denise, I'll turn the time over to you.

STATEMENTS BY RED LEAF

MS. DRAGOO: Great. Thank you, Director Baza.

I think the fatal flaw in the discussion that we've just heard is the failure of Living Rivers to

acknowledge that the groundwater discharge permit is a condition to the October 20th tentative decision. For some reason, the comments submitted on November 18th, which was nearly a month later, don't even acknowledge the fact that Condition No. 1 of that October 20th decision was that Red Leaf should go ahead and obtain the groundwater discharge permit from the Division of Water Quality. Despite that fact, they presented those comments and suggested that, in fact, Red Leaf was not going to obtain the groundwater discharge permit.

We think that was such a fatal flaw that the comments submitted were not even substantive. And we suggest, in fact, that the Division should have gone ahead and finalized the Notice of Intent in November following the end of the 30-day comment period because the comments submitted by Living Rivers were simply not substantive.

Overall, Red Leaf contends it has met the statutory requirements and the regulatory requirements, which were much more narrowly focused than those discussed by Mr. Lips. We've prepared a response, which I'll provide to you here, in writing which shows the excerpts from the NOI and the groundwater permit that address concerns. Living Rivers fails to acknowledge the fact the groundwater permit application has been

submitted as an appendix to the NOI. It's Appendix S. And we've attached that as Exhibit D to our materials.

But just going through our response, we just have gone through item by item the four issues that Director Baza raised and are raised in the Living Rivers letter.

whether the NOI adequately accounts for local groundwater resources. And basically, this is a very simple requirement under the Division's rules. There are just two requirements. First, identification of depth to groundwater. That's identified — if you look at Exhibit B of your packet, the NOI, pages 37 through 38 identify those — the depth to groundwater.

In addition, Red Leaf meets the requirements, simple requirements, of R647-4-109, which require an impact statement and simply require that the operator provide a narrative description of the groundwater impacts. Those are set forth at pages 40 through 42, attached as Exhibit C -- very clearly set forth.

The Division issued an executive summary confirming that Red Leaf had met these requirements.

That executive summary, dated October 5, 2011, is attached as Exhibit E. It confirms that the records of the nearby wells, which are retained by the Division of

Water Rights, reflect the depth of the groundwater. And it's reflected in 2(d), "Isolated Perched Aquifers," as a 1312-foot deep well. So they identified the depth of groundwater. That's all that is required.

In addition, the Division confirmed at that time and agreed with Red Leaf's conclusion that groundwater is not susceptible to mining operations because it's isolated by several hundred feet of low permeability marlstone.

So it was very clear that Red Leaf met the requirements, and the Division properly issued the Notice of Intent on those two bases.

With respect to the concerns raised by Living
Rivers that the Parachute Creek and Douglas Creek
Formations, members of the Green River Formation, are not
adequately analyzed. There's a very detailed hydrologic
report provided in both the NOI and also in Appendix S.
This information confirms that there's not, on the basis
of both the USGS mapped springs that show that there are
none in this area and also that the water source is
located within a one-mile radius, confirm that this
area -- basically provide an adequate analysis of these
members. That's provided in Exhibit G. And the full
hydrology report is set forth in Appendix S.

There was also a concern raised by Living Rivers

that there was some groundwater encountered in drilling. But this was just a very little groundwater. We've addressed this on page 2 and added the discussion from Appendix S, which confirms that there was a small amount of water encountered in drilling those six core holes, but only in one of the six core holes. Small quantities of water were observed, but they're not significant and they're not in the water bearing -- any major water bearing horizon would have been recognized in this core hole drilling.

The well logs are set forth. Contrary to

Mr. Elliott's (sic) suggestion, they are set forth in

Figure 6 of the groundwater quality discharge application
that's attached as Exhibit I.

Finally, the Notice of Intent provides a summary of the nearby water wells that are on file with the Utah Division of Water Rights. Those are attached as Exhibit K. And contrary to the allegations of Living Rivers, these wells are clearly identified in the state engineer's database location. And that database, you could simply take administrative notice of that. But if you need those database records, we've pulled them and we can provide them for the record, if you'd like.

There's also a concern raised by Living Rivers that the statements regarding isolation of groundwater

are inaccurate and confusing. And this is really not the case. The NOI provides a summary of the existing literature in this area, which shows that there is a porous unit. About 50 to 100 people live in the Mahogany zone. However, this permeability is not uniform throughout the formation. And in Red Leaf's research, they found — in core testing, they found no evidence of groundwater resources in this area. In addition, although Living Rivers suggests that there's inconsistencies in the data, they present no evidence to support its protests that there are groundwater resources in this area.

In addition, Red Leaf Resources contests the definition of "aquifer." In fact, Living Rivers provides no definition of aquifer. The definition that's appropriate in this case is that set forth by the Department of Environmental Quality. They define an aquifer as, "A geologic formation that contains sufficiently saturated permeable material to yield usable quantities of water to wells and springs." And based on that definition, there are no water resources that are affected in this area.

As we indicated, Living Rivers has relied on outdated information. The initial NOI, which was submitted in April, was updated in September. And in

addition, of course, there was the October 20th decision of tentative approval of the Division, which confirmed that this entire permit was conditioned on obtaining a groundwater discharge permit. That discharge permit application was submitted as Appendix S. And once again, that's in the record.

The letter also states that -- from Living
Rivers -- states incorrectly that Red Leaf does not
intend to obtain and the Division does not intend to
require a groundwater discharge permit. That's clearly
not correct. Apparently, Living Rivers didn't carefully
review the October 20th tentative approval, which was
clearly conditioned on the Division of Water Rights'
issuance of the groundwater permit.

In terms of the allegations that the EcoShale design will not prevent contamination, this issue is addressed very thoroughly in the groundwater discharge application submitted as Appendix S and under consideration of the Division of Water Quality. There are probably — well, there are some 15 pages of detailed analysis regarding this and set forth, as noted in our letter, at pages 25 through 40 of Appendix S. Sections 11, 12, and 13 of that groundwater discharge permit application addressed the design and also addressed the issues raised by Norwest.

Norwest initially made some recommendations regarding the design of the EcoShale system. And they made those recommendations with respect to the April 21 NOI that was submitted. That's been revised since in the NOI dated September 1, 2011, and addressed specifically, again, in the groundwater discharge permit application.

