STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

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

APPLICATION OF PUBLIC SERVICE COMPANY OF) NEW MEXICO FOR REVIEW OF OIL CONSERVATION) DIVISION DIRECTIVE DATED MARCH 13, 1998,) DIRECTING APPLICANT TO PERFORM ADDITIONAL) REMEDIATION FOR HYDROCARBON CONTAMINATION,) SAN JUAN COUNTY, NEW MEXICO)

) CASE NO. 12,033

ORIGINAL

- OIL CONSERVATION DN. 98 DEC - 7 PM 2: 19

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING (Volume II)

BEFORE: MARK ASHLEY, Hearing Examiner

November 20th, 1998

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, MARK ASHLEY, Hearing Examiner, on Friday, November 20th, 1998 (Volume II), at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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Petro Energy, Incorporated)	
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BURLINGTON WITNESS:	
<u>PAUL ROSASCO</u> (Engineer/Geologist; President,	
Engineering Management Support, Incorporated)	
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DIVISION WITNESS:	
WILLIAM C OLSON (Hydrogoologist, Environmental	
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FOR BURLINGTON RESOURCES OIL AND GAS COMPANY:

CAMPBELL, CARR, BERGE and SHERIDAN, P.A. Suite 1 - 110 N. Guadalupe P.O. Box 2208 Santa Fe, New Mexico 87504-2208 By: WILLIAM F. CARR and PAUL R. OWEN

STEVEN T. BRENNER, CCR (505) 989-9317

* *

WHEREUPON, the following proceedings were had at 1 8:22 a.m.: 2 This hearing will come to order EXAMINER ASHLEY: 3 for Docket Number 32-98. Please note today's date, 4 November the 20th, 1998. 5 We are continuing Case 12,063 [sic], and before 6 7 we begin, I just want to remind all the witnesses that they're still under oath. 8 9 And we left off yesterday with Ms. Maureen 10 Gannon, if you can approach the stand. 11 And then Mr. Carr? MR. ALVIDREZ: Mr. Hearing Examiner, I may have 12 13 misunderstood you, but I thought you said we were 14 continuing with Docket 12,063. 15 EXAMINER ASHLEY: Oh, excuse me, that's a 16 mistake. I'm sorry, it's Case 12,033. I'm sorry, thank 17 you. 18 Mr. Carr? 19 MAUREEN D. GANNON, the witness herein, having been previously duly sworn upon 20 21 her oath, was examined and testified as follows: 22 CROSS-EXAMINATION 23 BY MR. CARR: 24 Q. Ms. Gannon, yesterday you testified at some 25 length about efforts that had been made by PNM to remediate

> STEVEN T. BRENNER, CCR (505) 989-9317

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-- evaluate the site at the Hampton 4M well, correct? 1 2 Α. Yes. You understand, don't you, that the central issue 3 ο. in this case really is who's responsible for the 4 contamination? 5 The free-product contamination, yes. 6 Α. I can barely hear you over here. 7 Q. The free-product contamination, yes. 8 Α. 9 Would you turn to Exhibit 26, please? This is Q. the PNM Unlined Surface Impoundment Assessment Form. 10 If I turn to the last two pages of this exhibit, there is a 11 reference to a sample, a composite sample. Do you have the 12 13 results of that sample? 14 Α. I don't believe that they're in our exhibits. 15 Would you be willing to provide that to us? Q. 16 Α. Yes. 17 There's also a same -- There's a reference on the Q. 18 following page to a sample. Would you be willing to also 19 provide that? 20 Α. Yes. 21 Q. Let's go to your Exhibit Number 40, and I'd like 22 you to go to the second page of that exhibit, if you would. 23 This is a letter that PNM sent to Mr. Olson in March of 24 this year. Was this letter authored by you? 25 Α. Yes, it was.

ant in the second

1	Q. If we look at the second page there's a Roman
2	numeral, and it says "Burlington Document Review", and
3	under that you state that PNM has reviewed certain
4	documents concerning contamination at the Hampton site that
5	were submitted by Burlington. And then if I'm correct,
6	this is PNM's reaction to those documents; is that fair to
7	say?
8	A. It's a progress report with our reaction.
9	Q. The first paragraph after you identify the
10	document starts out, "Following our review of these
11	documents and our field records for site investigation and
12	remediation data, we are concerned that upgradient source
13	removal is not complete and continuing sources of
14	hydrocarbons will continue to affect downgradient areas,
15	including not only the well pad, but a significant volume
16	of offsite groundwater."
17	Do you see that paragraph?
18	A. Yes, I do.
19	Q. And that was PNM's position?
20	A. Yes.
21	Q. Now, below that there is a dot and then it reads
22	as follows: "Burlington states they have removed
23	contaminated soils to a depth of 15 feet in the deepest
24	areas of their source area" evacuation or "excavation",
25	I'm sorry. "Sampling of temporary well borings TPW-05

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1	and -07 by Burlington detected significant contamination in
2	the 15 to 16-foot interval. Thus, excavating the source
3	area only to 15 feet at the deepest location leaves
4	documented contamination in place to act as a continuing
5	source to areas downgradient."
6	Is that PNM's position?
7	A. Yes.
8	Q. If I understand that, is it PNM's concern that
9	there could be a foot of contaminated soil that would be a
10	continuing source for downgradient contamination?
11	A. Correct.
12	Q. Okay. Now, if you go with me back to the first
13	page of this letter, Roman numeral I, "Summary of PNM
14	Activities", and you're talking there about your
15	remediation efforts at your former PNM drip pit, and you
16	state first of all that you have excavated to a depth of 12
17	feet; is that right?
18	A. That's correct.
19	Q. Below that And then it continue, it reads,
20	"Soils remaining at the bottom of the excavation exceeded
21	1000 ppm as measured by a photoionization detector."
22	Do you see that?
23	A. Yes, I do.
24	Q. Isn't it fair to say that when you ceased your
25	excavation at 12 feet, you may have left as much as 12

1	additional feet of contaminated soil below that excavation?
2	A. I can't say that definitively.
3	Q. Would you agree with me that there were a number
4	of feet of soil below that excavation that were
5	contaminated?
6	A. Yes, that showed PID readings above 100 ppm, yes,
7	that's true.
8	Q. And when you have those PID readings above 1000
9	PNM [<i>sic</i>], that is documented contamination, is it not?
10	A. Yes.
11	Q. And that could be a continuing source of
12	contamination, could it not?
13	A. Potentially, it could be.
14	Q. And so where you're noting on page 2 that
15	Burlington left one foot that could be a problem, when we
16	look at page 1 PNM left many times that?
17	A. But we're talking about two different monitoring
18	points. One is, you know, soil through an excavation. The
19	other is a temporary well. And so we're looking at a soil
20	column within the temporary well, but it could be related
21	to contaminated soil; it could be the result of groundwater
22	contamination that's fluctuating upwards. So
23	Q. But the soil was still there?
24	A. Yes, it was.
25	Q. And it could be a source of contamination?

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1	A. Potentially, yes.
2	Q. Okay. If we look at your Exhibit 2, did you
3	prepare this exhibit?
4	A. Yes, I did.
5	Q. And is it fair to say the purpose of this exhibit
6	was to review for the Commission or for the Division,
7	PNM's efforts to remediate the site
8	A. Correct.
9	Q to address this problem?
10	A. Yes, it is fair to say that.
11	Q. In doing this, did you attempt to accurately
12	reflect the Burlington efforts as well to address this
13	problem?
14	A. This was prepared for PNM's our chronology.
15	Q. There may be some other things that Burlington
16	might have done, that you wouldn't have been aware of?
17	A. Possibly, yes.
18	Q. We note there are a number of wells that were
19	drilled to monitor the contamination. Have you had
20	agreements with Burlington to share the cost of some of
21	those wells?
22	A. We've had verbal agreements.
23	Q. Now, is it my understanding of your testimony
24	that you have stated that PNM has attempted to work with
25	the OCD in its efforts to address and remediate this

1	contamination?
2	A. Yes.
3	Q. When I look at this exhibit, there's nothing on
4	it that would indicate a request from the OCD on March the
5	13th where the OCD asked PNM to remove the remaining source
6	areas with free-phase hydrocarbons?
7	A. As I indicated, this is a chronology of on-site
8	events and was not necessarily related to correspondence.
9	Q. If we use that March 13th date as a starting
10	point, is there anything that would in these on-site
11	events, that would show that PNM at any time removed
12	remaining source areas?
13	A. PNM in our past and present practices in pit
14	remediation will leave contamination in place. We know
15	that. There are other ways to remediate contamination
16	besides excavation.
17	Part of our remediation program, as well
18	demonstrated, is the monitoring of groundwater wells to
19	demonstrate natural attenuation. We continued that
20	monitoring program, we also continued free-product
21	recovery.
22	Q. Maybe you didn't understand my question. My
23	question was, you are aware that on the 13th of March the
24	OCD asked or directed PNM to remove remaining source
25	areas with free-phase hydrocarbon?

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1	A. That's correct.
2	Q. And if I look at on-site activity after that
3	point, I don't see anything that says that PNM removed
4	remaining source areas.
5	A. Free product is considered a source of
6	hydrocarbon contamination. We did continue to remove free
7	product in the water.
8	Q. Is it your testimony that recovering free product
9	in that well was a response and met the requirements of the
10	March 13 letter?
11	A. I'm not indicating that it met the requirements.
12	I'm stating to you that we did continue to remove source
13	from the groundwater table.
14	Q. Then let me ask you, did PNM Has PNM to date
15	met the requirement of the OCD as stated in its March 13
16	letter?
17	A. We've appealed the decision because we have no
18	control over what's occurring above us.
19	Q. You're aware that you asked for a stay of that
20	A. Yes
21	Q order?
22	A we did.
23	Q. And you're aware that that stay was denied?
24	A. Yes, I am.
25	Q. And since the stay was denied, are you aware of

anything that PNM has done to comply with that order? 1 We're continuing to do source removal, until 2 Α. Burlington removed our equipment. 3 When you're out there doing free-phase 0. 4 5 recovery -- and that's what we're talking about, source removal? 6 Yes, that's what I'm referring to. 7 Α. That doesn't address the ultimate source of the 8 ο. 9 contamination, does it? 10 The release points, no, it does not. Α. And it doesn't deal with the movement of a plume 11 Q. downgradient? 12 13 It can certainly, you know, assist in -- When Α. you're talking about removing -- what? Probably close to 14 15 15, 16 barrels of oil out of the ground, I think that 16 certainly helps to mitigate to some extent what's occurring 17 downgradient of us. 18 Q. Will that stop the plume moving down the --19 Α. Most likely not. 20 Now, on September the 1st, the Oil Conservation Q. 21 required by letter PNM and Burlington to conduct additional investigations to determine the complete downgradient 22 extent of groundwater contamination of the Hampton 4M site; 23 you're aware of that? 24 25 Α. Yes, I am.

1	Q. Was it your testimony yesterday that the OCD
2	first directed PNM to do that?
3	A. Yes, they did.
4	Q. And then you contacted the OCD and said that
5	others needed to be involved, and the others would be
6	Burlington, of course?
7	A. That's correct.
8	Q. All right. So you told the OCD Burlington needed
9	to be also involved?
10	A. Yes.
11	Q. And so they wrote and both parties have asked
12	A. Correct.
13	Q that become involved?
14	A. Right.
15	Q. I want to hand you what we have marked for
16	identification as I'll give you a copy without my
17	notes what's been marked as Burlington Resources Oil and
18	Gas Company Exhibit Number 3 it's previously been
19	provided to your counsel and I would ask you to look at
20	that for me first. Do you recognize these documents?
21	A. Yes, I do.
22	Q. Was the draft that comprises the last two pages
23	of this exhibit prepared by you?
24	A. Yes, it was.
25	Q. And there is a fax sheet on top of that. Was

that also prepared by you? 1 Yes, it is. 2 Α. Above that we have a fax sheet from Burlington 3 Q. and a letter to you from Mr. Ed Hasely. Are you familiar 4 5 with those? Α. Yes, I am. 6 7 And you have these in your files? Q. 8 Yes, I do. Α. 9 And is it your typical practice to keep documents Q. 10 like this in your file? 11 Α. Yes, it is. 12 MR. ALVIDREZ: Mr. Carr, I'm not sure I have the 13 same copy of the exhibit. You're talking about a fax sheet? 14 15 MR. CARR: We have the -- Let me just be sure 16 we're all on the same page. 17 We have a letter, the first page of the exhibit, 18 dated October 2nd, from Mr. Ed Hasely to you, correct? 19 Α. Yes. 20 Now, the second page of that exhibit should be a Q. 21 fax from you to Mr. Hasely, and then the last two pages 22 should be a draft of an agreement. Do you see that? 23 Α. Yes, I do. 24 MR. CARR: I move the admission of Burlington 25 Resources Exhibit Number 3.

MR. ALVIDREZ: I object on the basis that this 1 document is not relevant with regard to the issue of the 2 source or origination of the free product. 3 Moreover, the last two pages of the document 4 5 reflect settlement discussions which are expressly not 6 admissible pursuant to Rule 11408 and therefore should not 7 be admitted. 8 MR. CARR: May it please the Examiner, the 9 exhibit is relevant, it reflects the efforts made and the 10 contacts that were made by Burlington and PNM pursuant to the September 1st letter where you directed the parties to 11 12 cooperate and determine how to evaluate and determine the 13 downgradient extent of ground contamination at the Hampton 14 4 site, so it's definitely relevant. 15 Secondly, it isn't a settlement. It is a 16 document that reflects what these parties felt needed to be 17 done at this site and how they, cooperating, would allocate It's completely admissible. 18 those costs. 19 MR. CARROLL: Mr. Examiner, the Division supports 20 the admission of the exhibit. It is in response to the 21 September 1st directive from Bill Olson to the parties. Ι 22 don't think it's a settlement document at all, but it's 23 evidence of their attempts to cooperatively work toward remediation of the site. 24 25 MR. ALVIDREZ: I would very strongly object and

disagree with that characterization. The September 1st 1 letter is not at issue. We're here today on the March 13th 2 letter. 3 Moreover, when I tried to get into the issues of 4 5 what was going on at the site with regard to remediation, 6 that was objected to by Mr. Carr and sustained by the 7 Hearing Examiner. In addition, Mr. Carroll is very aware that 8 9 before PNM embarked on discussing this matter, a letter was written to him from me saying, if we do this, it cannot be 10 11 regarded as any type of waiver or evidence of wrongdoing on 12 the part of PNM, and he confirmed back in writing to me 13 that that was indeed the case, if PNM and Burlington 14 discussed this and ultimately decided to do something, it 15 would be without prejudice. 16 Now, I think it's highly, highly prejudicial at 17 this point to try and show that PNM was somehow admitting to some type of allocation with respect to this site when 18 19 this was all in the context of trying to work something out 20 with Burlington, and the OCD -- with the OCD's express 21 representation that this would not come back to haunt us at this hearing. 22 23 MR. CARR: May it please the Examiner, I want to 24 clarify one thing. We listened to Exhibit 2, which was 25 chapter and verse the efforts to remediate this site by

I did not object. I objected to an earlier witness PNM. 1 who had never been on the site getting up and making 2 outrageous characterizations of what was going on at the 3 site, without anything to back it up, and that objection 4 5 was sustained. But we have been sitting here for an hour, 6 7 listening to all the things that PNM believes it did at this site. You told them to do some additional things, 8 they're sitting here saying, We did everything the -- we 9 10 worked with the OCD. And I think I have a right to explore 11 that on cross-examination. The exhibit is relevant. MR. CARROLL: Mr. Examiner, if I could add 12 13 something. I think Mr. Alvidrez mischaracterizes my letter. 14 15 PNM originally appealed Mr. Olson's directive to 16 remove additional source area material. We continued to 17 try to get PNM to perform additional actions, and they said 18 they would if we issued a letter stating that if they did 19 these additional actions, we wouldn't hold it as evidence 20 of liability on their part. 21 This letter, I do not believe, is being admitted for the purpose of showing their liability. It's being 22 introduced to show the efforts that were made in response 23 to the September 1st, 1998, letter from Mr. Olson. 24 25 MR. ALVIDREZ: What is the relevance of the

1	September 1st letter? I can quote you Mr. Carroll's letter
2	back to me on this issue. It's a letter dated September
3	29th, 1998, and it says:
4	
5	Dear Mr. Alvidrez,
6	Per your request by letter dated September 25,
7	1998, the OCD agrees that PNM, by taking certain
8	action pursuant to the directive contained in the OCD
9	letter dated September 1, 1998, will not be waiving
10	any rights under its pending appeal referenced above
11	or its right to challenge the OCD determination that
12	PNM is a responsible party for the downgradient
13	contamination. If you have any other questions,
14	please feel free to call me.
15	
16	This is clearly something that the discussions
17	with PNM were between Burlington and PNM on this issue
18	were clearly conditioned upon this issue not coming up in
19	this hearing.
20	MR. CARR: May it please the Examiner, Mr.
21	Alvidrez asks, what is the relevance? We have been sitting
22	here We sat for over an hour as we've worked through
23	Exhibit 2, listening to this witness explain what PNM has
24	done in saying they worked with the Commission.
25	I now have a right to cross-examine on those

. . .