So we just -- in sum, the requirements of the Division of Oil, Gas and Mining, with respect to this issue and the Notice of Intent, are much more narrowly focused than those of the Division of Water Quality. The Division has appropriately conditioned the issuance of the NOI on the Division of Water Quality's determination as to whether -- analysis of the application and determination whether they should issue a permit, groundwater discharge permit, or whether one is not even required.

So the function of the Division of Water Quality is, of course, much more detailed. They have many more detailed requirements. And in terms of the integrity of the process, that's been detailed in great length in three sections of the groundwater discharge permit. And it's really something that's up to the Division of Water Quality now. It's something in their expertise.

The narrow focus of the Division of Oil, Gas and Mining Notice of Intent is to satisfy those two

requirements, depth to groundwater, which was clearly identified, and secondly, provide an environmental assessment of groundwater resources. And that was provided. Those requirements are very simple, very straightforward. And the applicant has met those requirements. And the Division determined correctly that those requirements were met.

So once again, we encourage the Division to approve the Notice of Intent as conditioned on October 20th and not wait until the Division of Water Quality issues or decides not to issue its permit.

The overall objectives of the two programs are very different. Division of Water Quality focuses specifically on water quality and on the integrity of the process. The Division is more concerned about providing a general description of groundwater resources and addressing reclamation.

I don't know. We may want -- Fran, since we've got some extra time, do you want to address the issues regarding the integrity of the bentonite amended soil layer and the EcoShale patent to design?

MR. DUBUC: Before we do that, I would like to object to the introduction of this document at this time. This was -- we stipulated to this as being an informal hearing.

MS. DRAGOO: Right.

 $$\operatorname{MR}.$$ DUBUC: There was no provision for submittal of written testimony.

And Mr. Baza, if you are going to consider this, then I feel that the only adequate measure to counter this is to give us an opportunity to respond to this document. Otherwise, you should exclude this from the record and not consider this in your deliberations.

MS. DRAGOO: I'd suggest that Mr. Lips just read his statement into the record. And if it's a problem, I can simply read mine into the record, which I just did. The only thing this does is summarizes the response of Red Leaf Resources to the specific four issues that were raised by Director Baza and were also raised in the letter of Living Rivers. So all this does is simply assemble the information that's already in the record. It simply copies, for the convenience of the hearing officer, the references in the Notice of Intent and in the groundwater permit. There's nothing new in that letter.

MR. DUBUC: But again, this was prepared by legal counsel, submitted by legal counsel. Are you saying that it's totally devoid of any legal opinion of any sort? What Mr. Lips did was provide technical testimony clarifying the assertions that we made in our

protest letter. And I think that, again, if you are going to consider this and accept this document, then you need to provide Living Rivers with an opportunity to respond.

HEARING OFFICER BAZA: Well, I think there are some concerns that I have about seeing the document for the first time today.

And I'm assuming you're seeing it for the first time as well.

MR. DUBUC: Absolutely.

HEARING OFFICER BAZA: So I'm not really opposed to having it included as part of this consideration, but it would probably be wise to have you take a look at it and then give me some kind of input, maybe in the form of a, you know, response letter to this.

MR. DUBUC: If we could have just a reasonable time to respond to this.

MS. DRAGOO: We'll withdraw it. That's fine. We'll withdraw it. We made the statement for the record. And the record, it's all in.

MR. DUBUC: The cat's kind of out of the bag.

Mr. Baza was reviewing this as you were talking. I mean,

it was inappropriate to introduce this. But the cat is

out of the bag. And I feel at this point, Living Rivers

should have an opportunity to respond.

1 MS. DRAGOO: Well, we don't feel it's 2 inappropriate to introduce it. It's simply a summary of 3 what's already in the record. You presented your 4 argument. 5 HEARING OFFICER BAZA: Denise, would you have a 6 problem, though, if Mr. Dubuc has a chance to look at 7 this and then provide me with some kind of written response to what's in here? 9 MS. DRAGOO: Perhaps a short period of time. 10 MR. DUBUC: The regulation provides sufficient 11 framework for responses, generally ten business days or 12 some sort. 13 MS. DRAGOO: Yeah, that's really basically our 14 summary of what's in the record. We'll withdraw it. 15 MR. DUBUC: Again, I think it's too late. The 16 cat's out of the bag. 17 HEARING OFFICER BAZA: Give me a minute. 18 MS. DRAGOO: All right. 19 HEARING OFFICER BAZA: Tell you what we're going 20 to do: Just in the interest of time here, I'm going to 21 let Emily take a look at this. And before you withdraw 22 it, before you say that it's not -- it shouldn't be 23 introduced, or whatever, I'd like to hear from the 24 Division and allow the Division to take their 20 minutes,

25

unless --

MS. DRAGOO: Sure, that's fine.

HEARING OFFICER BAZA: -- that would be a problem here.

MS. RUSSELL: I'm counting that Red Leaf has taken about 15 minutes of their time, a little less than 15 minutes of their time. If you want to allow them time after that to continue their allotted time, that's fine.

MS. DRAGOO: Sure. We'll reserve our -- some rebuttal.

HEARING OFFICER BAZA: Rebuttal to what? You said you wanted to have Fran talk about something. Do you want to take a minute to do that? I mean, because obviously, Living Rivers had Elliott talk. And I don't know if Fran has some additional material.

MS. DRAGOO: Right. And Fran, I guess I would like you to address a couple of issues. One is the question of the isolation of groundwater and the question about the additional water that was found and that was reported in the groundwater discharge application. And that's basically addressed in both the NOI and in Appendix S regarding that B group (phonetic) and encountering of the water at that time. Do you want to go through that?

MR. AMENDOLA: Let me make a recommendation because Bob really represents the hydrologic component of

the application and is the primary author of the groundwater discharge permit. I think Bob should address the issue of groundwater and the presence or absence of any of the isolation.

MS. DRAGOO: Okay.

MR. BAYER: The RL-1 drill hole -- excuse me.

Did the RL-1 -- I'm sorry. I'm easily distracted. Has
to do with hair loss.

The RL-1 drill hole did, indeed, encounter some waters in the very top of the bedrock in the hole. It is drilled in a draw or a small drainage. And given the time of year it was drilled, the observations the Norwest geologist reported to me were that it was fracture-hosted water, it did not persist to depth, and the fracturing was related to weathering and erosion. It certainly does not fit the description of an aquifer that has been described elsewhere in the Basin. And this is quite common in the areas like this, where you can get what we call compartmentalized groundwater --

THE REPORTER: I'm sorry, "departmentalized"?

Could you speak up a little bit? I couldn't hear you after "whatever we call departmentalized."

MR. BAYER: Okay. It's quite common to have a little compartmentalized groundwater in a shallow subsurface like this, or it can occur. However, none of

the drilling encountered water at depths, or any rock
types, that suggested that they had sufficient
permeability to host or contain groundwater.

The recharge area for all of these aquifers has

The recharge area for all of these aquifers has been -- any aquifers that might have been there have been long eroded away. We're at the edge, virtually, of the east --

THE REPORTER: I'm sorry. "At the edge of"? Your voice is dropping again.

MR. BAYER: -- the edge of the east Tavaputs,

T-A-V-A-P-U-T-S, Plateau, with the south edge -- the

exposures of these shallow formations through much of

the -- all of Parachute Creek and the Douglas Creek

aquifer that could serve as significant recharge area

have long been eroded away. There is a big canyon down

there to the south. So it's not surprising that there's

no water encountered.

Is that what you wanted to talk about, Denise?

MS. DRAGOO: Yes. That's correct. I think
that's good.

HEARING OFFICER BAZA: Denise, was there anything else you wanted to cover?

MS. DRAGOO: I think that's probably it. Maybe we could go on to the Division's presentation.

HEARING OFFICER BAZA: All right, Steve. We'll

turn the time over to you now.

STATEMENTS BY THE DIVISION

MR. ALDER: We thought -- just briefly, I would just preface our response to say that we thought it was appropriate to provide an opportunity for public comment on these issues and to have a hearing to address them. Although they are groundwater issues, and groundwater issues are dealt with under the permit that has been applied for with the Division of Water Quality, there is, of course, an obligation under our statute and rules to investigate and determine the compatibility of the NOI application with requirements to protect groundwater and to indicate what mitigation would be taken if there is a potential ...

The requirements are pretty brief. The requirements at DWQ are much more extensive and, generally, we believe they are the experts in that area. But I would ask just briefly the Division to address the concerns that have been raised by Red Leaf.

And you can go first, if you'd like, Leslie, and introduce yourself.

MS. HEPPLER: I'm Leslie Heppler. And per direction by John at the beginning, we're limiting ourselves to November 18, 2011, by Western Resource Advocates -- the letter.

And one of the areas that was brought up was R647-4-106, "Operation Plan," which states, "The operator shall provide a narrative description, referencing maps or drawings, as necessary, of the proposed operations," including Item No. 8, "Depth to groundwater, extent of overburden material, and geologic setting."

This information was provided in the NOI in the form of a map, a geologic map, that I was able to double check with an Open-File report that was published by UGS. The report number was 549DM. And the geologic data was correct.

There was also a typical cross section that was provided for the area that referenced the overburden material. And there was narrative in the plan that described the depth to groundwater per our rule. I followed -- I followed our rules as written. I have no further comment.

MR. MUNSON: My turn?

MR. ALDER: Yes.

MR. MUNSON: I'm Tom Munson. I'm the surface water hydrologist for the Division.

My requirements in regards to the rules are found under R647-4-105, "Maps, Drawings, and Photographs," 1.12. And it states, "Perennial streams, springs, and other bodies of water, roads, buildings,

landing strips, electrical transmission lines, water wells, oil and gas pipelines, existing wells, bore holes, and other existing surface or subsurface facilities within 500 feet of the proposed mining operations."

They identified those in relationship to their comment that states that the NOI reports there are no USGS mapped springs issuing from either of these formations in or near the parcels. They say, "There's insufficient evidence upon which to conclude there are no aquifers that will be impacted by the mine. Not all springs are mapped by the USGS. And for this and other reasons, reference to such maps is not a standard for determining the absence -- presence or absence of groundwater."

Our rules don't require, do not identify a specific methodology or -- a specific methodology for identifying springs. And there is no standard, per se, for doing that. The method that they chose is acceptable to the Division. That, and based on any of their observations of the field, would have been recorded. In conversations with them, they said that. And there was no evidence of any springs or seeps within 500 feet of the property.

So from my perspective, they address that question, meeting the requirements of our rules.

HEARING OFFICER BAZA: Okay.

MR. ALDER: And with regard to the rule that requires impact assessment and discussion of mitigation, did they satisfy those requirements?

MR. MUNSON: Yeah. R647-4-109, "Impact Assessment. The operator shall provide a general narrative description identifying potential surface and subsurface impacts." And specifically No. 1 "Impacts to the Surface and Groundwater Systems." They have provided a very detailed -- not a general -- narrative in regards to surface water impacts, and provided quite detailed surface water designs using definitely industry standards in regards to that information and have met the requirements of that rule, from our perspective.

MR. ALDER: Would there be a storm water -
MR. MUNSON: -- storm water plan, a designed

storm water plan using all the appropriate -- and

actually, we do not have specific storm events, designed

storm events. So they just used what is considered a

standard design event, and actually went above and beyond

what we would have required for that design. And very

appropriately designed a system which will work, I

thought, very well based on my technical expertise of 29

years as a surface water hydrologist working on hundreds

of mines.

1 MR. ALDER: I didn't mean to cut you off. Thank 2 you. We didn't get your resume in here. 3 MR. MUNSON: No, I can give you one, if you'd 4 like. 5 MR. ALDER: I believe the Director is familiar 6 with your expertise. 7 And Leslie, were there any -- did you see any 8 reason, did you concur that there was no potential for 9 groundwater impacts from the mines? 10 MS. HEPPLER: Yeah. Based on their design of 11 using a bentonite amended soil and also the natural 12 occurring geology, anywhere from five feet of a low 13 transmissivity shale that is naturally occurring all the 14 way up to the 500 feet that has been found at particular 15 locations, it's belt and suspenders. There is double 16 protection there. 17 MR. ALDER: So you felt that rule was satisfying 18 the --19 MS. HEPPLER: Yes, that is correct. 20 MR. ALDER: That's all we have. 21 Unless you have more, Paul, that you want --22 MR. BAKER: No. 23 DISCUSSION LED BY HEARING OFFICER BAZA 24 HEARING OFFICER BAZA: I have just a set of 25 inquiries that I'd like to make. And I'm probably going

to start with the Division and work backwards, then, to Living Rivers.