I have a right to cross-examine on the things. 1 remediation, I have a right to cross-examination on the 2 statement that we work with the OCD in our efforts. If I'm 3 not allowed to pursue this, I will have to ask that you 4 5 strike her testimony and any reference to Exhibit 2. MR. CARROLL: Mr. Examiner, I fail to see how my 6 7 September 29th letter protects any evidence as to the 8 cooperative efforts between the parties to clean up the 9 site. 10 EXAMINER ASHLEY: We will allow Exhibit 3 to be 11 admitted as evidence at this time. 12 ο. (By Mr. Carroll) Ms. Gannon, on September the 13 1st, the OCD wrote to PNM and to you, and they originally 14 contacted you, if I understand it. Now, they were asking 15 both PNM and Burlington to conduct additional 16 investigations to determine the complete downgradient 17 extent of ground contamination at the Hampton 4M. I think 18 that's your Exhibit 48. 19 The OCD also requested that PNM and Burlington 20 cooperatively work together on the investigation so the 21 activities can be conducted in the most efficient, 22 economical matter, did they not? 23 That's correct. Α. 24 Q. And in response to that request, PNM and 25 Burlington met to try and cooperate and do this as

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1	requested by the OCD; is that fair to say?
2	A. Yes, it is.
3	Q. And following that meeting, PNM prepared you
4	prepared and sent an agreement to a draft of an
5	agreement to Mr. Hasely; is that right?
6	A. Yes, it is.
7	Q. And these last two pages of that exhibit are a
8	draft of that agreement?
9	A. Yes, it is.
10	Q. Now, if we look at this exhibit
11	EXAMINER ASHLEY: Excuse me, Mr. Carr, which one
12	are you looking at?
13	MR. CARR: I'm looking at the last two pages of
14	Exhibit 3.
15	Q. (By Mr. Carr) there are four points with
16	periods in front of them that sort of identify the various
17	things that you had discussed. These are items that at
18	that point in time were on the table as things that could
19	be done to determine the extent of the contamination; is
20	that right?
21	A. Correct.
22	Q. If we look at the first one, it addresses it
23	says, "PNM will contact and obtain approval from the
24	appropriate third-party property owners to gain access to
25	install the new groundwater monitoring well." Do you see

-	
1	that?
2	A. Yes, I do.
3	Q. And then we go down to the page, and there's a
4	number 1, preceded by this sentence:
5	
6	PNM will invoice BR. BR agrees to pay within 30
7	days all contractor expenses incurred during the well
8	installation and subsequent well sampling. This
9	includes the following:
10	1. Costs associated with acquiring access to
11	third-party property owners and costs resulting
12	from clearing brush and vegetation (with
13	landowner permission).
14	
15	So while you're this is something you believe
16	ought to be done, PNM isn't going to pay for it; is that a
17	fair statement?
18	A. You know, what do you want me to say? I you
19	know, we have I'm sorry.
20	What I'm trying to say is, for two and a half
21	years, we paid for the majority of work done on this site.
22	In this instance, we were willing to work jointly with the
23	OCD with Burlington, given the OCD's September 1 letter.
24	But we felt that because of our appeal that we're willing
25	to work and be on site and help direct that work. But no,

1	we were not going to pay for costs
2	Q. Were you willing
3	A costs after costs.
4	Q. You were not willing to pay for the well that was
5	needed to determine whether or not the plume was down to
6	the road, were you?
7	A. Not at this point, because we're waiting for the
8	hearing results.
9	Q. You weren't willing to pay for any costs
10	associated with approvals from third-party operators, were
11	you?
12	A. In regards to contractor costs, no. But my
13	time I had already spent time trying to contact the
14	landowner.
15	I was not charging Burlington for my time or
16	internal costs related to that work.
17	Q. Were there Did you suggest to Burlington that
18	even PNM monitoring might be something they needed to
19	reimburse with PNM for those costs?
20	A. For an on-site person, yes, we did.
21	Q. So even you even asked Burlington to pay you
22	for a PNM person to monitor the activity?
23	A. We asked them if they would consider that.
24	Q. You asked for Burlington to pay for all costs
25	associated with sampling?

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1	А.	With a contractor sampling the well, yes.
2	Q.	And all laboratory costs, you asked, again,
3	Burlington	n to pay those?
4	А.	That is correct.
5	Q.	PNM wasn't willing to assume any of the costs for
6	this effor	rt that was requested by the OCD on September the
7	1st?	
8	А.	We were willing to pay for our internal costs,
9	not contra	actor costs.
10	Q.	But not even the costs associated with having
11	your perso	on on site to monitor?
12	А.	That's true. If they were going to be directing
13	the work,	this is true.
14	Q.	Then you sent this agreement to Mr. Hasely, did
15	you not?	
16	Α.	A draft agreement, yes, I did.
17	Q.	And Mr. Hasely wrote back and he told you that
18	they would	n't sign the agreement but would proceed on their
19	own; is th	nat fair to say?
20	Α.	Yes, that is true.
21	Q.	And they did proceed on their own, did they not?
22	Α.	Yes.
23	Q.	You are aware, are you not, that Burlington
24	contacted	PNM and asked PNM to undertake remediation of
25	this site	in October?

1 A. Yes, I am aware of the letter. 2 Q. And are you aware that PNM declined to do that? 3 A. Yes, I am. 4 Q. Now, you testified generally about what you have 5 seen going on currently at the site, did you not? 6 A. Yes, I did. 7 Q. That there was a lot of soil being removed? 8 A. Correct. 9 Q. And was it your testimony that if PNM had been 10 doing it, you might not have done exactly that? 11 A. That is correct. 9 But you could have done it your way, could you 13 not? 14 A. We could have done what? 15 Q. Gone out and remediated the site and then control 16 and done what you felt needed to be done? 17 A. Because of what was occurring upgradient, I'm not 18 sure we're ready to submit a strategy, our own internal 19 strategy, because of the conditions upgradient and the fact 20 But you could have proposed a plan to go out and 21 Q. But you could have proposed a plan to go out and 22 U. But you could have proposed a plan to go out and		
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25 that?	24	problem? There was nothing that precluded PNM from doing
	25	that?

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1	A. These weren't our release points. We felt they
2	were occurring upgradient, so I don't think I can speak to
3	that at this time.
4	Q. Do you know where those release points are today?
5	A. Absolutely not.
6	Q. We don't know if they're Burlington?
7	A. They're upgradient of PNM's activities.
8	Q. But we don't know if they're Burlington or PNM as
9	of this moment?
10	A. I don't believe they're PNM.
11	Q. But you we don't know for sure?
12	A. I don't believe that they are.
13	Q. You could have gone out and remediated the site
14	yourself instead of letting Burlington do it. That was an
15	option, was it not?
16	A. Upgradient of us we don't feel is our
17	responsibility.
18	Q. I understand that, but the question was, is there
19	anything that would have prevented PNM from doing that?
20	A. We could not determine the release point
21	upgradient. I can't say that.
22	Q. All right. Can you tell me what would have
23	prevented PNM from going to the OCD and saying, We're going
24	to go out and clean this up? What would have prevented you
25	from doing that?

What would have prevented us? 1 Α. 2 Uh-huh. 0. You know, we were -- I don't know. I don't know. 3 Α. There was a significant amount of contamination coming from 4 5 upgradient. It was not our area, not our activities. It's 6 not our policy necessarily to go out and start remediating 7 source areas that aren't ours. This isn't one of those things where you don't 8 ο. 9 split hairs, you just go clean it up? This is a different 10 animal, right? It's extremely significant, the free-product 11 Α. 12 contamination, and it's not something we typically address 13 when we remediate other source areas and involve other 14 companies. 15 Q. And you have not done anything to go and 16 determine the release points for the contamination that's 17 there, correct? 18 Α. We've installed a fairly sensitive monitoring-19 well network to try and determine, yes, where those release points are, but we don't have a definitive location of 20 21 where that's occurring. 22 Q. If PNM had decided to remediate the site, your 23 testimony was, you would have done it differently from what you see Burlington doing? 24 25 Α. I believe so.

1	Q.	But you haven't gone out and done that?
2	Α.	No, we have not.
3		MR. CARR: That's all I have. Thank you.
4		EXAMINER ASHLEY: Mr. Carroll?
5		MR. CARROLL: Yes, I just have a few questions.
6		EXAMINATION
7	BY MR. CA	RROLL:
8	Q.	Ms. Gannon, would you also provide us copies of
9	that comp	osite those composite samples that you
10	Α.	Yes, in the pit bottom, yes.
11	Q.	Were there two dehydrators at the PNM site?
12	Α.	Yes, there were.
13	Q.	Or are there two?
14	Α.	Yes.
15	Q.	And both de
16	Α.	There were two.
17	Q.	There were two?
18	Α.	Uh-huh.
19	Q.	And they were both discharging into the same pit?
20	Α.	Yes, they were.
21	Q.	You testified that you thought the demarcation
22	line impo	sed by the OCD was arbitrary and, as far as you
23	knew, it	was based upon where surface equipment was
24	located?	
25	Α.	(Nods)

You don't feel it was based upon contamination 1 0. levels and the source areas of the contamination? 2 I also indicated that based on where the 3 Α. temporary wells had been established, that I believe that 4 was also how the line was drawn. 5 On Exhibit 26, if you could turn to Exhibit 26, 6 ο. 7 in that second box there is pit information, and then to the far right -- the second box from the top, "Pit 8 9 Information", and then that box in the far right, what does 10 "OVM" stand for? 11 Α. Organic vapor meter. 12 Q. And "SAT" means saturated? 13 Α. Saturated, yes. 14 Q. And soil description is "dark -- " 15 Α. " -- brown". 16 Q. " -- brown"? 17 The saturation, what does that mean? Does that mean product was contaminating the soil? 18 19 Α. No, I indicated yesterday that saturation on our 20 field assessment forms done by our field technicians 21 indicates that there's normally fluids in a pit, or 22 extremely dark-stained soil and also strong hydrocarbon 23 odor. So what would cause the dark stain in the 24 Q. 25 saturation?

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It could be water with dissolved-base BTEX. We 1 Α. also indicated, as Mr. Heath had indicated, switchers had 2 said at some times they had seen sheen, even, you know, 3 standing product during the winter, some free-fluid levels. 4 5 So that would be typical. Ms. Gannon, have you ever observed product in the 6 Q. 7 current dehydrator tank? Yes, we're discharging into that tank right now 8 Α. 9 from our product -- or were, from our product-recovery 10 system. What volumes have you noticed of product in that 11 Q. 12 tank? 13 Α. You know, at times I've seen it half full, at 14 times empty. 15 Are you talking about water or product? Q. 16 Α. Fluids. You know, I haven't gone into the tank 17 and taken a sample of what's in -- Are you talking about the above-ground --18 19 Q. Yeah, the above-ground tank --20 Α. Fluids tank. 21 Q. -- that was installed later. I'm talking about fluids in the tank. 22 Α. 23 And the fluids include product? Q. 24 I don't know what's in the tank other than what Α. 25 we're pumping from, or were, from our product-recovery

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well. 1 So you haven't noticed a sheen on the top of 2 Q. that? 3 No, I haven't noticed a sheen. 4 Α. In your opinion, is it possible that the 5 Q. dehydrator pit contributed to the product or dissolved-6 7 phase contamination at this site? 8 Α. I believe --9 MR. ALVIDREZ: I object, that's a compound question. Could you restate your question, please? 10 (By Mr. Carroll) Is it possible that the 11 0. 12 dehydrator pit contributed to the product contamination at 13 this site? 14 Α. I don't believe so. 15 Is it your opinion that the dehydrator pit Q. contributed to the dissolved-phase contaminations? 16 17 Α. Yes, I think I could say that. 18 MR. CARROLL: That's all I have. 19 EXAMINER ASHLEY: Mr. Alvidrez? 20 MR. ALVIDREZ: Yes, I have some follow-up, Mr. 21 Hearing Examiner. 22 REDIRECT EXAMINATION 23 BY MR. ALVIDREZ: 24 Ms. Gannon, let's look at Burlington Exhibit Q. 25 Number 3, if we could. That's the letter -- the settlement

1	letter draft. I don't believe it's in your book. And I
2	want to have you look at the very last page of that
3	exhibit.
4	Can you read the very last paragraph?
5	A. "Nothing in this letter agreement shall be
6	construed as an admission of liability of any kind or
7	responsibility for any contamination at or in the vicinity
8	of the Hampton 4M well site. The parties expressly reserve
9	all rights to any pending appeal and the right to appeal
10	any further directives of the OCD. Furthermore, this
11	letter agreement shall not be deemed a waiver of any rights
12	or a release of any liabilities except as to those costs
13	incurred with work specified under this letter agreement."
14	Q. Let me ask you, in the absence of like language
15	like this included in the letter, would PNM have engaged in
16	discussions with Burlington about future work with regard
17	to this site, as outlined in this letter?
18	A. Yes.
19	Q. They would have?
20	A. We would have Without the absence?
21	Q. Without this language.
22	A. Oh, no, I'm sorry, I As far as future work,
23	you know, any further work would have included this same
24	paragraph.
25	Q. With regard to this draft letter, was this

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agreement ever entered into between PNM and Burlington? 1 No, we could not reach an agreement. 2 Α. Let me ask a bit about what PNM has done on this 3 Q. 4 site with regard to the investigation. If we look at the wells that were installed, how many wells were put in by 5 PNM and paid for by PNM, versus the wells that were put in 6 by Burlington? 7 8 Α. PNM paid for MW-1 through MW-8, I believe. 9 Burlington paid for MW-9 and MW-10. So if we're keeping score in terms of what's been 10 Q. 11 done out there, the score is 8 to 2 in favor of PNM? 12 Α. That's correct. We had discussed some 13 cooperative agreement on MW-1 and MW-5 but could not --14 Discussions broke down after the issue of free product and 15 wells associated with determining where free product might 16 be occurring, so we were never able to reach an agreement on those two wells. 17 18 Now, let's talk about offsite investigation Q. 19 activities. 20 The September 1 letter came out from the OCD, but 21 had PNM done anything with regard to investigation of 22 offsite contamination? 23 Yes, we had moved down the wash, as I indicated Α. 24 yesterday, to Williams pipeline and installed MW-7. Okay, and when was that done? 25 Q.