Just for everybody's knowledge, Steve said that I was familiar with Leslie and Tom's expertise and background. I think through various things that are happening with the Division, I'm also familiar with Mr. Bayer's and Mr. Lips' background and expertise as well. So I'm not unfamiliar with any of those things.

I guess my first question would go to you, Mr. Alder, maybe with the help of Division staff.

Living Rivers, I mean, one of the first statements out of Mr. Dubuc's mouth was that the Division made a mistake. So I'd kind of like to hone in on what the rulings say or the statute says about the Division's responsibility relative to a large mining NOI. What are we supposed to do with it? Does it specify how we are supposed to analyze that and what our responsibility is to the public and the state for that?

MR. ALDER: Well, I think the answer to that question is that the rules that address a large mine NOI cover everything from five acres and larger to Kennecott copper mine. And the regulations themselves are quite general and not very specific. And so it requires the expertise and experience of the Division's hydrologist and geologist, such as have testified, to kind of adapt

the rules to the circumstances. And that's not to say that they should lessen the analysis, it's just that it's very general. It's under Rule 647-4-109 that requires that the operator -- so the application and the NOI should "provide a general narrative description identifying the potential surface and or subsurface impacts, including impacts to surface groundwater systems, potential impacts to species" -- that's not an issue here -- "and impacts to the soil resources." That apparently has not been raised in the objections. And then finally it says at the end, "Actions which are proposed to mitigate any of the above-referenced impacts."

So it is really pretty basic, just, you know, what are the impacts and what's been done to affect them. There is no restriction that says you have to have a certain number of monitoring wells. And so it's on the operator and the operator's understanding that these mines are going to be certainly subject to a great deal of scrutiny to make sure that they provide a good, solid application that addresses those issues. And the Division also looks at them to make sure that they do, to their professional expertise. And that's really it.

In addition, the application requires additional information about depth to groundwater, the size of the

mine, the overburden, the type of reclamation -- a lot of things that aren't at issue here. But with regard to groundwater, again, in the application, it's pretty limited. But we're limited to the rules, if that's your question, and whether or not it complies. And the rules are not very specific.

HEARING OFFICER BAZA: Well, that last statement of yours was probably very telling, that the rules are not very specific. And I'm glad that you brought up the R647-4-109. It's been raised already.

How does -- maybe this is a question for Mr. Baker. How does the staff use that impact assessment? What conclusions are expected to be drawn from that?

MR. BAKER: Well, we would look at the impact assessment and determine what mitigation needs to be done, as it says in the rules; the degree of impact that there might be and how that would affect the environment; and whether mitigation is required and what degree of mitigation.

HEARING OFFICER BAZA: I'm putting you on the spot here. Where in the rules does it talk about mitigation?

MR. BAKER: It's in 109.

HEARING OFFICER BAZA: 109?

MR. BAKER: 109.5.

HEARING OFFICER BAZA: So Part 5. I think it says, "Actions which are proposed to mitigate any of the above-referenced impacts."

MR. BAKER: Yes.

HEARING OFFICER BAZA: Okay. So you would make an analysis of those impacts. You'd identify potential mitigations. And does that become inclusive, then, as part of the tentative approval?

MR. BAKER: That information should be included in the NOI, whatever mitigation plans are required.

HEARING OFFICER BAZA: So through some kind of iterative process, you are going back and forth to the operator, and you're saying, "This is what's appropriate for mitigation. You should include it in your NOI."

MR. BAKER: Yes, that's right.

HEARING OFFICER BAZA: Okay. This is another question for the Division. And this might be a hard one to answer, so think about this for a minute.

So how much information is adequate? Whether it refers to groundwater resources or the bentonite amended soil or anything like that. I mean, we're all scientists -- or at least most of us are scientists. And I'm sure we would like to get as much information as possible.

1 But when do you reach a point as a Division 2 staff member and say, "This is good enough. We've got 3 enough information to make a decision"? MR. BAKER: I think that has to be something 4 5 that the staff member judges based on their professional 6 experience. And I don't know how to answer it any better 7 than that. The people that we have are highly educated 8 and experienced, and they can make those judgments. 9 HEARING OFFICER BAZA: And you are talking about 10 yourself and Tom and Leslie? 11 MR. BAKER: Well, me as a biologist. But Tom 12 and Leslie as hydrologist and geologist, yes. 13 HEARING OFFICER BAZA: Sure. Okay. So it is 14 somewhat of a judgment call, but you use your best 15 professional expertise to make that judgment call? 16 MR. BAKER: Yes, absolutely. 17 HEARING OFFICER BAZA: Okay. Let me turn to Red 18 Leaf Resources now. Like I said, I'm going in reverse 19 order. 20 I think, Denise, one of the things you said was 21 that water resources are defined by usable water. 22 MS. DRAGOO: "Aquifer," the term "aquifer," 23 right. 24 HEARING OFFICER BAZA: Oh, okay. Can you 25 clarify that for me a little bit?

MS. DRAGOO: Yes. Well, throughout the protest of Living Rivers, they continue to assert that certain, for instance, porous units were aquifers. And that's not the case. An aquifer is defined under the Department of Environmental Quality rules as, "A geologic formation that contains sufficient saturated permeable material to yield usable quantities of water to wells and springs." That's R317-6-1.1. And that's the definition that was relied on by Red Leaf Resources in preparing its NOI and relied upon by the Division in determining that there were basically no water resources, groundwater resources affected.

HEARING OFFICER BAZA: Okay. So I'm not wanting to put words in your mouth. But would it be Red Leaf's opinion that because they couldn't define or they couldn't identify usable water, that the information included in the NOI was good enough?

MS. DRAGOO: Yes, exactly.

HEARING OFFICER BAZA: Okay.

MS. DRAGOO: There was adequate information. For instance, the six core holes were drilled. They found a little bit of water, but not sufficient to be usable. And so it didn't meet the definition of an aquifer.

HEARING OFFICER BAZA: Okay.

MR. BAYER: Can I add? Since the groundwater application was brought up and the water encountered in Hole RL-1 was also brought up, I neglected to say before that, that water stopped flowing shortly before the hole was completed. And no more water was encountered. So it, indeed, was compartmentalized from the source of shallow groundwater. Certainly not usable, except for the mice, maybe, that ran by at night.

MR. ALDER: From the definition, "aquifer" is not a term used in the general rules.

HEARING OFFICER BAZA: I realize that. It talks about "groundwater resources," correct.

Denise, you've referenced the groundwater permit information -- application and permit information and analysis being done by DWQ.

Since the Division issued its October 20 tentative decision, in Red Leaf's mind, how does that DWQ analysis and decision making integrate with what the Division of Oil, Gas and Mining must do?

MS. DRAGOO: Right. This goes back to the October 20th tentative decision. And basically, there the Division simply required that the permit be submitted 30 days prior to the commencement of operations. So it's clear that the Division is relying on the Division of Water Quality to make the determination as to whether or

not, you know, the groundwater discharge permit is required, the type of permit, whether it's going to be permit by rule, a site specific permit, or maybe no permit at all. So the Division of Oil, Gas and Mining conditioned its tentative approval October 20th on, really, the Division of Water Resources -- or Water Quality in making that determination.

HEARING OFFICER BAZA: And you also indicated that -- I think one of your comments was that DOGM should not wait on a DWQ decision for final approval of the NOI.

MS. DRAGOO: Right.

HEARING OFFICER BAZA: And that's based on the fact that the approval of the Division would then be conditioned on whatever decision DWQ has to make?

MS. DRAGOO: Right. That's correct. So, for instance, the Division of Oil, Gas and Mining, there's a whole series of federal, state, and local permits that have to be obtained. But the NOI can go forward before, for instance, a building permit is issued by the local zoning authority, or whatever. The fact that the Division's rules specifically provide that -- you know, just because you obtain a Notice of Intent, that doesn't mean that it obviates the need to comply with other Department of Environment Quality rules or permits, conditions, that type of thing.

So obviously, the operator has the duty to go ahead and comply with all those requirements. And so we would urge that the NOI be issued, subject to that -- to the determination by the Division of Water Quality whether or not a permit is required and the type of permit.

HEARING OFFICER BAZA: Okay. I'm going to transition now to Living Rivers. Yeah, we've got plenty of time.

Mr. Dubuc, you had a statement, I believe, when you started out, that Division of Water Quality and the Division of Oil, Gas and Mining are somewhat separate agencies of state government with somewhat separate responsibilities?

MR. DUBUC: Yes, sir.

HEARING OFFICER BAZA: Would that indicate to you that we shouldn't be talking to each other?

MR. DUBUC: Oh, no. If that's the impression I gave, I certainly didn't mean to give that. I think that's one of the difficulties that we have seen in the past and will continue to see, is how do those two agencies interact with each other?

We recognize that there are limited resources and areas of expertise in each of those agencies. But a great deal of what the Division of Water Quality does,

for instance, in the area of groundwater, is really needed to inform the Division of Oil, Gas and Mining — and the impacts to groundwater. And those impacts are required — the assessment of those impacts are required by your regulations. And I am hard-pressed to say how your Division can make a decision in a vacuum.

If you have a Division of Water Quality over here saying, "We don't have enough information. We need more. We haven't made up our mind what kind of permit, if we're going to need a permit," I'm hard pressed to see how your agency, four months in advance of today, could have said, "This is fine. This meets our requirements."

Again, we would like to meet with you at some point outside of this forum to discuss the regulation of these new extraction processes. But it's almost like you need to work with each other in some sort of tandem, that the Division of Oil, Gas and Mining can reach a point in its deliberative process, and it then must turn to its sister agency and their expertise to inform it, to fill in the gap of what your agency is not able to derive in terms of information. And until that process is complete, I think that a final decision by your agency is premature.

And that's what I was trying to say is we recognize that there are different agencies, but there is

a great deal of overlap between them. And there's a gray area.

HEARING OFFICER BAZA: So is it your assertion as part of this proceeding that we shouldn't make a decision until Water Quality finalizes theirs?

MR. DUBUC: Absolutely. I think that is absolutely premature. Even to make it conditioned, how do you give final approval conditioned on something that could totally change the game? There is a basic assumption in the NOI that a groundwater permit would not be required. It states that. We've talked to the Division of Water Quality. They say the groundwater permit is not going to be required.

There's a very elaborate process that goes into a groundwater application, 195 pages worth of process, and it's still not enough. None of this was in the NOI. None of this was considered by your Division before it made a tentative approval. I don't see how that can be an informed decision.

Yes, the permitting process has to go through its normal course of back and forth between agencies.

And only then is it appropriate for your agency to make a final decision.

HEARING OFFICER BAZA: Mr. Baker, is the water quality application included as part of the Division's

records on the NOI now?

MR. BAKER: It is included as Appendix S, as has been discussed earlier.

But I think there are two separate processes here. The Division has its own processes and has its own rules. And we have to make a determination whether we believe the NOI meets the requirements of the R647 rules. And that's where we issued our conditional approval —our tentative approval.

HEARING OFFICER BAZA: Now in the course of your analysis of the NOI, between the time it was submitted in April and when you issued the tentative approval in October, that six months, I mean, does the staff have conversations with the folks at Water Quality? Do they interact?

MR. BAKER: Yeah, they do. You know, I'm not sure exactly how much they did in this particular case. I can't say.

HEARING OFFICER BAZA: Tom or Leslie, can you answer that, how much interaction you had?

MR. MUNSON: Well, I've had conversations with them, you know, off and on about a number of things, specifically about Red Leaf. And I would -- from my perspective, I'm surface water. So I didn't really have as much interaction regarding that. But Leslie had.

MS. HEPPLER: Yeah, I probably talked to them two or three times by the phone in conversations that lasted anywhere from a half an hour to an hour.

HEARING OFFICER BAZA: If they presented a concern about the groundwater permitting, or something like that, would that tailor your decision on the NOI -- and did it?

MS. HEPPLER: Not on our approval on the NOI.

We've met -- what has been submitted to us has met our rules. But in this same frame, just because we give them approval for this doesn't mean they can speed down the highway. They have to meet all other regulations. So you can't say, "You can't get your driver's license until" -- you know, you can't do those inferences. You can't hold one up based on the other.