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And that was done -- You know, I'd have to look, 1 Α. to be honest, Exhibit 2. 2 Please refresh your recollection on Exhibit 2. 3 Q. We began on October 29th with the installation, 4 Α. 5 October 30th, I'm sorry, page 3, of MW-5. And October of what year? ο. 6 7 Α. I'm sorry, that's the free-product recovery well. It would be November 11th of 1997, we performed soil 8 borings and then installed MW-5. 9 10 So this would be 10 months before the OCD ever Q. 11 asked you to do anything offsite; is that correct? 12 Α. Yes, that's correct. With regard to other work, other activity, that 13 0. 14 PNM performed with respect to offsite contamination, what 15 else did PNM do? 16 The sites MW-5, we continued to do soil borings Α. 17 in the wash to Williams' pipeline and then installed MW-7. 18 We also have an additional temporary well, TMP-1, which was 19 not completed, although there is still a well or well 20 casing in the ground, to gauge. 21 Q. And again, was this done in advance of the NMED 22 September letter? 23 Α. Yes, it was. 24 Q. Let's talk about what you did off site. Has PNM 25 done anything off site to investigate other land owners?

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1	I'm talking about on private property.
2	A. Yes, we sampled the EB well, which is the Dr.
3	Everett Burton's well, their water well, which appears to
4	be down and crossgradient of the well site.
5	Q. And again, when did this occur?
6	A. That occurred, I believe, in August of 1997.
7	Yes, August 25th, 1997.
8	Q. More than a year before the OCD had directed you
9	to do anything?
10	A. Before they directed us to define downgradient
11	contamination.
12	Q. Mr. Carroll had asked you about whether you'd
13	seen free product in that what is now an above-ground
14	line tank from the dehydrator. Do you recall that
15	question?
16	A. Yes, I do.
17	Q. And you said that there was I believe you said
18	there was probably there was free product in there?
19	A. Free product that we had put in. I know of that.
20	I know, because we were pumping it, we were gauging our
21	drum
22	Q. Well, that's what I want to clarify, is where
23	that free product came from. Did come from the dehydrator
24	or
25	A. No, it came from our product-recovery well, MW-6.

1	Q. Okay, and that's the remediation facility that
2	you had operating at this site?
3	A. That is correct.
4	Q. Okay. I wanted to ask a bit about Mr. Carr
5	asked you about, PNM could have done this, could have done
6	that, and went through a litany of things that PNM could
7	have done, I guess, to perform remediation out here.
8	But let me ask, with respect to the operations at
9	this site, does PNM have any control over current site
10	operations or any operations since June of 1995?
11	A. No, we do not.
12	Q. Did PNM simply go in and start taking out
13	equipment and shutting down wells to do remediation?
14	A. No. You know, again, we're following OCD Order
15	7940 and following OCD directive. So when we go out on
16	site, we inform the switcher, the operators, you know, what
17	we're doing.
18	Q. Is there a limitation as to what you can do
19	without getting permission from the site owners and
20	operators?
21	A. Absolutely, we work with them all the time and
22	let them know this is what we want to do, you know, this is
23	what we would need from you, et cetera.
24	Q. You were asked about what approach PNM would take
25	with regard to the remediation that's going on out there,

1	conducted by Burlington. Mr. Carr asked you that. And I
2	wanted to find out from you, you've been out on the site;
3	is that correct?
4	A. Yes, I have.
5	Q. And can you give me your assessment of what's
6	going on out there with regard to how Burlington is
7	handling this issue?
8	A. As I indicated in my prior testimony, they had a
9	bulldozer essentially excavating in the area of our former
10	pit. A lot of soil is being removed.
11	The excavator essentially goes back and forth
12	across the site. It's very hard to profile walls to
13	delineate any kind of contaminant trailings. There's an
14	overburden being mixed with contaminated soil, at least
15	initially, because of the essentially smearing with the
16	dozer.
17	So it moves a lot of soil, there's no question
18	about it. But it doesn't delineate, you know, what is
19	occurring subsurface very clearly.
20	Q. That's what I wanted to ask. What impact does
21	that type of activity have on the ability to really trace
22	where sources might have originated?
23	A. It mixes soils, whether they're clean or not,
24	mixes clean with contaminated soil, and so you can't gauge
25	depth and what is occurring at each depth.

And again, it mixes the soil, so you don't get a 1 really true picture of the geology that's occurring, or 2 that is being encountered. 3 One of the issues also had to do with why PNM 4 0. didn't go in and start cleaning up, one of the guestions 5 that Mr. Carr raised. 6 If there is a continuing source upgradient and 7 8 PNM initiates remediation downgradient, how effective is 9 that remediation going to be? 10 Α. It's not very effective, just based on what we've 11 seen, the fact that we still have two feet of product at 12 MW-6 and have not seen a downward trend in that for several 13 months. 14 MR. ALVIDREZ: That's all the questions I have. 15 MR. CARR: I have just a couple. 16 EXAMINER ASHLEY: Mr. Carr? 17 **RECROSS-EXAMINATION** BY MR. CARR: 18 19 ο. Ms. Gannon, you understand that the work at the 20 site that's being done at this time by Burlington is being 21 monitored by the OCD? 22 I was not aware of that. Α. 23 Q. That they have been at the site --24 I know they've been out there, yes, for --Α. 25 You're also aware they could stop this work if Q.

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1	they felt it was inappropriate; is that correct?
2	A. I'm sure that's their opinion and their
3	directive, yes.
4	Q. Now, when you were scoring who's done what out
5	there, the score was 8 to 2. Could you tell me what we did
6	to get two points.
7	A. You installed MW-9 and -10.
8	Q. Nine and 10. If we agree to share the costs,
9	say, in MW-8, we don't get a half point for that?
10	A. It was a verbal agreement, again, and as I said,
11	we're I'm not denying there wasn't cooperation.
12	Q. And so we get two points there for two of the
13	monitor wells.
14	Did you give us any points for digging the
15	containment trench across the northwestern portion of
16	right off the northwestern edge of the site when the free
17	flow was discovered?
18	A. I'm not scoring the site.
19	Q. We didn't get any score for the remediation pit
20	that or that we did at the pit in the southeast of the
21	site, did we?
22	A. Again, I'm not scoring the site.
23	Q. We didn't get any score for going out and
24	remediating the site today, did we?
25	A. Again, I'm not scoring the site.

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1	MR. CARR: That's all I have.
2	EXAMINER ASHLEY: Mr. Carroll?
3	MR. CARROLL: Just a couple of questions.
4	FURTHER EXAMINATION
5	BY MR. CARROLL:
6	Q. Ms. Gannon, if I could direct your attention to
7	that September 1st directive from Bill Olson to you, did
8	PNM conduct any additional investigations, as required by
9	that September 1st directive?
10	A. Well, the directive is not specific. We
11	continued to do monitoring, yeah.
12	Q. You continued to do what you were doing, but you
13	didn't do anything in addition?
14	A. Right.
15	Q. You declined to
16	A. We did not decline, we Again, we tried to
17	enter into a joint agreement with Burlington, and it was
18	unsuccessful.
19	Q. And then when PNM requested from the Division a
20	letter saying even if we perform additional work, we will
21	not hold that, of course, against you as evidence at the
22	hearing, no additional work was performed after that letter
23	was sent either?
24	A. Again, after this letter I made several attempts
25	to reach the landowner. We were moving forward. The

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breakdown occurred with the cost-sharing agreement, but PNM 1 2 was continuing to do work out there. But no additional investigations were done? ο. 3 We were unsuccessful in obtaining landowner 4 Α. He was out of the state for several weeks. 5 permission. Did any party perform additional investigations? 6 0. Yes, Burlington conducted excavation -- It wasn't 7 Α. 8 necessarily -- Oh, I'm sorry, yes, they did install the 9 downgradient well. 10 MR. CARROLL: That's all I have. 11 MR. ALVIDREZ: One -- Oh. EXAMINER ASHLEY: Go ahead, Mr. Alvidrez. 12 13 MR. ALVIDREZ: One last question. 14 FURTHER EXAMINATION 15 BY MR. ALVIDREZ: 16 After the September 1st letter, did you ever Q. 17 receive any additional correspondence from the OCD telling 18 you you weren't doing what they wanted you to do? 19 Α. No, I did not. 20 EXAMINER ASHLEY: Anything further? 21 MR. CARR: No. 22 EXAMINER ASHLEY: This witness may be excused. Mr. Alvidrez? 23 MR. ALVIDREZ: We call Mark Sikelianos to the 24 stand. 25

1	MARK J. SIKELIANOS,
2	the witness herein, after having been first duly sworn upon
3	his oath, was examined and testified as follows:
4	DIRECT EXAMINATION
5	BY MR. ALVIDREZ:
6	Q. Good morning, Mr. Sikelianos.
7	A. Good morning.
8	Q. Would you state your name for the record?
9	A. My name is Mark J. Sikelianos.
10	Q. And where are you employed?
11	A. With PNM, in their Environmental Services
12	Department.
13	Q. And what's your position with PNM?
14	A. I'm a technician 3.
15	Q. And can you tell me what your job duties are as a
16	technician 3?
17	A. Right now, I'm currently overseeing all of the
18	groundwater sites that we have, the 30 groundwater sites
19	that we've discussed, installing monitor wells, doing
20	quarterly coordinating the quarterly monitoring,
21	collecting data, sampling them, surveying them, doing data
22	collection and reporting, also some quality assurance on
23	the overall project, overseeing some of the pit excavation
24	work that's going on.
25	Q. How long have you been in this position?

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As an employee of PNM, almost two years. As a 1 Α. contractor prior, I worked on the project approximately two 2 years prior to that, in the early site-assessment stages of 3 the project. 4 So you've been involved with the pit-remediation 5 ο. process now for four years? 6 7 A little less than four years, that's correct. Α. 8 **Q**. A little less than four years? 9 And can you tell me what experience you've had on 10 this particular site, Hampton 4M site? 11 Α. I first found out about this site, I believe it 12 was December of 1996. One of the technicians called us up 13 and said, Well, you know what, I was doing some verticalextent drilling out here, and we found what we thought was 14 product on top of the water table. 15 And I said, Well, that's kind of strange. 16 17 So in December we went out and verified with the clear disposable bailer in what would be MW-2 -- MW-2 is in 18 19 the center of the former pit. And we verified that, yes, 20 there was a lot of free product in there. 21 So we came back and gauged it with an interphase probe to determine the amount of free product, and there 22 23 was 4.7 feet of free product. So we were really surprised and concerned. This was not normal. We hadn't found this 24 25 at any other site.

Let me back up a little bit and talk a little bit 1 0. more about your experience at the site, really in more 2 general terms, how many times you've been out there, what 3 4 types of things you've been doing at this site? Oh, I've been there -- hard to say, 20, 30 times. 5 Α. I've done guarterly monitoring there three or four times. 6 7 Every time there was some type of major site activity, I tried to be present there. 8 I've done hand augurings down the wash, installed 9 10 most of the wells that are there, gauging all of them, trying to look over the equipment and just figure out any 11 type of rhyme or reason where the product's coming from, 12 13 what's going on. Can you tell us a bit about your education? 14 0. I have an associate's degree in petroleum 15 Α. 16 production technology from Eastern New Mexico University. 17 I'm a Certified Scientist with the NMED Underground Storage Tank Bureau, I have a GS-29 technical specialty with the 18 19 State for installation of groundwater remediation systems, I've been to numerous short courses, I've been -- I worked 20 21 for Geoscience Consultants for seven years prior to coming 22 here, to PNM, and I have about four years' experience 23 working for geotechnical outfits, Fox and Associates, 24 Vineyard and Associates, the State Highway Department, worked in soils labs and such. 25

You talked about certification from the STATE 1 0. with regard to USTs. What does that certification entail? 2 Well the UST Bureau likes to see somebody that's 3 Α. competent overseeing groundwater sites, particularly where 4 there is product involved. They want somebody that they 5 6 feel has a good, sound idea of what's going on, on site, a 7 lot of the basic knowledge. So they require you to have 8 that, I believe, now, under their program. And you have that certification? 9 Q. 10 Α. Yes. And does that deal with groundwater remediation? 11 Q. Yes. 12 Α. And have you been involved in groundwater 13 Q. remediation with regard to leaking underground storage 14 tanks? 15 16 Yes, I have. I oversaw -- there were -- In Α. 17 Belen, New Mexico, there were three different gas stations 18 that all had leaking underground storage tanks. We 19 installed the wells there, the remediation system, worked 20 on remediation systems at Diamond Shamrock, worked on a 21 remediation system down at the Lea plant in Hobbs, worked at different oil facilities all over the state, doing 22 23 quarterly monitoring, not -- maybe two or three different 24 large-scale remediation systems. 25 Q. When we talk about underground storage tanks, are

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1	we generally talking about gasoline?
2	A. Yes, very similar to drip or condensate, what
3	we're seeing here.
4	Q. Yeah, that's what I was going to ask. How
5	similar or dissimilar is that to what we're talking about
6	when we talk about free product?
7	A. I would consider them the same.
8	Q. In terms of the way the materials move in the
9	soils, in the groundwater, is there any difference?
10	A. No, I wouldn't think so. There may be some more
11	paraffinics in the natural oil production, but other than
12	that, no.
13	Q. In terms of how you might design a remediation
14	plant to address contamination in soil and groundwater
15	between the two, is there really much difference?
16	A. No, the main objective is to get rid of that
17	free-phase product, or Until you do that, you're not
18	going to accomplish anything.
19	Q. Okay. We talked a little bit about your
20	involvement with the Hampton
21	MR. ALVIDREZ: Well, first, let me tender this
22	witness as an expert with regard to groundwater
23	contamination and remediation.
24	EXAMINER ASHLEY: Mr. Sikelianos is so qualified.
25	Q. (By Mr. Alvidrez) Mr. Sikelianos, let's look

at -- I believe it's PNM Exhibit -- I don't remember; it's 1 3 or 4. Actually, it's 5. Let's talk about PNM Exhibit 5 2 a bit, and what I'd like for you to do for us, if you can, 3 is kind of describe the general layout in terms of the 4 5 equipment that is there. When I first showed up at the site -- I mean --6 Α. And this is very similar to what was going on. There was a 7 commingled site, there was a Mesaverde and Dakota dual-8 completion well, two formations, and PNM did have two 9 10 dehydrators here. The original pit was here. There was a 11 tank battery that Burlington had on this end, the southeast 12 end of the location. 13 This actually is not very correct. The actual --There was a small, little 500-gallon stock tank in this 14 area, and there was also a small 500-gallon stock tank in 15 16 this area here. But it's pretty close. These tanks may 17 have gotten a little bit closer together. 18 Would you like me to just go on, on how I became involved with this site or --19 20 Q. Right, right. So initially, when I -- I believe it was in 21 Α. January, the end of January of 1997, we -- I think as 22 23 Maureen has stated, we decided to put two more wells to try to figure out which way the groundwater direction was 24 25 going, so we installed MW-4 and MW-3.