MR. DUBUC: May I respond?

HEARING OFFICER BAZA: Yeah. Let me hear what you have to say.

MR. DUBUC: Again, a basic premise of the NOI that your agency approved was that a groundwater permit application would not be required by the Division of Water of Quality. And it states as much, that there will be no groundwater impacts.

The Division of Water Quality did not notify your Division that a groundwater application would be

required until approximately two weeks before you made a decision. So it's impossible for any of that information to have been considered in your deliberations. And again, this groundwater application, this 195-page document, was not submitted until after two months after that tentative approval. So how the information in here could have been considered by your Division is hard to see.

MS. DRAGOO: Could we respond to that -HEARING OFFICER BAZA: Let's hear.

MS. DRAGOO: -- as well?

Actually, Bob Bayer wrote that letter.

MR. BAYER: Let's talk about where this whole business of a groundwater permit is not required to get started. It began in a conversation at a pre-design conference, which Leslie Heppler was in and several folks from DEQ were present as well.

I made the argument to the Division of Water Quality -- rightfully or wrongfully, it was a technical argument -- that basically given the containment here, we're talking about a fully-contained surface facility, that on a strict reading of the rules, the DWQ rules might not require a permit at all. That got some nods and kind of, "Well, that's interesting."

So the Division never once opined -- the

Division of Water Quality never once rendered an opinion that that was true or not. However, we contended on behalf of Red Leaf that for certain reasons that are very clear in the rules and the letter that made the -- which is in the public record over at DWQ and is appended to -- it's an appendix in the NOI -- said simply -- we describe the geology, we describe the groundwater setting, et cetera. It says simply because of the definitions within the groundwater rules, we don't believe this facility has the potential to impact groundwater; therefore, no, we don't believe a permit is needed. That was the strategy that was proposed because -- and we still contend that the way that the groundwater rules are written, that that's a reasonable argument.

The Division of Water Quality rejected that argument in a letter and said, "No, you've got to have -- you've got to submit a permit application." So then we did that.

The document that we provided complies with the rules as best we can. And it's true that the Division of Water Quality has asked some additional questions, all of which will be addressed, will be addressed appropriately.

There are some very experienced senior scientists that have done the modeling work, et cetera, that's been referenced. And Red Leaf is very confident

that they responded to all of those questions that were mentioned by Mr. Lips in his testimony, that they have recently sent out in their letter.

I'd also point out that the groundwater discharge permit is only part of the DWQ permitting process. They also have to -- if they're going to regulate this as a facility that might discharge to groundwater, they have to issue what's called a "construction permit." That's totally within their regulatory purview. And they will have to do that. And they will have review plans and designs sufficient, on top of whatever is in the groundwater discharge permit, as necessary, to issue that construction permit. That is clearly in their purview for regulating any kind of waste water treatment facility or anything else. That's where that authority comes from.

I just remind you, Director Baza, as a former Board member, that the Utah Mine Reclamation Act specifically states -- and I can't quote it -- something like, you know, except for matters of what related to water quality, the Division has authority over basically protecting the environment or whatever. However, the authority regarding water quality resides with the Department of Environmental Quality.

Since the groundwater rules were written, I

Association almost 25 years ago. That has been a consistent approach. And the relationship that's been described here today by the Division staff has been the same relationship, the same process that has worked very effectively for the last 25 years.

HEARING OFFICER BAZA: Let me turn a little bit to the groundwater, or the hydrologic science. I'm afraid that I know just enough about that to be dangerous. But I have some questions. And maybe this is a combination of Mr. Lips and Mr. Bayer who can help answer this.

I think there's been some comment about compartmentalized groundwater and perched aquifers. What I know of that is it would almost seem to me that a perched aquifer, by definition, is somewhat isolated.

What's your thought on that, Mr. Lips?

MR. LIPS: I think that's an accurate

generalization or a characterization that perched

aquifers or, as Mr. Bayer described, these

compartmentalized occurrences of groundwater would be

differentiated from those that have a larger aerial

extent that may extend over several miles or tens of

miles. So they're typically smaller in aerial extent and
thickness.

HEARING OFFICER BAZA: So maybe you could help me understand a little bit. I mean, Red Leaf Resources is a mining company that will have some surface impacts. They are characterizing this as they will have limited impact on the hydrologic groundwater resources of the area.

What do you see as the potential damage? I mean, if -- let's say that the contaminant, somehow -- hydrocarbon was to seep into one of these perched aquifers. What are we talking about the magnitude of that kind of impact? What ultimately could happen?

MR. LIPS: Well, I think the potential impact, it's difficult to say unless you know how big or how extensive that groundwater occurrence is, and particularly, where that water would discharge to the surface. And if there are contaminants that are introduced into that groundwater system as a result of this proposed operation, then the question becomes:

Where do those contaminants potentially go? Are there small occurrences of discharge points from these localized groundwater systems that are used by wildlife or avian species? Do these groundwater systems connect to surface flow? And what are the potential impacts to downstream surface water systems? Those are the types of questions that you can only begin to ask and attempt to

answer when you know the basics of what resource is there.

And I guess the fact that these are perched or somehow isolated or discontinuous doesn't diminish their importance, either, with regard to the R647 rules or from a hydrologic standpoint. And, you know, quite frankly, there's been a lot of discussion about what is or isn't an aquifer. And the R647-4-109 impact assessment doesn't reference "aquifer," it references "subsurface impacts." And then it goes on to projected impacts to groundwater systems. And that would include these compartmentalized groundwater systems. That's how it was described. And it would include small or perched or isolated aquifers. Those are part of the groundwater system that requires under R647-4-109 the Division -- "There shall be a general narrative description identifying potential impacts, subsurface impacts."

And so you know, I think that it's appropriate to recognize that these are groundwater systems that have the potential to be impacted by this operation. And that's sort of the answer to your question.

HEARING OFFICER BAZA: Okay. You talked a fair amount in technical specificity about seepage results from the capsules, integrity of the BAS, things like that. Are those things that are analyzed as part of the

DWQ permit approval, or ...

MR. LIPS: They were submitted as part of the permit application to DWQ in December. And that permit application has been attached to and incorporated with the Division NOI.