And we did suspect something upgrade with some of 1 the visual things we had seen on site. This tank here, one 2 of the valves had a slow drip that was leaking here, the 3 tankage was very small. And when this was blowing down 4 there was evidence of contaminated visual soil in this area 5 here, so --6 When you're talking about "this area", where are 7 0. 8 you talking about on --9 Α. I'm sorry. 10 ο. -- Exhibit 5? 11 Α. The old tank battery location, or what is now the Burlington excavation that was conducted with the bulldozer 12 on the southeast end of the well pad. 13 And -- Okay. And then the other site that you 14 0. 15 were talking about? 16 It's the present location for their production Α. 17 unit or separator unit where their fluids are in a lined 18 tank. That would be about the center of the south end of 19 the well pad. What did you see at that location? 20 0. Right here, well, when the separators were blown 21 Α. 22 down, they were blown down with a lot of force. There was visual contamination, at least on the surface of the soil, 23 all around this area. 24 25 This particular tank right here, I believe one of

1	the valves or one of the fittings had a slow drip. A
2	little small stock tank that was right here, the water
3	knockout of the tank batteries, pretty small. There was,
4	you know, some visual evidence there.
5	As a matter of fact, as I recall, we had a
6	meeting on site shortly after that. Denny Foust was there,
7	the OCD was there, Burlington and Craig Bock was there.
8	And I believe there was a letter actually addressing
9	Burlington to do something about the tankage there and the
10	problems that were going on.
11	Q. Did you see evidence that product or
12	contamination had gotten onto the ground?
13	A. At least just at the surface. I mean, it was
14	very visual, that was the contamination.
15	Q. Okay. Were you present when Burlington was
16	performing the excavation that's down in the southeast
17	portion of the well pad as depicted on Exhibit 5?
18	A. Yes, I was.
19	Q. Can you tell me what you saw?
20	A. They had a It was the same type of thing.
21	There is a hard sandstone layer outcropping from the east
22	side here. So if they cut it and were ripping through it,
23	they're ripping out chunks of sandstone. And to be honest,
24	I can't tell you the exact depth where they were
25	encountering it, but I visually walked over, you know,

picked up a piece of sandstone, break it open, and there 1 was contamination. There was no doubt about that. 2 When you say there was contamination, what kind 3 Q. of contamination was it? 4 Hydrocarbon contamination, BTEX contamination, 5 Α. benzene, toluene... 6 All right. What else did you observe during that 7 ο. excavation? 8 I mean, that was about it. I think it was kind 9 Α. of inconclusive. The thing that I really noted is, this 10 excavation did not go far enough where I think this actual 11 12 tank was right here. And what I've seen also over time at this site is 13 that there is a -- depending on the water levels at 14 15 different times, you will see a sheen, a source of 16 contamination coming in from this corner here. Also when 17 you dig, right at the water interface, there's black contaminated soil here. 18 19 So I feel like this excavation was very small. Ι 20 mean, I know for a fact that the old tank was right in this area, so I feel like they did not go enough to the north or 21 22 to the east to address contamination in that area. 23 ο. I think we have a better exhibit, better photograph of excavated area. I believe it's PNM Exhibit 24 25 18. It should be there by the easel?

1	A. Is it the small
2	Q. Yes, the smaller one. I believe it's up by the
3	easel.
4	Can you tell the Hearing Examiner what you were
5	seeing in this excavation?
6	A. It's the same description. I mean, it's hard to
7	get a picture of it here. I believe this would be the
8	north, northeastern corner of it. And I visit this site a
9	lot, and occasionally you will see rainbow moving across
10	the water table, and right here when I dug into it I
11	just recently, in July, collected a soil sample right here,
12	and there's still evidence of contamination above the OCD
13	guidelines or standards.
14	And what I believe is that, you know, although
15	they did address some of the contamination here, I believe
16	that there's a source here that was not addressed.
17	Q. You talked about rainbowing. What does that
18	mean?
19	A. When there's product on top of the water, you'll
20	see a sheen, effervescence, kind of a rainbow the way it
21	flows across on the top of the water.
22	Q. What does that suggest with regard to whether
23	there's a continuing source or not?
24	A. To me it suggests that there's still some type of
25	BTEX or benzene, dissolved some type of petroleum

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contamination. 1 Since Burlington has installed that excavation, **Q**. 2 the times you've been out there, has it always had water in 3 the bottom? 4 Α. Yes. 5 Do you have an opinion as to whether or not that Q. 6 7 excavation has reached the ground table, the groundwater? Α. Yes. 8 And is that your opinion, that it has? 9 Q. Well, I mean, it's clear. This is groundwater 10 Α. 11 here. I mean, every time I've been there, it has never 12 been dry. The water table fluctuates somewhat, not 13 greatly, but I believe that's really what's happening. When the water table comes up, the product is masked or 14 15 pushed into the formation. When the water table drops, you 16 will see the contamination come out. 17 Q. Let's -- Have you taken any samples of the water that's in Burlington's excavation? 18 19 Α. We have over time. Initially, it was above 20 standards, and more recently I was just -- Just in 21 November, just this -- I was just up there last week, and 22 their results show that they're below standards, the water, 23 the dissolved-phase contamination is below standards. Does that suggest that they're cleaning up this 24 Q. site? 25

1	A. It's been so open, exposed to the atmosphere and
2	the different conditions, you've got water going on. I
3	mean, it's not surprising there.
4	But I do not believe I still believe that
5	there is source that could affect I think if you could
6	go back a month from now, if the water table is lower and
7	see another sheen or another rainbow. It's exposed in area
8	to so much sunlight there, so it's not surprising that that
9	standing water there is could be clean.
10	Q. Does that exposure to sunlight and rain and what
11	have you tend to reduce the levels of hydrocarbons?
12	A. Yes. I mean, benzene is a very volatile
13	compound. I mean, if it's in a soil and you bury it in or
14	mix it, I mean, it's gone.
15	Q. In your opinion, is this pit or excavation that
16	Burlington has performed its work, is the work done there
17	complete?
18	A. No. Well, the main thing is, you go up in
19	October, after quarters and quarters of monitoring in
20	MW-4 and all of a sudden see .6 feet of product here. And
21	that confirms what all along we believe, that there's free
22	product up here.
23	Until you get the free product out here off of
24	the water table or figure out the source of it, remediating
25	soil or anything downgradient makes absolutely no sense.

Q. Let me ask you about that. If we look at the
operations where Burlington is operating, can you identify
for us where the potential sources of contamination are, in
your opinion?
A. The former tank battery I mean, we have been
doing a lot, trying to get records of mechanical integrity
tests, and we Okay, it could be coming from the
wellhead.
The best We've tried to get records from the
State, from the BLM, from Burlington. Okay, they give
records that, no, this well does not have any leak, it's
intact. I mean, we have to do that. We don't have any
records, we can't get records of it. So then we have to go
from there.
Well, obviously the product didn't come out of
the sky. We have some operations going here with the
combination units. It's lined, that hasn't been going
ongoing. So where else could it be coming from?
I mean, we've looked at the pipeline. There's a
large sandstone outcrop here to the east, so And there's
a pipeline also to the east, but that seems like that would
be a stretch to get it to come this direction.
So I mean, I would have to believe that it's
coming from the former tank-battery area, especially since
we're seeing all the way up here, on the upgradient side.

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1	There is a at least a five-foot slope and head between
2	here and here.
3	Q. You're talking about a five-foot slope
4	A. A head, a gradient of water, and water flows
5	downhill.
6	Q. I'd like you to look at PNM Exhibit 54, which is
7	in the book.
8	A. Fifty-four. I'm not having much luck with this
9	book.
10	Q. Very last exhibit, I believe.
11	A. Okay.
12	Q. There are two pages in there, and I want to focus
13	on the second page of that exhibit.
14	A. Yes, I'm looking at it.
15	Q. What's your understanding of where we got this?
16	A. This, to me, is kind of a plot or a I should
17	say it's a diagram showing where all of the dehydrators,
18	meter house, separator units, where the pits also the
19	way that they originally were on this site, prior to the
20	removal of the tank batteries and the dehydrators, prior to
21	commingling or prior to some of the investigations.
22	Q. Okay. Is this diagram upside or reversed?
23	A. Yes, it is, the north What normally is north
24	is up, is reversed.
25	Q. Okay. So in order to orient ourselves on this

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1	diagram to Exhibit 5, you have to turn it upside-down, in
2	fact?
3	A. Correct.
4	Q. Okay. What you had described a pit, a
5	discharge point on the north side of Burlington's tank
6	battery in your
7	A. When I was out there and I have notes showing
8	it or pictures there was a very small 500-gallon stock
9	tank which would have been right in this area.
10	But on this picture it depicts a blowdown pit
11	actually on the southern end of the tank battery. Now, I
12	never I have never seen that, but I mean, it's very
13	possible that there could have been another unlined
14	impoundment in that area, and that may be some of the
15	explanation where it's coming from.
16	Q. Now, there was some testing that was done in that
17	very southeast portion, in the vicinity of where the pit is
18	shown on Exhibit 54. I believe it was TPW-5 and -6.
19	A. I'm aware of those, yes.
20	Q. Okay. Do you recall what the findings were,
21	generally, with regard to TPW-5 and $-6?$
22	A. The dissolved phase of benzene Actually, all
23	the BTEX compounds were very, very high. I mean, the water
24	was basically saturated with hydrocarbon, very high
25	concentrations.

1	Q. Is that consistent with there having been an
2	unlined pit in that area?
3	A. It would be, yes.
4	Q. Are you aware of any remediation work that
5	Burlington has done in that area?
6	A. No, I am not. And I'm You know, as a matter
7	of fact, we've been I mean, this has been the whole
8	problem of the site, is trying to get something addressed
9	or going up, and without having to go out and put ten wells
10	upgradient to determine where it's coming from, that's what
11	we're up against.
12	Q. Okay. As I understand it, you've actually been
13	out on the site recently during Burlington's activities.
14	You can sit down, Mr. Sikelianos. Is that correct?
15	A. Yes.
16	Q. Can you tell me what you've observed with regard
17	to Burlington's activities on the site, the remediation
18	activities?
19	A. I'm trying to get the dates straight. But
20	approximately I think it was November 10th, PNM I
21	mean Burlington notified Ed Hasely notified me that they
22	were going to go ahead and come in, and they were going to
23	bulldoze, and they were going to clean up our former pit
24	and our former contamination here, and they were going to
25	do it with the bulldozer and just blade it away.

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So they brought a bulldozer, and they were 1 basically moving from -- it's kind of an east to 2 northwesterly direction across the site, just cutting and 3 cutting and cutting with the bulldozer, pushing the soil 4 5 out of the way, basically right on top of where our product 6 remediation system was, and MW-2, which was known to 7 contain at least two feet of free product. 8 0. Did you have an opportunity to observe what type 9 of marking or landmarking procedures they were using? 10 Α. It was very hard to see what was going on at the 11 site. I mean, we lost our landmarks early on. The Williams above-ground lined tank was removed, the 12 dehydrator was removed, the meter house was removed, the 13 lines between the dehydrators and the separators were 14 removed, they were tested, there was no evidence of any 15 leakage there, visually. The line actually -- the two-inch 16 17 line all the way down to the pipeline on the northern end 18 of the pad was cut out. 19 The only really markers that we had were where 20 the cathodic protection -- actually, this cathodic -- This 21 isn't accurate. The cathodic protection was probably right here, next to MW-9. 22

23 So that's really our only reference point that we 24 have left. We had a 45-degree two-inch pipe that sticking 25 up right at the meter-house connection, and that's since

1	been removed. But very hard to see what was going on.
2	I mean, the way that the bulldozer moved, we were
3	trying to take elevations, at best, I would say they were
4	one to within plus or minus one to two feet, as far as
5	the level that we were at in the excavation.
6	Q. That's really what I'm getting at. I mean, the
7	work that was being done, how easy would it be to really
8	make any determinations with regard to what things that
9	were happening at various levels, the way Burlington was
10	doing?
11	A. Below surface it was very hard. We'd hit a
12	contaminated what we thought was a contaminated area. I
13	think we found what I believe was the bottom of our former
14	pit at approximately 13 to 14 feet.
15	Q. Okay, and why do you say that was the bottom of
16	the
17	A. Because there was a black band of contaminated
18	soil probably about a foot thick, and from all the
19	remediation, the pit that we have remediated, I mean that's
20	normally what you find. When you find the bottom, the
21	contamination, that's where The dissolved phase or the
22	liquid or the product usually will seek a level, and it
23	will be there over time. But as it starts to break down
24	you'll see some black color over time.
25	So I visually think that was the bottom our pit.

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1	Q. Okay. And did you observe what the soils
2	underneath the bottom of the pit
3	A. As I said, it was very hard to get an accurate
4	reading of what was going on. We had different PIDs. I
5	mean, it was so hot in the bottom of that excavation, the
6	photo-ionization detectors were just squawking, basically,
7	on ambient air. We took different readings. It was very
8	hard to determine exactly where that soil came from. But I
9	would say they were in the order of magnitude from 700
10	parts per million to 1500 parts per million, below that 14-
11	foot level.
12	Q. Would a better indicator of the various levels of
13	contamination be the soil borings that have been done in
14	that area?
15	A. I believe so. As a matter of fact, we did soil
16	borings, or Burlington did soil borings in this end of our
17	pit two weeks prior to that, same exact spot, same right
18	on top.
19	Q. You talked about the PIDs pegging or going off.
20	What are you talking about occurring?
21	A. They pick up any type of volatile organics, and
22	so it's hard I mean, you can't separate or distinguish
23	where it's coming from; it's going to pick up anything.
24	And when the excavation is open you have vapors coming up
25	from different areas, you've got soil being moved around.

1	It's very hard to get an accurate reading.
2	Q. Well, that's what I was going to Under those
3	circumstances where there's a lot of I guess a lot of
4	vapors in the air, can you is a PID a very reliable
5	indicator of levels in the soil?
6	A. It's just a tool that gives you a guide you
7	know, an area, plus or minus. It's not real I wouldn't
8	say it's accurate. It's a tool.
9	Q. All right. Once they got through that black area
10	which you believe is the bottom of the pit, did the soils
11	appear saturated there?
12	A. No, they were not.
13	Q. Is saturated soil something that you would
14	ordinarily see if the source for the free product was
15	coming from above that point?
16	A. I definitely believe that.
17	Q. With regard to the excavation, were you did
18	they ever strike water out there, where Burlington was
19	performing this latest excavation?
20	A. Well, the operations were centered or
21	concentrated right on top of where the walls were where
22	the I'm sorry, monitoring, recovery monitoring well, and
23	our the recovery well and our monitoring wells.
24	So as they cut down and cut down and cut down,
25	well, when they reached a level they had noted as 27

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1	feet, and like I said, at best that's iffy, plus or minus
2	two feet, but one or two feet hard to say where we
3	were they had product.
4	But that's not a surprise. I mean, we You
5	know, we had a monitoring well there, we knew where the
6	product was, so it's not surprising to see that we hit
7	product at that level, or water.
8	Q. Okay. Where was the water coming from?
9	A. It was coming It was actually, what I would
10	consider bubbling up.
11	Q. And what does that suggest to you, in terms of
12	water bubbling up?
13	A. There's a little bit of differential head or
14	pressure behind it, so it's coming It's not quite in
15	equilibrium, so you have a water column up above. I
16	wouldn't say that it's under a lot of pressure, but, you
17	know, the equilibrium of the water is going to come up to
18	some extent. And it did, over the weekend. It's going to
19	come into equilibrium and seek a stable elevation.
20	Q. Did you observe product in that water?
21	A. Yes, on top of it.
22	Q. You talked about the vapors that were in the
23	area. Where there any safety concerns that arise because
24	of that?
25	A. Oh, definitely. The concentrations were very,

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1	very high, and the dozer operator said, you know, I'm
2	concerned, the concentrations are high, I'm kind of getting
3	dizzy. So we looked at another way of trying to bring in
4	some of this health and safety.
5	Well, for example, we had a personal monitor, put
6	it on somebody for benzene. And all of the You're going
7	to pick up all volatile compounds on your photo-ionization
8	detector, so you can't distinguish benzene. But for
9	benzene there is a time-weighted average that you're
10	allowed in an eight-hour day. I'm just using this as kind
11	of an example of how bad it was. Within 30 minutes of
12	being down in the hole, the concentrations were, I think,
13	seven times above what the allowable is.
14	I mean, I myself also went in the hole, knowing
15	better, with my own PID. And just being down there for a
16	short instance, you know, I'm 1.5 or So I've already
17	exceeded what the TWA is for benzene in a very short amount
18	of time.
19	Q. Okay, you're talking about TWA
20	A. I'm sorry, it's
21	Q what does that mean?
22	A. That's the time-weighted average that OSHA
23	there's a standard There's a benzene standard that OSHA
24	allows you to be exposed to in a normal, average eight-hour
25	working day. And so if you exceed that you should probably

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get out of there. 1 I mean, you -- It's not a good idea to sit and 2 breathe benzene fumes for a long period of time. 3 Did you ever observe operations being curtailed 4 0. out there because of health issues or safety issues? 5 I believe on probably the third day of the 6 Α. excavation, the concentrations as we were approaching -- as 7 we got closer to the product where the soil was really 8 saturated, the concentrations were bad and they actually 9 ceased activities for that day because of that. 10 What about change of personnel in terms of 11 Q. training? 12 Α. We brought on site -- Ed Hasely called out --13 shut down the site, called out his site health and safety 14 supervisor, looked over the site, what to do. 15 They discussed that the following day they would have a health 16 and safety meeting, but they also needed an operator that 17 was 40-hour health-and-safety trained. 18 19 What is this 40-hour health and safety training? 0. 20 When you work in areas where there's known to be Α. contamination, you're required by OSHA to be 40-hour health 21 and safety -- which is haz- -- training. It's kind of a 22 basic overview of awareness of the hazards that are out in 23 the field. 24 Was that training something -- that type of 25 Q.

1	training something that the operators should have had
2	A. Yes.
3	Q before they ever started working out here?
4	A. Yes.
5	MR. ALVIDREZ: I don't have any other questions.
6	EXAMINER ASHLEY: Mr. Carr?
7	CROSS-EXAMINATION
8	BY MR. CARR:
9	Q. Mr. Sikelianos, if I understand your testimony
10	you have been testifying about contamination at this site
11	related to Burlington activity; is that fair?
12	A. Yes.
13	Q. You understand, don't you, that Burlington isn't
14	before this Division asking the Division to say it is not a
15	responsible party?
16	A. I understand that.
17	Q. You understand PNM is the only party asking for
18	that
19	A. Yes.
20	Q in this hearing?
21	Now, did I understand your testimony that the
22	last sample taken in this pit down in the southeast corner
23	was, in fact, below standards?
24	A. The water and the excavation was, yes.
25	Q. And that's the most recent sample we have?

1	A. Yes.
2	Q. Now, you also If I understand your testimony,
3	Burlington at the request of the OCD did go out and
4	excavate an area in the southeastern portion of this site;
5	is that right?
6	A. They have been asked to address upgradient
7	contamination, which is very vague, and so they did it to
8	some extent.
9	Q. And they Were you present when that took
10	place?
11	A. Yes.
12	Q. And the OCD was also present at the time of
13	that
14	A. Yes.
15	Q remediation?
16	And the OCD approved it, correct?
17	A. The OCD doesn't say one way or the other whether
18	they approve or not. If you're doing some action, it's
19	generally it's a good thing, but they don't direct you
20	how to do the work.
21	Q. Do they tell you that you've gotten deep enough
22	to get your pit clean at the bottom?
23	A. Nobody submitted for closure, and that's the
24	bottom line here, is that nobody is going to get closure as
25	long as there's contamination on site.

1	Q. And if you want to get rid of the contamination
2	on site, you would remediate the site, would you not?
3	A. Exactly.
4	Q. And one of the things objectives of
5	remediation will be to get water samples down below
6	standards, correct?
7	A. Correct.
8	Q. And your most recent sample has the water down at
9	that level, correct?
10	A. That's not Let me explain something.
11	Q. Wasn't that your testimony?
12	A. No.
13	Q. You so
14	A. I said of stagnant water in that pit When you
15	take a groundwater sample, you have to purge a certain
16	volume of water in order to get a representative sample of
17	what's going on in the aquifer. And to grab a sample of
18	what may be somewhat stagnant water is not representative,
19	no.
20	Q. Well, did you take that sample?
21	A. Yes, to try and get an indication You know, I
22	use that as a tool. But if I were to try and close that
23	pit as taking a sample like that, it wouldn't fly.
24	Q. Then I'm confused as to why you would come here
25	and testify about the results of a sample you have some

1 concern about how it was taken.

2	A. Because we are still trying to find out if there
3	is source going into here. I also testified that product
4	showed up here in October recently. So this suggests to
5	me, without being a rocket scientist, that there is product
6	right here.
7	Q. I'm not a rocket scientist either. But if you're
8	trying to find out where the contamination is coming from,
9	wouldn't you want to remediate the site, chase those leads
10	and find out where it comes from?
11	A. I would love it.
12	Q. And isn't that what Burlington is out there
13	trying to do right now?
14	A. Let me explain something. The breakdown has been
15	You guys don't want to get into the issues of
16	remediation. The breakdown has been on what's technically
17	possible, feasible, what is going to work. When you're
18	talking about doing soil removal, that's not going at the
19	source of the problem.
20	Q. Now, may I ask you something? Did you say
21	that You say, You guys don't want to get into
22	remediation. Do you mean Burlington? Is that who you
23	meant by "you guys"?
24	A. Okay, I'm sorry, yes, I should state that.
25	Q. Okay.

1	A. What I'm saying is, we're cooperating with
2	Burlington, but we disagree on the methods that will be
3	effective in cleaning up this site.
4	Q. But you're not out there doing it?
5	A. No, and I can't direct them how to do it.
6	Q. And your method of remediation has been free
7	product recovery in the middle of the site, correct?
8	A. Correct.
9	Q. And has that Does that ever enable you to find
10	out the source of the contamination?
11	A. No, but let me say something
12	Q. Well
13	A For every gallon of product that we remove off
14	of that water table, we are doing a lot of good. To go out
15	there and bring a pump truck and to pump one barrel out is
16	not very effective. And it would be nice if we could
17	theoretically put a pump or a straw down there and suck all
18	that product up, but it does not work that way.
19	Q. But if I understand your testimony, you have
20	testified that you don't believe Burlington wants to get
21	into remediation, correct?
22	A. They do not agree with us putting in monitoring-
23	well networks or putting in any type of product-removal
24	system.
25	Q. This is going to take a very long time if you
1	don't answer the question I ask. I'd ask you to
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2	A. Okay, I'm sorry. Repeat I'm sorry
3	Q. I'd ask you to do that.
4	A. Okay, I'm sorry, would you repeat it one more
5	time?
6	Q. My question was, did you testify that Burlington
7	did not want to get into the remediation at this site?
8	A. I'm not sure that I did testify. If I did, I
9	will rescind that.
10	Q. You will agree that Burlington is out there
11	attempting to remediate the site, will you not?
12	A. I will agree with that.
13	Q. And you will agree that PNM is not out there
14	conducting the remediation efforts that are underway now;
15	is that right?
16	A. That is true.
17	Q. And you would agree with me that to date PNM's
18	remediation effort has been one product-recovery well on
19	this site; is that right?
20	A. That's correct. And I would also like to enter
21	that that has been more effective than anything else done
22	at that site to date. As a matter of fact, it has been
23	very effective When you say just removing free product,
24	that's not insignificant; that's very significant.
25	Q. But that's never going to get the source, is it?

1	A. No, it is not.
2	Q. And without the source, you're never going to get
3	it remediated; isn't that right?
4	A. That's our contention, that's why we're here.
5	MR. CARR: And that's all the questions I have
6	for you.
7	EXAMINER ASHLEY: Mr. Carroll?
8	MR. CARROLL: No questions.
9	EXAMINER ASHLEY: Mr. Alvidrez?
10	REDIRECT EXAMINATION
11	BY MR. ALVIDREZ:
12	Q. I just wanted to clarify. You talked about
13	You were asked whether the only remediation that PNM had
14	done at this site was the recovery well, MW-6. Have there
15	been other remediation activities undertaken by PNM with
16	respect to the soils?
17	A. I mean, we remediate our pit early on, and like I
18	said, this is a very atypical site. We had no idea that
19	there would be groundwater, and to all of a sudden find
20	out, there's five feet of product underneath this pit, it's
21	like, Wow, what is going on at this site?
22	Q. Are the findings at the site with regard to the
23	level of free product unusual with respect to pit
24	remediation at a wellpad site?
25	A. Very unusual.

1	Q. Have you We've talked about the activities
2	that Burlington is doing with regard to the location of
3	PNM's former pit site. If there is a continuing source
4	upgradient, is that remediation going to be effective?
5	A. No, let me What I would like to point out is,
6	we remediate our pit, we put 20 feet of clean fill in here.
7	What is the point if product is flowing down here? You
8	need to attack it at the source, not attack it down here.
9	That doesn't do much.
10	And we have no This latest excavation has
11	shown visual product seeping in at a certain level, coming
12	in from upgradient.
13	Q. Okay.
14	A. So why would it make sense to excavate this,
15	clean it, remediate it and fill it with clean soil, when
16	you know you've got a problem up here.
17	Q. So would our approach be rather than coming in
18	and bulldozing out PNM's former pit site, if you really
19	wanted to remediate this, what would you do?
20	A. Remove the product.
21	Q. And where would you start looking to do that?
22	A. Well, now, since I know it is up here also, up
23	here also, I would want to start working in this area. I
24	mean, we don't have to only recover in this well; we could
25	recover product here.

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But we have to find where the source is. I mean, 1 finding the source is the biggest problem. We don't 2 know -- We've had different ideas, everybody's had 3 different -- Did it come in from the wellhead casing. Did 4 it come from here? If it came from here, why is it taking 5 so long to come out? I mean, we don't know where it's 6 7 coming from. In your opinion, would Burlington's efforts be 8 0. better focused on the southeastern portion of this site? 9 Yes, they would. 10 Α. MR. ALVIDREZ: I have no other questions. 11 EXAMINER ASHLEY: Mr. Carr? 12 MR. CARR: I have no further questions. 13 EXAMINER ASHLEY: Mr. Carroll? 14 MR. CARROLL: No questions. 15 EXAMINATION 16 BY EXAMINER ASHLEY: 17 Mr. Sikelianos, can you tell me the lateral 18 Q. extent of the free product at this time? 19 Downgrade -- Laterally, I'm not sure that I can 20 Α. tell you. 21 Can you tell me which wells have free product in 22 Q. 23 them? 24 Okay, MW-6 at the last gauging had 2.15 feet; Α. 25 MW-2 had approximately two feet; MW-10, 2 feet of free

1	product; MW-8 was as high it had .03 early on, and now
2	it's just a very small02 feet.
3	So something is going on there. I mean, the
4	water levels have recently come up in the last month; that
5	has something to do with it. MW-4 all of a sudden showed
6	0.63 feet of product, and now it's down to, I believe,
7	approximately .3 feet. Like I said, some of that's due to
8	water fluctuation. We've looked at the product, we've
9	tried to do And we're trying to figure out what are the
10	similarities, what are the dissimilarities?
11	Downgradient, the free product it doesn't
12	it only seems to be the dissolved phase that are actually
13	coming out of the hydrocarbon seep on the downgradient end
14	on the northern toe of the well pad. It only appears to be
15	dissolved phase.
16	I mean, we've also sampled the water of the
17	flowing seep here, and guess what? It's below standard.
18	But to me, that You know there's contamination there,
19	but it's being aerated, it's at the surface, the water is
20	flowing across there. So we don't see free product here.
21	So I mean, we believe that there is a large plume
22	at least between MW-6, MW-2 and MW-10, probably at least a
23	plume two feet thick upgradient. We don't know. We have
24	it as far as MW-8. Like I said, there is a four-foot
25	differential at least in head, in the hydraulic head,

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1	between the MW-4 and MW-2.
2	Q. MW-8 has free product in it?
3	A. Yes, it does.
4	Q. Has it always had free product in it?
5	A. When we drilled that well, there was high
6	concentrations of contamination in the soil. I believe we
7	noted a sheen as we were purging and developing that well.
8	And later on, I think within the first quarter of sampling
9	maybe it was two quarters, one or two quarters free
10	product showed up.
11	Q. What were the initial sample results from MW-4?
12	A. Dissolved phase of approximately 800 parts per
13	billion benzene. I mean, I usually refer to benzene, the
14	first
15	Q. Okay. Earlier, when you talked about the pit
16	that you excavated, you went down to the what you called
17	the black layer, and you stopped there?
18	A. This is the most recent activities that
19	Burlington is undergoing. And i'm just saying as they were
20	cutting across, I just noted that there was a band at
21	approximately the 13- to 14-foot interval, which to me
22	appeared to be which would have looked like it came from
23	our former pit.
24	Q. That's excavation that Burlington did?
25	A. Yes.

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1	Q. When you initially excavated the pit, how deep
2	did you go?
3	A. See, and I was not part of that original thing,
4	but looking at the field notes, they went to 11 or 12 feet.
5	They established a clean wall on the south end of the
6	excavation, on the east end of the excavation and on the
7	East and west and south were clean. The north wall was
8	still hot. In the bottom of the excavation they left
9	laboratory analysis of like 600 on total BTEX, I believe.
10	I would have to look up the exact numbers. With the PID
11	there was approximately 1200 ppm left. That was the final
12	reading in the bottom of the excavation.
13	Q. And that was approximately 11 feet
14	A. Yes.
15	Q is that what you said?
16	A. Eleven to 12 feet. I think there was some slope
17	to it. It was pretty close.
18	Q. And tell me again, how deep did Burlington go to
19	this black layer that you're talking about?
20	A. Approximately 13 We shot it in as 14 feet. We
21	were taking different readings. It was very hard to get an
22	accurate level of wellpad level, to where they were at.
23	So I'm guessing 13, 14 feet, somewhere in that area.
24	Q. Earlier it was testified that the reason that you
25	stopped at 11 to 12 feet is because was it there was

a hard layer that you stopped at? 1 I believe -- I was not there. From what I've 2 Α. seen, there is a layer of sandstone, it's nonimpervious, 3 it's -- whether they could get it with the equipment or not 4 that they had present at that location I can't say for 5 6 sure. 7 But they documented that there was contamination 8 left in place, and that was the whole reason to go out and 9 do a vertical profile and a vertical extent. We were trying to find the vertical depth of the contamination to 10 see if we have -- it cleaned up or not. 11 Okay. A question about the hydrocarbon seep. 12 0. 13 You said there's -- that's actually a water seep and the 14 hydrocarbons -- dissolved-base --15 Α. Yes. 16 0. -- hydrocarbon? 17 Yes. Α. 18 Has that water seep always been there? Q. 19 I am not positive of that. When -- I think -- We Α. 20 had early-on meetings at the site, we were very concerned 21 that there was -- We invited the OCD, or we discussed 22 things with the OCD. They showed -- As a matter of fact, I 23 believe it was Bill Olson that said, You have four feet of 24 product here; I would imagine that it's coming out of the 25 toe here somewhere.