They are looking at that. They are considering it. And, in fact, that was one of the comments that the DWQ made to Red Leaf on February 12, 2012, was asking for additional analysis specifically on that issue of seepage and the modeling of seepage of precipitation into and ultimately out of these containment capsules.

So it is an issue. I believe, based on the fact that the information was submitted to DWQ and that they've commented on it and asked for additional information, I think it's safe to assume they are looking at that.

MS. DRAGOO: Could we respond to that, Director Baza?

HEARING OFFICER BAZA: Well, my next question is for you. So let me hear what you have to say.

MS. DRAGOO: Okay. Fran, could you address the quality assurance plan?

MR. AMENDOLA: My name is Fran Amendola.

As part of the application that was submitted to groundwater quality, there's been a QA\QC plan that has

been submitted with respect to the BAS layer and the construction of that BAS layer. And basically what the QA/QC plan does is outlines a procedure that will define how the BAS will be constructed and to achieve the permeability level that were -- we had in the design. And that permeability is 10 to the minus 7. And that is a particular piece of information that the Division of Water Quality is very interested in. They will also be involved with monitoring the performance of that QA/QC plan to confirm that we can achieve that level of containment in the capsules.

Couple other things I wanted to mention. We talked about the HELP model and the penetration of moisture. The HELP model was actually designed to look at the cover of the capsules. And when we talk about "cover," we need to be thinking about, about a foot of soil, two feet of overburden, three feet of BAS, and about 13 feet of insulation or gravel material before you even get to the spent shale. And the HELP model really does look at how moisture moves into that cover material.

And what we saw after modeling the area and the capsules for a 30-year time period using conservative parameters was that we saw .01-inch of moisture entering the three feet of BAS. And there was some comment about does that -- you know, we need to look at that over a

longer time period. That has come up. We're going to address that as part of the response to the Division of Water Quality.

But realize that when we did the modeling, we used very conservative parameters, we used high moisture or precipitation values. And we still ended up with 0.01-inch penetration into the BAS. That doesn't even get into the 13 feet of insulation that we have before we reach the spent ore.

So we're looking at that very closely. We're going to continue to look at it.

But even running the model for a long time, it doesn't say that you'll get greater penetration because, like weather, the model results will incorporate cyclical events, wet periods, dry periods. So that front of moisture will move. Sometimes it will recede, and sometimes it will again move forward or lower into the BAS -- or maybe not even reach the BAS.

So that issue that you raised is certainly something that we're looking at. But I think the integrity of the BAS is a very important aspect of the project and it's supported by design. But it's, most importantly, going to be supported by a QA/QC program that's going to help confirm that we can achieve that design.

HEARING OFFICER BAZA: Did you have something more to say to that?

MR. LIPS: Just a quick clarification and comment.

That the HELP model run, that it was based on the permeability of 1 times 10 to the minus 7 for the BAS. And the numbers that I cited are from the HELP model results of what penetrated through. So this is looking at the bottom of the BAS layer. So your model results did show that even under this best case scenario of what you call conservative assumptions, there would be sufficient seepage of precipitation water through the BAS in significant quantities in terms of gallons per year.

MR. AMENDOLA: I'd like to verify your numbers --

MR. LIPS: Oh, sure.

MR. AMENDOLA: -- from that. But you also stated numbers that represented a non-revegetated condition.

MR. LIPS: Right.

MR. AMENDOLA: And we have a very strict commitment with the Division of Oil, Gas and Mining to have revegetation performance standards. So the likelihood of us having an exposed surface for an extended time period, which that worst-case scenario you

might be referring to is not a very probably case.

MR. LIPS: Understand.

HEARING OFFICER BAZA: And I don't want to get into a tennis match between experts here.

MR. BAYER: It was getting fun.

HEARING OFFICER BAZA: I appreciate your comments on both sides. I think they're valuable.

But I'm going to pose a question to you, Denise, and maybe additionally to Paul and Steve.

But hypothetically, let's say we moved ahead with a final approval on the NOI while Water Quality is still finishing up their analysis of the groundwater permit. And let's go further to hypothetically say that something in their analysis suggests a change in mining operation or design or something else.

How does that get addressed as a change to the NOI and the Division's approval of that?

MS. DRAGOO: Well, in the event that that was required, you could certainly modify the NOI. That happens quite a bit. Conditions occur or circumstances occur, and the NOI is -- there's a new condition.

In fact, Red Leaf Resources committed to the Division to notifying them in the event that their monitoring plan would change, or something to that effect as a result of the NOI -- sorry, as a result of the --

MR. ALDER: Could you speak up a little bit? I can't hear.

MS. DRAGOO: Sure. I was just saying that Red Leaf Resources has committed to getting back to the Division in the event that the Division of Water Quality requires additional monitoring, or something to that effect. So they could simply modify the Notice of Intent.

MR. ALDER: I hope Director Baza can hear now.

MS. DRAGOO: Right. But there's no need to stop the process until all of the permits are in place. And the Division is protected because the actual mining cannot commence until the groundwater discharge permit is issued or until the Division of Water Quality makes a determination that one is not required.

HEARING OFFICER BAZA: Paul, Steve, is that how the process usually works?

MR. BAKER: Yes, it is. If the Division of Water Quality was to make some requirements that would require a modification to the plan, then we would have Red Leaf submit an amendment.

HEARING OFFICER BAZA: And that's all to be done before mining operations commence, correct?

MR. BAKER: Before -- it depends on what aspect of the operation it affected. Theoretically, they could

begin, say, stripping topsoil, or something like that. But anything that was affected by the requirement from Water Quality would need to be delayed until that was taken care of. HEARING OFFICER BAZA: You had a comment, Mr. Dubuc? MR. DUBUC: Well, the problem with that,

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Mr. Baza, is oftentimes those things are done behind the scenes. Your Division noted earlier that several informal conferences took place that are not part of the record.

If changes are going to be made to the NOI, then I think the public has a right to comment on those. And oftentimes, those types of changes -- the process is not set up to facilitate that. And that is the danger of what you are suggesting.

MS. DRAGOO: That's not correct. It's a public process. There's a C1-C2 Form that's submitted. That's a public process amending the NOI. It's not done behind closed doors. It's all part of the public record. You'll find that in the Division's -- on their website.

MR. DUBUC: Not to have a tennis match, but there's a difference between being on the record and

being subject to public notice and comment.