And so shortly after that when Burlington came 1 out and did their little trenching and kind of an 2 investigation downgradient, that's when they found out 3 that, in fact, some -- some of the hydrocarbon 4 5 contamination was weeping out at that level there. 6 But as far as in the early assessments, I don't 7 know that anybody ever actually went down that wash. Ι 8 mean, it was an area where we didn't think that there was 9 any groundwater around there. I can't say how long that that's even been going. 10 11 Since I did notice, ever since they brought it to our 12 attention, it's been flowing year-round. 13 Q. Okay, and how much free product is still existing 14 up under your former pit at this time? I'm not sure about -- I haven't done estimates. 15 Α. 16 Somebody else -- I could defer to somebody else on that. 17 But for a fact, there is two feet of free product here, two 18 feet of free product here, two feet of free product here. 19 And so initially -- I mean, one thing -- one 20 thing of doing this with the free -- with the product-21 recovery pump is, we don't know how much is in the 22 sandstone formation. So at least by removing it -- You can 23 only take it out as fast as it comes in. 24 What we have right now is, it's cycling to pump 25 three times a day. We're only getting like three gallons a

1	day. You know, it would be nice if we could stick a pump
2	down there and suck it all out at once, but, you know, it
3	doesn't work that way. So I'm sorry, I'm not sure if I
4	answered I kind of lost my train of thought, but I'm not
5	sure what the question was again.
6	EXAMINER ASHLEY: No, that's okay. That was
7	good.
8	Okay, I have no further questions. You may be
9	excused.
10	MR. ALVIDREZ: May I just ask a couple of follow-
11	up questions
12	EXAMINER ASHLEY: That's fine.
13	MR. ALVIDREZ: to your examination?
14	EXAMINER ASHLEY: Okay.
15	FURTHER EXAMINATION
16	BY MR. ALVIDREZ:
17	Q. Mr. Sikelianos, you were talking about the
18	results of Burlington's excavation under questioning from
19	the Hearing Examiner and described the walls that were hot.
20	I think you described the north wall as hot.
21	A. The Burlington excavation?
22	Q. Right.
23	A. I would have to defer to the repor I can't
24	I'm sorry, I can't remember off the top of my head.
25	Q. Okay. Well, let me change the line of

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questioning and just ask, you were asked some questions 1 about the seep. What is the status of that seep now, with 2 Burlington's most recent activities? 3 I have not been to this site, probably -- in this 4 Α. last week, so I'm not sure exactly what's going on. 5 There's a lot of soil staged up above it. To my knowledge, 6 it's been pushed over with soil. I mean, there's a huge 7 amount of stockpiled soil in this area. 8 And finally, you were asked about some levels of 9 Q. free product underneath PNM's former pit area. Let me ask, 10 just because there's free product under that area, does 11 that mean that free product originated from PNM's pit? 12 No, essentially when we're recovering product and 13 Α. the product -- We're pulling it in, we're making a path, 14 we're giving it a conduit. We've established that. We're 15 16 trying to pull it in. The reason we put the recovery 17 system there is because that's where the highest volume 18 that we knew was. I mean, and so anything that's right there, we're pulling it in, and that's the best place to 19 20 remove. That doesn't necessarily mean -- you know, going 21 from the south end of the well pad to the north, that 22 23 that's the way the water flows, and so the product follows it on top of it, just like the water. 24 25 Well, you talked about "we're pulling it Q. Okay.

1	in". You were talking about the recovery wells pulling it
2	in?
3	A. Yes.
4	Q. And sucking it in, really, kind of like a straw,
5	isn't it?
6	A. Exactly, but it happens slowly. It doesn't occur
7	immediately, instantaneously.
8	For example, that pump will pump, let's say, for
9	one or two minutes, and then that's it, that's all the
10	product you're going to get. So you have to let it
11	stabilize, go back into equilibrium, seep back in slowly,
12	seeps in slowly.
13	Q. Well, let's go back to the time before any
14	recovery well was put in there, and I've asked you the
15	question, just because there's free product located under
16	PNM's former pit site, does that mean that the free product
17	originated from PNM's pit?
18	A. No.
19	MR. ALVIDREZ: That's all the questions I've got.
20	EXAMINER ASHLEY: Okay, this witness may be
21	excused.
22	We'll take a 15-minute recess, and the hearing
23	will reconvene at five after ten.
24	(Thereupon, a recess was taken at 9:50 a.m.)
25	(The following proceedings had at 10:05 a.m.)

1	EXAMINER ASHLEY: This hearing will now come back
2	to order.
3	Mr. Alvidrez?
4	MR. ALVIDREZ: Yes, we would call Valda Terauds
5	as our next witness.
6	Proceed?
7	EXAMINER ASHLEY: Mr. Alvidrez?
8	VALDA I. TERAUDS,
9	the witness herein, after having been first duly sworn upon
10	her oath, was examined and testified as follows:
11	DIRECT EXAMINATION
12	BY MR. ALVIDREZ:
13	Q. Ms. Terauds, would you please state your name for
14	the record?
15	A. Valda I. Terauds.
16	Q. And where are you employed?
17	A. Mission Research Corporation.
18	Q. And how long have you been with Mission Research?
19	A. Since October of this year.
20	Q. And prior to working Well, what's your
21	position with Mission Research?
22	A. I'm a senior scientist.
23	Q. Okay, and what are your duties as a senior
24	scientist?
25	A. I look at groundwater and soil contamination

1	sites. I'm working primarily on CERCLA and RCRA sites, in
2	addition to the work here for PNM. That's a continuation
3	of work I've done for the past three years as a contractor
4	to PNM, and a few years prior to that also a contractor
5	under Geoscience Consultants.
6	Q. All right. You talked about CERCLA sites.
7	What's a CERCLA site?
8	A. They're Superfund sites that are fairly large in
9	scale. There are typically many responsible parties. A
10	lot of times you're trying to sort out who is responsible
11	for what degree of contamination.
12	Q. Okay, does that involve groundwater
13	contamination?
14	A. Yes.
15	Q. And what about RCRA sites?
16	A. RCRA sites are active facilities, and you're
17	looking at compliance and soil and groundwater
18	contamination issues there. And you have one responsible
19	party, in most cases, at a RCRA site.
20	Q. Why is that? Is that
21	A. It's an active facility that's still in business.
22	Q. So there's only one person or one entity that
23	actually
24	A. Yes.
25	Q created the problem

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1	Α.	Yes.
2	Q.	in the typical case?
3	Α.	Yes
4	Q.	Is that correct?
5	А.	that's correct.
6	Q.	Okay. Prior to working for Mission Research, who
7	did you w	ork for?
8	Α.	Environmental Services, Inc., for one year.
9	Q.	And what was your position with Is it called
10	ESI commo	nly?
11	Α.	Yes.
12	Q.	And what was your position with ESI?
13	Α.	I was a hydrologist.
14	Q.	Okay. And what were your job duties as a
15	hydrologi	st?
16	Α.	I was primarily a contractor at PNM, full 40
17	hours a w	eek at PNM, working on the Gas Assets Project,
18	which inc	ludes the Hampton 4M groundwater site. In
19	addition,	I worked on the Santa Fe Generating Station and
20	Person Ge	nerating Station sites.
21	Q.	Are these all groundwater sites?
22	А.	Yes.
23	Q.	What does a hydrologist do?
24	Α.	A hydrologist looks at groundwater occurrence,
25	quality, o	contamination and remediation.

1	Q. With regard to your work history prior to working
2	for ESI, who did you work for?
3	A. I worked for myself in a company that I
4	established, Enhanced Solutions, for two years. And prior
5	to that I was with Geoscience Consultants for six years.
6	Prior to that, Jacobs Engineering, two years; and Woodward
7	Clyde, two years.
8	Q. And through the years that you've been involved
9	with the companies you've just listed, what has been the
10	focus of your work?
11	A. All of it has been involving soil and groundwater
12	contamination, fate and transport assessments, remediation,
13	bioremediation, natural attenuation, free-product recovery.
14	Q. You used the phase "fate and transport". What
15	does that mean?
16	A. Establishing how contaminants, once they get into
17	the environment, how they move, how they behave, how they
18	change. And knowing how they move, you can then best
19	decide how to manage them, whether it's through
20	remediation, whether it's through the use of natural
21	processes that are already at work. Pretty much describing
22	movement in the subsurface.
23	Q. How many projects have you worked on where the
24	issue of groundwater contamination has been the main focus?
25	A. I'd say over 80 percent of the sites that I've

1	dealt with have had groundwater impacts.
2	Q. Okay. And you're not talking about 80 percent of
3	PNM's projects, are you?
4	A. No.
5	Q. Okay, you're talking about just in general, in
6	your
7	A. In my career.
8	Q. About how many sites are we talking about?
9	A. I actually had to count them up for one other
10	reason at Mission Research, and it's in excess of 170
11	sites.
12	Q. Okay. And does part of your work also involve
13	the design of remediation strategies?
14	A. Yes.
15	Q. I'd like to ask a bit about your experience in
16	the San Juan Basin area. Have you any experience up there?
17	A. Yes, I've worked at the Bloomfield Refinery site,
18	underground storage tank sites in the Farmington and Aztec
19	areas, in addition to the groundwater sites identified
20	under the PNM Gas Assets Remediation Program.
21	Q. Have you ever testified in any type of proceeding
22	or deposition?
23	A. I've given depositions in several cases, most
24	recently AT&SF and their insurance companies. It was in
25	March of this year. Prior to that, the Texaco 2-2

1	Superfund site, which is a Region 2 Superfund site, in St.
2	Thomas, Virgin Islands. And then prior to that, Cotton
3	Butane versus Ranger Insurance in Lea County, New Mexico.
4	Q. And was that testimony given in the context of
5	expert testimony?
6	A. Yes, it was.
7	Q. And on what subject?
8	A. On groundwater remediation, groundwater movement
9	and the fate and transport of contaminants.
10	Q. And can you tell us a little bit about your
11	educational background?
12	A. Yes, I have a bachelor's degree in biochemistry
13	from Catholic University, granted in 1982, then a master's
14	degree in groundwater hydrology from New Mexico Tech,
15	granted in 1985.
16	MR. ALVIDREZ: Okay. Mr. Hearing Examiner, I
17	would tender this witness as an expert witness on
18	groundwater contamination and remediation, fate and
19	transport.
20	EXAMINER ASHLEY: Ms. Terauds is so qualified.
21	Q. (By Mr. Alvidrez) Ms. Terauds, I'd like to ask
22	when your first involvement with the Hampton 4M well site
23	occurred?
24	A. I believe I was aware that we had encountered
25	groundwater, taken a sample and submitted notification to

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1	OCD that we had yet another groundwater site, but I was not
2	asked to actively get involved until the hydrocarbon seep
3	was discovered by Burlington and identified to OCD.
4	Q. Okay. And what was the reason for your
5	involvement?
6	A. The presence of product and the hydrocarbon seep
7	raised a concern for downgradient groundwater
8	contamination.
9	Q. Okay. And what are your responsibilities with
10	regard to the Hampton 4M site?
11	A. I've done primarily data analysis, which is
12	evaluation of the groundwater flow regime, the distribution
13	of free product and dissolved-phase in the subsurface.
14	I've looked at the site in plan view and cross-section to
15	try and elucidate where the product might be originating
16	and how it might be moving, where it might be likely to
17	accumulate.
18	And then also I've evaluated the operation of the
19	free-product recovery system in Monitoring Well 6, and I've
20	also looked at the Hampton 4M well production records, just
21	in a cursory form, of whether or not there were any
22	anomalies there. And Mr. Heath has already testified to
23	some of the anomalies identified.
24	Q. Okay. What Have you ever been out on the site
25	personally?

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1	A. Yes, I have.
2	Q. About how many times?
3	A. Approximately three, I believe.
4	Q. Okay, and what type of what data have you
5	reviewed in connection with the work that you've done at
6	this site?
7	A. I've reviewed the data that's been generated by
8	PNM during the course of their investigative work, soil-
9	boring records, monitoring-well-installation records,
10	ground water quality analyses, soil analyses, I've looked
11	at video, still photographs of both work done by PNM and
12	Burlington, and then I've prepared a lot of the exhibits
13	that we're going to see today, pertaining to the
14	distribution of contaminants.
15	Q. There's been quite a bit of testimony already
16	and I believe you've been in the hearing room; is that
17	correct?
18	A. Yes.
19	Q with regard to the testimony that has been
20	presented concerning the work that PNM has done at this
21	site and that Burlington has done at this site as well. Is
22	that the material that you have reviewed or
23	A. Yes.
24	Q. You've reviewed all that material that was
25	referred to?