HEARING OFFICER BAZA: Steve?

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MR. ALDER: Yeah, well, there are two different things. With regard to the question about whether an amendment gives public notice, that depends on whether it's defined as a "revision" or an "amendment." A revision requires public notice and an amendment would not.

But I was -- with regard to the other question that you asked. Prior to the mining beginning, then there would be that opportunity for making changes to the permit and, depending whether it was an amendment or revision, public notice.

But then after operations begin, I didn't want you to have the impression that the only requirement is that impact analysis. Because there are the requirements in the rules for operational practices and reclamation practices that have minimum standards which require protection of the environment for deleterious materials and protection of hydrology systems, if those are observed. And hopefully, the monitoring is sufficient enough that we become aware of that. Then the permit would need to be modified to address those issues as well because the mine has to comply with those practices.

HEARING OFFICER BAZA: We're approaching our two hours here. I need to consult with counsel for just a minute. So if you kind of hang loose for me while we

step outside.

(A break was taken from 11:10 a.m. to 11:14 a.m.)

HEARING OFFICER BAZA: Okay. Thanks for indulging me. First of all, let me ask the court reporter. You don't need to include this on the record.

(A discussion was held off the record.)

HEARING OFFICER BAZA: In terms of the document that was submitted by Denise today. Yes, I was looking at it while you were talking. From what I could see of the document, you basically narrated much of what was said in the letter, anyway.

MS. DRAGOO: Exactly.

HEARING OFFICER BAZA: And the appendices that you included appear to be documents that have already been submitted as part of the NOI. There might be something different in there.

But in due regard for the fact that we don't want to spring anything on anybody and we don't want any surprises at this, I would say why don't I give you, Living Rivers, the seven days that the court reporter has to give me a transcript to craft a response to what that document is. And, you know, you don't have to belabor it. Keep it brief. But at least give me an idea of what you think is in there, whether you object to it or not.

MR. DUBUC: So a week from today, is that what

1 you are? 2 HEARING OFFICER BAZA: Yeah. Because Michelle 3 will try to get me the transcript within a week. And I 4 certainly will not finalize a decision on this before 5 then. 6 MS. DRAGOO: And we'd have an opportunity to 7 review that, as well, in the event it raises something 8 new? 9 HEARING OFFICER BAZA: I believe we should be 10 open with everybody. I mean, the things that are 11 presented here are public documents. They're part of the 12 Division's file. Your response will be part of the 13 Division's file. And you'll certainly be able to look at 14 that as well. 15 MR. DUBUC: I will serve that on you and on the 16 Division as well. 17 MS. DRAGOO: Thank you. 18 MR. DUBUC: Is electronic fine? 19 MS. DRAGOO: Sure. That would be fine. 20 MR. DUBUC: Steve, electronic, my response? Is 21 that fine? 22 MR. ALDER: Yeah, that's fine. 23 HEARING OFFICER BAZA: So, since we're pushing 24 the time limit here, I need to conclude this. And I'll 25 do this by saying that I'll take the evidence and the

information presented here, your answers to my questions under advisement. And within a reasonable amount of time, I'm going to issue a final order on this, determining whether the applicant met the relevant rules and if a final Notice of Intention should be approved. Again, that will not happen before the week that it takes me to get the transcript and your response and all of that. So all of that will be under consideration.

I'd like you to know that any party who participated in the hearing today has an appeal right. And they may appeal that final order within ten days of the day I issue it, pursuant to Utah Administrative Code R647-5-106 Part 9.

I want to thank everyone that was here today. I think this has been constructive. It really has, for my benefit. I appreciate the hard work the Division has put in. I know that Red Leaf has put a lot of hard work into this. I'm glad that we've had the opportunity to listen to Living Rivers and your comments and your concerns.

And honestly, I am going to take all that under consideration as part of a final decision on this. So I appreciate it. I hope you've all found it somewhat constructive.

But know that we're not going to belabor this.

I hope to issue the final decision not too long after all

these documents come in to me.

MS. LEWIS: And just as a clerical note, the appeal is at 106(17) not (9).

HEARING OFFICER BAZA: Thanks.

MS. NELSON: Director Baza, as the proponent for Red Leaf and lead for Red Leaf here, would it be all right if I made one final comment? I don't think it will introduce anything new.

HEARING OFFICER BAZA: Okay. All right. Go ahead.

MS. NELSON: First of all, I just want to thank you, especially for organizing our conference today. I do agree it is an important discourse and very informative.

I also want to note that we do respect Living
Rivers' concerns. And I think with that regard, we have
pursued a very diligent effort to address concerns, and
that we will do so, also, in the DWQ process.

We do recognize that there are different agencies from which we must seek permits. And in response to the tentative approval, we did pursue that process with DWQ and in concurrence with their letter that they submitted to us, similar to how we'll pursue all other processes. And it is our effort to be as transparent for the State so that they can fully review

the efficacy of our process in the field. And I think that the documents that we've provided not only meet the Division's rules, but also, I think, fulfilled that obligation on the part of Red Leaf.

And the reason I wanted to mention that is because Mr. Dubuc did dispute -- or did state that he disputed Red Leaf's ability to make that claim. And so I thought it was important that we also be able to say that we are committed to that diligent effort and that we ought to have a right to make that claim. Thank you.

HEARING OFFICER BAZA: Thank you.

Well, I appreciate everyone's attendance today and also those people who are here to observe. We'll move forward on this. My intent is to make progress. So thank you.

MS. DRAGOO: Thank you.

(The matter concluded at 11:23 a.m.)

1	CERTIFICATE
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3	State of Utah)
4	county of Salt Lake)
5	I, Michelle Mallonee, a Registered Professional Reporter and Notary Public in and for the
6	State of Utah, do hereby certify:
7	That the proceedings of said matter was reported by me in stenotype and thereafter transcribed
8	into typewritten form;
9	That the same constitutes a true and correct transcription of said proceedings so taken and
10	transcribed;
11	I further certify that I am not of kin or otherwise associated with any of the parties of said
12	cause of action, and that I am not interested in the event thereof.
13	WITNESS MY HAND at Salt Lake City, Utah,
14	this 28th day of February, 2012.
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17	MACHELLA Mellones, CSR
18	Michelle Malfonee, RPR, CSR
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