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1	A. Yes.
2	Q. Okay. With regard to your analysis of this site,
3	did you come to any conclusions about groundwater flow at
4	this site?
5	A. Yes, I've been looking at groundwater flow since
6	the time we've installed wells and
7	Q. I'm going to ask if you've prepared an exhibit
8	that illustrates this.
9	A. Yes, sorry, anticipating here.
10	Q. Okay. And for the record we're referring to the
11	aerial photograph that's been marked as Exhibit 3, I
12	believe
13	A. Exhibit 3 and
14	Q and the overlay?
15	A the overlay is Exhibit 6.
16	Q. All right.
17	A. And this overlay depicts groundwater elevations
18	for July, 1998. Just to orient
19	Q. Why don't you tell us what all the lines are
20	representing and the various points there?
21	A. All right. Monitoring Well 1 is the southernmost
22	and upgradient well at this location. It was installed off
23	the southeast corner of the well pad and is located above
24	the area at which Burlington had their tankage.
25	The Hampton 4M wellhead is shown as the purple

mark here. 1 Additional monitoring wells, progressing further 2 downgradient, include MW-4, MW-3, MW-8, MW-9 and -10, MW-2 3 and -6. We also have some information regarding elevations 4 5 obtained for water at the seep, progressing further 6 downgradient and off the well pad, Monitoring Wells 5 and 7 7. 8 All right. And with regard the various colored 0. 9 lines, what do they represent? 10 Α. The colored lines represent groundwater elevation 11 contours. The lines in orange are created to represent 12 five-foot contour intervals. The lines in blue, which are 13 shown primarily across the well pad, are one-foot groundwater contour intervals. 14 15 And groundwater is going to flow from areas of 16 high elevation to low elevation, so we use this to 17 establish the direction of groundwater flow. 18 In this case, the direction of flow across the 19 wellpad site is towards the northwest, in this direction. 20 Once we move off of the wellpad site and along the wash and the arroyo area off in here, all we can say is that flow is 21 from the wellpad site in the direction of MW-5, in the 22 direction of MW-7. 23 24 As you can see, these wells are pretty much in 25 line along the arroyo, and we don't have enough control in

1	
1	order We need a third well at an offline location to
2	help triangulate and establish the true offsite direction.
3	So groundwater flow off the well pad could range,
4	oh, probably 45 degrees or more, because of the lack of
5	control. But we do know it's moving down the wash.
6	Q. Let's talk about groundwater flow on the wellpad
7	site itself. Do you think you've got enough data points to
8	draw a conclusion about the groundwater flow?
9	A. Yes. We have seven wells on the well pad. That
10	is more than adequate to establish groundwater flow
11	direction.
12	Q. And the groundwater flow, again, is from what
13	direction to what direction?
14	A. It is from southeast to northwest. So from the
15	direction of Burlington's operations, PNM is further
16	downgradient. So anything coming from this the
17	Burlington portion of the site would flow underneath the
18	PNM operations and on down the arroyo.
19	Q. How do You've talked about various elevations.
20	How were those established?
21	A. We have a survey done of the wellhead top-of-
22	casing elevations. That established the reference point.
23	Then groundwater and free production elevations were or
24	measurements were taken, depth to free product, depth to
25	groundwater, using a free-product interface probe and then

1	also water-level meters. The accuracy of those
2	measurements is to the nearest hundredth of a foot.
3	Then subtracting the depth to product and the
4	depth to groundwater from the top-of-casing reference
5	elevation, you come up with the groundwater elevation, or
6	free-product elevation.
7	Q. Is having those reference points surveyed
8	important in terms of establishing accuracy?
9	A. Yes, it is. At many groundwater sites the
10	gradient can be so small that you need the accuracy of a
11	hundredth of a foot to establish what the slope is, if it's
12	a very shallow slope.
13	That isn't We don't have a very shallow
14	gradient or small gradient at this site, we have
15	Q. That's what I wanted to ask you, what
16	A a fairly active gradient.
17	Topography changes. I'd like to introduce an
18	exhibit to better illustrate that.
19	Q. All right. Have you prepared an exhibit which
20	basically demonstrates the gradient?
21	A. Yes.
22	Q. And what exhibit is that, what number?
23	A. Exhibit Number 8. It is the Hampton 4M site
24	cross-section.
25	Just to orient, there was a green line on the

prior figure that extended from Monitoring Well 1 in the 1 southeast corner, to Monitoring Well 7 which is just below 2 the top of the diagram here in the northwest. This cross-3 section follows that same type of a line. Monitoring Well 4 5 1 is here on the left, Monitoring Well 7 is all the way at 6 the right side of the figure. The well pad proper is just indicated here by 7 this gray area. 8 9 Now, is that to represent the surface level or Q. 10 ground level --11 No, this well pad just depicts the relative Α. 12 locations of equipment with regard to the cross-section 13 below. We have the well pad, and the Hampton 4M well head 14 is this large well head -- or large, deep well here. We don't have the total depth of the well shown, 15 because it extends several thousand feet into the 16 17 subsurface. We would have a small, small cross-section if 18 we were trying to be accurate that way. 19 We have Burlington's equipment shown in this general footprint area, extending from pretty much the 20 Hampton wellhead back to the south. We have the present 21 22 dehydrator owned by Williams. It's located here, between 23 Monitoring Wells 10 and 6. And then 6 is located pretty 24 much in the center of PNM's former impoundment, which is 25 the -- one of the topics of conversation today.

This cross-section depicts ground surface. Going from Monitoring Well 1 to the well pad, we have a fairly significant downslope. The well pad itself is reasonably level, although we do have an elevation decrease of a foot or two across the well pad itself.

6 We have another sharp drop going from the top of 7 the well pad down to the level of the arroyo, and that is 8 the location at which we see the hydrocarbon seep. The 9 seep is, in effect, a contact spring. The slope in the ground surface has dropped so dramatically that it's 10 11 physically intersected the water table. And so you have a spring or discharge of groundwater to the surface, and that 12 13 is the seep that everybody has been referring to.

The slope and ground surface, then, continues at a fairly decent clip on down the wash. And if you look at the water table, it does the same thing. It mimics surface topography to a large extent, so you have a fairly -- or a flatter gradient beneath the well pad than you do extending off site.

But the whole environment shows a .1 gradient. That is very high for groundwater flow. That means that groundwater is moving very fast through this system. We've calculated some preliminary rates of anywhere from 50 to 500 feet per year.

25

Q. Okay, when you're talking about 50 to 500 feet,

1	what are you referring to?
2	A. That is the rate of groundwater flow through this
3	system.
4	Q. So if you place a drop of groundwater at point A,
5	and point B is downgradient 50 to 500 feet, that's
6	A. You would expect it
7	Q take a year
8	A to arrive in about a year.
9	Q. Okay.
10	A. We've used some color on the cross-section to
11	indicate a few different things. We've indicated a sand
12	lens on top of sandstone in yellow, and there's a small
13	expression of it in the Burlington excavation area, roughly
14	at the water table, and that is where we find water.
15	It becomes progressively thicker as you move
16	across the well pad. By the time you get to Monitoring
17	Wells 10 and 6, there's a fairly appreciable thickness of
18	sand. This is significant in that sand is one of the
19	coarser units out here. Hydrocarbons are going to tend to
20	follow the easiest path that they can. In this case,
21	that's going to be sands. Groundwater is doing the same
22	out here, so occurrence of free product is also going to
23	coincide with the occurrence of water.
24	That sand continues on out along the arroyo. We
25	stopped adding the yellow coloration further off the well

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1	pad because if that was all we were running into, we didn't
2	want to obscure some of the other things we were trying to
3	bring out. But you can see that we have a nice thickening
4	sequence of it underneath the well pad.
5	That's been unfortunate for PNM in this case,
6	because the thickest accumulation of sand happens to be
7	beneath PNM's former pit. That's going to be the reservoir
8	spot where things are going to move downhill and then just
9	sit there, because they can't all weep to the surface.
10	We've indicated areas of free product as solid
11	red, and we can see from this cross-section that free
12	product is located not only beneath the PNM pit in MW-6 but
13	extends upgradient in MW-10, $MW-8$ and $MW-4$.
14	If PNM's pit were the only source of this
15	hydrocarbon, we would not have expected to encounter
16	significant accumulations in three wells upgradient, and at
17	significant distances upgradient.
18	It's been claimed at some times by
19	representatives of Burlington that free product is flowing
20	uphill. Well, we've taken the free-product measurements,
21	and we have accuracies of to .01 foot, indicating that we
22	have always had a gradient that moves product from the
23	southeast towards the northwest.
24	Q. Okay, the southeast being
25	A. The southeast being the location of Burlington's

1	former equipment and operations
2	Q. Okay.
3	A the northwest being the area where PNM's pit
4	is on the well pad.
5	Q. Okay.
6	A. So just like groundwater, free product is also
7	flowing downhill at this site.
8	The dashed line above the red solid indicates the
9	area of free product, or the thickness of free product that
10	was present prior to the start of PNM's free-product
11	recovery operations.
12	And we have, in fact, demonstrated some success
13	in recovering over a thousand gallons of free product. We
14	have decreased the thickness of free product by about two
15	feet in the vicinity of Monitoring Well 6, also in the
16	vicinity of Monitoring Well 10. So we know clearly that we
17	are pulling product from upgradient locations into
18	Monitoring Well 6 and out at the surface, and that product
19	is being put into a tank and recovered by Burlington.
20	Beneath the free product you're going to have
21	partitioning of the BTEX constituents into the groundwater,
22	resulting in a dissolved-phase groundwater plume.
23	Q. You might tell us, what are BTEX?
24	A. Benzene, toluene, ethylbenzene and xylenes.
25	Q. Okay.

A. Those constituents are a human health risk, and we have been focusing on benzene as a carcinogen or suspected carcinogen, and we've been using that as an indicator of whether or not things are improving or not at the site.

And one of the -- We've looked at benzene and 6 we've detected it at significant concentrations in the 7 sample obtained from Temporary Well 7, which was installed 8 by Burlington. It was installed at the location of their 9 former tanks. The concentrations in this well were --10 dissolved phase, were actually higher than concentrations 11 measured at this location, where we knew we had free 12 13 product.

This was a temporary monitoring well. This well was not allowed to be cased and remain in the ground for longer than a week. We fully expect, based on the dissolved-phase concentrations we saw here, that should that have been completed as a full monitoring well, we would have seen accumulations of free product occur, just based on the dissolved-phase concentrations.

We have similar concerns for Temporary Well Number 5. It also had very high dissolved-phase concentrations. If we had had a fully screened permanent monitoring well at that location, we also may have expected product.

We saw similar behavior in Monitoring Well 8. 1 When that well was installed, we had high dissolved-phase 2 concentrations. Monitoring Well 8 is located here. On 3 development we noted sheen. And then within a few quarters 4 we actually did, in fact, have product. 5 So we have some history of dissolved-phase 6 concentrations leading to product appearance at this site. 7 Let me ask with regard to the temporary wells, 8 **Q**. does their removal after just a matter of a few days, a 9 week, hamper their effectiveness in terms of determining 10 whether free product is actually at that location? 11 Α. Absolutely. We've seen in the permanent wells 12 that PNM has installed that it takes a few quarters, 13 14 sometimes, for free product to start appearing, despite 15 noting stained soils outside of the boring as you drill it. 16 When you go into a subsurface environment and 17 drill, you're smearing the sidewalls, you're disturbing the 18 environment, you're not allowing a good, clean conduit for 19 free product to flow in initially. 20 When you put in a permanent well, you try and 21 resolve some of that smearing through the process of 22 development. Temporary wells are not developed prior to being sampled. So that smearing is still there. 23 You don't 24 have clear access for free product into that sampling 25 location.

1	Q. Let me ask with regard to this, I believe that
2	the broken red area or pink area that's on this exhibit
3	represents dissolved phase; is that correct?
4	A. Yes, it does.
5	Q. And that's shown going upgradient a fair
6	distance?
7	A. Yes. As I indicated, Temporary Well 7 had very
8	high dissolved-phase concentrations. We've detected
9	dissolved phase in Monitoring Well 4 and product since
10	October, in that well.
11	We have dissolved phase concentrations in other
12	wells, in addition to Monitoring Well 8.
13	Moving on down the arroyo, we have several
14	thousand ppb benzene in Monitoring Well 5, around 1000 ppb,
15	maybe a little over at this point, in Monitoring Well 7.
16	We don't have any additional data downgradient except for
17	that developed by Burlington with their recent installation
18	of a downgradient well near the roadway at the edge of the
19	arroyo, and that well, as far as we are aware, has come out
20	to show nondetect.
21	One concern that we might have with the location
22	of this well is that we don't have groundwater flow
23	direction established for downgradient locations, because
24	we cannot triangulate based on the present well pattern.
25	Once that well gets surveyed in and we get some water

The second s

1	levels established, we can find out whether that well is
2	truly a downgradient well or a cross-gradient well.
3	Q. I wanted to ask with regard to the downgradient
4	dissolved phase, do you have an opinion as to the source
5	for that dissolved phase?
6	A. The source for dissolved-phase contamination is
7	typically free product on the groundwater.
8	Q. Okay. So is the free product, as depicted in
9	this exhibit basically going down the downgradient in a
10	dissolved-phase manner?
11	A. Yes, the BTEX constituents and other soluble
12	components are going to dissolve into the groundwater
13	flowing beneath the product and will be carried by the
14	groundwater downgradient and offsite.
15	Q. Okay. This exhibit shows the product thickness,
16	free-phase thickness, as well as some of the dissolved
17	phase. Do you have Have you prepared an exhibit that
18	depicts the plume contours if we're looking from the top?
19	A. Yes. I've just placed an overlay, Exhibit PNM 7,
20	on top of Exhibit PNM 3. The overlay shows free-phase and
21	dissolved hydrocarbons. The reference indicates that these
22	are through July, 1998. We've actually updated this map to
23	reflect more recent data from Monitoring Well 4.
24	Q. And that most recent data was last developed
25	A. In October of 1998. And Monitoring Well 4 is

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located in this area.

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2 The area in red depicts the area of free-phase 3 hydrocarbons.

PNM's operations, the former pit, were centered
around Monitoring Well 6 and Monitoring Wells 2. We know
we have free product here. We've, in fact, been recovering
free product from Monitoring Well 6 for over a year.

8 The arbitrary line in the sand, or the line that 9 we feel is arbitrary, was drawn between Monitoring Wells 2 10 and 10 -- or I should say 2 and Temporary Well 2. 11 Monitoring Well 10 was not yet installed. And that line 12 was based on the location of free product known at that 13 time.

What we feel is that there has been a significant amount of additional investigation done since that time, that shows that we have an extensive free-product plume located upgradient of PNM's operations. That's predicated on data developed in Temporary Well 2, Monitoring Well 10, Monitoring Well 8 and Monitoring Well 4.

And we feel we could have legitimately included the data from Temporary Wells 5 and 7, based on the high dissolved-phase concentrations, which actually would have further extended the free-product area to include the area of Burlington's present excavation. But as those wells were not left in place and we could not really corroborate

1	that with actual survey data, that was not included in this
2	depiction.
3	The next area that we've contoured is shown in a
4	peach-orange color, and that represents the dissolved
5	benzene concentrations greater than 1000 parts per billion.
6	And we can see that those extend and encompass the area
7	underneath Burlington's excavation. They definitely
8	underlie the full area of free product and move on down the
9	wash to the farthest downgradient well installed by PNM,
10	which is has been Monitoring Well 7.
11	The standard for benzene in groundwater, for a
12	non-drinking-water source, is 10 parts per billion. We've
13	also contoured that to the degree that we could with the
14	data available, and that is shown in the lime-green area
15	here.
16	Monitoring Well 1 is below standards, Monitoring
17	Well 3 is below standards. Monitoring Well 9 is just above
18	standards at 12. And clearly Monitoring Wells 5 and 7 are
19	above. And we do not know the downgradient extent.
20	At this point, Burlington's new well was located
21	at this location. That is clean at present, based on their
22	data.
23	The EB well, which was the Everett Burton
24	drinking or sorry, not drinking-water well, but just a
25	supply well is also clean at this time.

From the groundwater gradients right now, we 1 can't say, you know, are they doing this or this? So we 2 don't know if this location is actually a true downgradient 3 well, or whether groundwater flow might be off more in this 4 direction. We're hoping with some additional survey data 5 and water levels we might be able to define that a bit 6 7 further. 8 ο. We've looked at the gradient flow, we've looked 9 at the subsurface contours, we've looked at your 10 contaminant-plume contours. Based on that, what conclusions can you draw about the original release point, 11 12 the original source of this free product? 13 Α. The release points are clearly upgradient of 14 Monitoring Wells 2 and 6. The arrival -- The recent 15 arrival of free product, significant free product, half a 16 foot, in Monitoring Well 4 is of concern. The presence of 17 a third of a foot in MW-8, again, is a concern. 18 Burlington's operations are further upgradient 19 from these wells still. Product did not flow uphill to get 20 into those wells; it came down. Where is it coming from? 21 There's obviously another source or sources out there that 22 have contributed quite an extensive amount of free product. 23 PNM has already cleaned up a thousand gallons here. We could keep going ad infinitum if nothing is done 24 25 to take the source out here. And that's our concern. We
1	feel we've already removed sufficient free product to
2	account for any release that we might have had, and that's
3	the reason we're all here today.
4	Q. Can you rule out Well, just for the record,
5	you said it's coming from upgradient, from MW-2 and MW-6.
6	Now, just for the record, that's in the location
7	A of PNM's former pit.
8	Q. Okay. Can you rule out, based on the data that's
9	been developed, the migration of any contamination from
10	PNM's pit up towards Burlington's equipment?
11	A. Yes, I believe, we can, based on the gradients
12	for the free product and for groundwater that have been
13	developed at this site.
14	Q. Okay. And are your opinions based on a
15	reasonable scientific probability?
16	A. Yes.
17	Q. I wanted to ask a little bit about PNM's former
18	pit, because there's been a lot of focus placed on the pit,
19	not as much focus placed on Burlington's operations, but I
20	want you to analyze for us, if you could, based on the
21	data, the likelihood that that pit is the source of free
22	product in the groundwater at all.
23	And in connection with that, what I'd like you to
24	do is look at PNM Exhibit 52.
25	A. PNM Exhibit 52 shows a series of boring logs,

1	well-completion diagrams, and a few facility maps here and
2	there.
3	And in this assemblage of logs, if we were to
4	look at borings that were drilled through the former
5	location of PNM's pit, we would first refer to Monitoring
6	Well 2.
7	Q. That's MW-2, I believe, the fourth page in this
8	exhibit.
9	A. Yes. That boring log was prepared at the start
10	and at completion of the drilling of this well, and it
11	indicates that we had silty sands with odor and some
12	staining down to approximately 16 feet, where we had a thin
13	layer of silty, dark brown sand with a strong hydrocarbon
14	odor.
15	It was only when you got closer to the water
16	table where you actually note wet, hard, strong hydrocarbon
17	odor, and the presence of product-saturated soil, what
18	could be product saturated soil, as noted. And that was at
19	roughly 20 to 22 feet, based on how the log is written.
20	The groundwater table was noted to be at about
21	23.5 feet. A water sample was collected for a dissolved-
22	phase and TPH that was one that I had referred to
23	earlier in the comparison of TPW-5 and -7 and two inches
24	of product were actually observed in the bailer.
25	So we know from this boring log that we did not

2from the surface to the water table. What we see here3instead is that we have a free-product layer in and around4the water table, but not in the soil column above.5Q. What conclusion can you draw from that?6A. That indicates that the PNM pit was not the7source of free product on the water table at this location.8Q. Were there other tests done in the area of PNM's9former pit?10A. Yes, the next boring log that I would refer to11would be Monitoring Well 6, which is12Q. MW-6.13A. MW-6 or borehole BH-4 on the designation. And14here we have simply a well-completion diagram, and the15boring log follows.16This boring was installed at a later date. PNM18in the pit. This is evidenced by the presence of fill to1911 feet. And I believe Mr. Sikelianos testified that their20about 11 or 12 feet.22Going lower in the boring, we have indications of23brown reddish sand beneath the pit, we have a light-24brown/gray weathered sandstone, coarse, dry, odor noted, we25have further light-brown/gray, clayey sand, coarse, dense,	1	have free product through the soil column all the way down
 instead is that we have a free-product layer in and around the water table, but not in the soil column above. Q. What conclusion can you draw from that? A. That indicates that the PNM pit was not the source of free product on the water table at this location. Q. Were there other tests done in the area of PNM's former pit? A. Yes, the next boring log that I would refer to would be Monitoring Well 6, which is Q. MW-6. A. MW-6 or borehole BH-4 on the designation. And here we have simply a well-completion diagram, and the boring log follows. This boring was installed at a later date. PNM had already completed its remediation actions for the soil in the pit. This is evidenced by the presence of fill to 11 feet. And I believe Mr. Sikelianos testified that their excavation in removing soils from the pit descended to about 11 or 12 feet. Going lower in the boring, we have indications of brown reddish sand beneath the pit, we have a light- brown/gray weathered sandstone, coarse, dry, odor noted, we have further light-brown/gray, clayey sand, coarse, dense, 	2	from the surface to the water table. What we see here
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1	wet, grades to coarse. And a brown clayey sand, medium
2	coarse, at that point is listed as dense to saturated
3	dense to saturated, encountered product at 24 feet.
4	Twenty-four feet is the place that we encounter
5	free product. We did not see it above the water table and
6	the free-product layer at that time, and we did not see it
7	immediately below the base of our excavated pit. We did
8	not have product-saturated soils between the base of the
9	pit and the water table. We had the free-product layer on
10	top of the water table only.
11	Again, that indicates that free product did not
12	come through the pit and result in free product on the
13	water.
14	Q. I guess there have been some more recent borings,
15	or more recent boring, performed by Burlington in that
16	area; is that correct?
17	A. Yes.
18	Q. And that's found at Exhibit 51?
19	A. Yes. I believe the boring that Burlington did
20	was SB-2, and this boring was also done between Monitoring
21	Wells 2 and 6 in the location of PNM's former pit.
22	Their boring corroborates the log very nicely
23	that we obtained from Monitoring Well 6, in that it shows
24	that we have backfill or overburden, coarse sands, from
25	zero to 13.75 feet. They note some vapor odors,

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progressing deeper, but the coloration of the soil is light 1 tan to orange, tan to light green, variable light tan. 2 It is not what would be typical of product-saturated soil. 3 This orange/light-tan soil continues on down, 4 until we have a notation that we're in liquid condensate. 5 All of a sudden, we're in free-product-coated soil at the 6 7 water table. We did not have free-product-saturated soils 8 between the base of the pit and the water table, only on 9 top of the water table. 10 Q. Again, what conclusion can you draw based on that? 11 We feel that Burlington has, in fact, confirmed 12 Α. 13 that the PNM pit was not the source of free-product contamination at this location. 14 15 Are all three of the test borings that were done, Q. in PNM's former pit location that you've just described, 16 consistent? 17 18 Α. Have you reviewed any of the materials that have 19 been developed with regard to the recent work done by 20 Burlington at this site, with regard to their bulldozer 21 excavation? Yes, I've reviewed videotape taken by PNM, I've 22 Α. 23 also looked at still photographs, I have spoken with people that were on site during the activities, Mark Sikelianos 24 25 and Maureen Gannon.

Okay. What's your understanding of what that Q. 1 excavation has indicated? 2 Α. The excavation being performed by Burlington was 3 4 accomplished by blading, so some of the precision of the 5 observations is a question. You can't exactly tell what interval things are occurring at. 6 7 But the relative information developed there 8 corroborates the borings. They excavated the clean fill 9 that PNM used to backfill the pit, they encountered the 10 base of the pit in the form of a stained soil layer, about 11 one to two feet thick. After that, they moved back into an orange 12 13 material that did not have any evidence of staining that we 14 could see on the still photos or the videotape, progressed 15 down and encountered free product in the vicinity of 16 Monitoring Well 6, once they got to the water table, and 17 that was down to a depth of about 23, 25 feet. 18 So there was about an eight- to ten-foot column 19 of clean soil between the base of the pit and the point at 20 which product was encountered. Again, they've corroborated 21 that the pit did not contribute free product. They've 22 also, at present, removed any potential further 23 contribution of free product to the system by a source from 24 PNM. 25 What do you mean, they've removed any further Q.

1	source of contribution by PNM?
2	A. All of the soils that were in place at the time
3	that our pit was installed and operating have now been
4	removed, they've been excavated. They no longer are
5	present.
6	Q. Can Based on the information that you have
7	been able to gather through looking at the soil borings
8	that we've just talked about, and the work that was done by
9	Burlington at the site, can you rule the pit out, PNM's
10	former pit out, as a source for the free product underlying
11	the pit?
12	A. Yes.
13	Q. And can you do that to a reasonable scientific
14	probability?
15	A. Yes.
16	Q. Have you had an opportunity to look at the
17	production history with regard to these particular well?
18	A. Yes, I took a look at the records that Burlington
19	had furnished to OCD, and I've prepared some of the
20	exhibits that I believe Mr. Heath had already introduced.
21	Q. Okay, let's pull those up and go into a little
22	more detail.
23	A. The first exhibit that was prepared was simply
24	the Hampton 4M production history. That's PNM Exhibit 13.
25	And this exhibit shows gas, oil and water production from
1	

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1	the Hampton 4M, from the period of January, 1995, through
2	present day I should say through the last date of record
3	on file with OCD.
4	What we saw was that gas production from both the
5	Dakota and Mesaverde was fairly constant.
6	We looked at oil production, and we noted some
7	anomalies.
8	Q. When we're talking about oil production, are we
9	talking about the free product?
10	A. The condensate free product produced from the
11	well, concomitant with the gas.
12	Q. Okay.
13	A. What we see is that there's a period of record
14	that shows zero barrels reported to OCD. Did the formation
15	simply stop producing oil, or was the oil not present in
16	tanks? Was it all blow to the atmosphere, to the ground?
17	It was a very unusual occurrence that there would be no oil
18	at all recovered when you have production of gas. That
19	stood out to us as something that we would like to ask
20	Burlington what happened here.
21	We also have a few other periods of record for
22	oil production showing zeros for the Dakota, back in the
23	1990s, and a few spotty areas for the Mesaverde. But our
24	biggest blip was this one. So we decided to look further
25	at oil-and-gas ratios.

And I plotted the reciprocal of the ratios that 1 Mr. Heath was referring to. So in his case, he saw an 2 infinite ratios as being a problem; we saw low ratios as 3 being a problem in this case. And that's what, in fact, is 4 5 depicted on this graph. We only looked at the anomaly that we saw for 6 7 zero production from the Mesaverde on this particular 8 location, and we looked at a few years prior to that 9 anomaly and after that anomaly. 10 And what we see is that we've got a fairly decent oil-gas production average of about 6.5 before the anomaly 11 period, and then after 1996 to present day, the well comes 12 right back in line with that average; it's a little higher, 13 at 7.04. 14 15 Our question is, here, this ratio dropped. We were averaging about 432 barrels of oil in this period. 16 Here it dropped to 108 barrels reported. Going back 17 further, 1996 on, we're back up to 425 barrels. There's a 18 loss here of 320 barrels of oil, 13,000 -- or, I'm sorry, 19 20 I'm not doing my math very well. But that's a lot of product, which I think we will get into later in another 21 exhibit. 22

What happened here? This could very well account for the free product on the water table that we're seeing today, if it were discharged to the subsurface.

1	Q. Lets talk a little bit about PNM's recovery well,
2	MW-6. What was the purpose of MW-6?
3	A. Monitoring Well 6 was a free-product-recovery
4	well, installed in response to an OCD directive that
5	somebody start doing something about the source of
6	groundwater contamination, which the OCD viewed as free
7	product on the water table.
8	Q. And we're looking at Exhibit 9, right now?
9	A. And this is Exhibit 9, which was also introduced
10	earlier, and it depicts free-product-recovery performance.
11	The red line shows cumulative free product
12	recovered from MW-6 in gallons.
13	Q. And that's through July 30th?
14	A. Through July 30th of 1998.
15	And the green shows the product thickness, as
16	measured in Monitoring Well 2, located only 10 feet away
17	from Monitoring Well 6.
18	And what we see is that we have had steady free-
19	product recovery, but we have not seen a steady decrease
20	anymore in Monitoring Well 2. What this indicated to me
21	was that, A, either the source of contamination, free-
22	product contamination, was laterally extensive, meaning
23	that there was a significant pool of free product out
24	there, or, B, that there were continuing sources and we
25	just weren't keeping up with this one recovery well.

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In either case, based on our soil-boring data,
 the data from monitoring wells, data from the pit
 remediation, we felt that we were not the source of
 continuing free product.

Since October, and also since the time that our 5 equipment was pulled without us being able to take a last 6 reading, we're estimating we had about 1050 gallons of free 7 product recovered. Yet this well, extending out October 8 would probably fall out to the edge of the drawing here, we 9 10 were at still at two feet in Monitoring Well 2. Something else is going on. And from the updates on the appearance 11 12 of free product in other wells at upgradient locations, we 13 knew what was going on. We had an areally extensive source located upgradient, and the release points were clearly 14 15 upgradient of our operations at that time. I want to talk to you about that. Have you done 0. 16 17 any calculations about how much free product you think is 18 underlying this wellpad site? 19 Α. Yes, we've done some estimates. 20 Q. And is that contained in Exhibit 50? 21 Yes. Α. 22 Can you take us through how you arrived at your Q.

23 | estimates?

A. Yes, we were trying to get a sense of just the
overall oil production and free product at this site and

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who had responsibilities concerning the management of the 1 bulk of that liquid. 2 First, we started with the Hampton 4M wellhead 3 production. From the period of 1985 to 1997, the well 4 5 produced 248,000 gallons. Mr. Heath testified that the separator or the 6 7 combination production unit operated by Burlington should 8 be 99-percent efficient at separating product from the 9 wellhead. That means that 245,000-plus gallons would have 10 been recovered, stored on site, or sold by Burlington in that time period. So Burlington was managing most of the 11 product coming out of that well. 12 The 1995 production-record anomaly, showing a 13 320-barrel shortage, leaves 13,440 gallons, on average, 14 15 unaccounted for in the period of 1995. Where did that product go? Is it an under-reporting issue? Did it leak 16 out from a tank? Did it leak out from piping? Was it 17 blown to the atmosphere from the soil? We don't know. 18 19 We're just documenting that there was a significant 20 shortage here. 21 There was also a lot of tankage at the site, over 22,000 gallons liquid storage capacity, at least. And 22 again, 99 percent of the free product was produced, managed 23 and handled by Burlington. 24 25 The maximum free product available, then, for

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pass-through to the PNM and Williams equipment, the 1 dehydrator, would have been 2480 gallons, at maximum. 2 We have one 500-gallon liquid storage tank on 3 site, which was designed primarily to handle water with 4 5 dissolved-phase hydrocarbons coming from the dehy. We looked at the production ratio. The Hampton 6 7 was producing roughly 73 percent from the Dakota, 27 percent from the Mesaverde. So we broke the gallons, that 8 9 could have come over to the PNM/Williams equipment, down by 10 product. 11 And we looked at the API gravity. 12 ο. And what is that? That is the specific gravity of the product, as 13 Α. 14 measured by the American Petroleum Institute. 15 And Mr. Heath on his background indicated that we 16 could assume certain flashing percentages, which is what 17 we've used in developing what would have gone to the subsurface, through the dehy, if all of the 2480 gallons 18 19 had come through as carryover. And through that 20 calculation we end up with 583 gallons as free product that 21 might have come through the dehydrator unit. 22 Now, this product did not arrive all at once. It would have been coming out maybe a quart or two a day over 23 the period of record. 24 25 Q. Would this product have been over the period of

1	1985 to 1997?
2	A. Yes.
3	Q. Okay.
4	A. So you can see from those numbers, there was not
5	a significant amount of free product ever hitting Williams'
6	and PNM's equipment during that time period.
7	Q. Okay. Now, is that the product that would have
8	actually the estimated product that would have gone into
9	the pit itself?
10	A. Yes.
11	Q. Okay, distinguished from the groundwater?
12	A. Yes.
13	Q. Would you expect I mean, even Would you
14	expect that to hit the groundwater all that amount to
15	hit the groundwater?
16	A. No, the soil has some absorption capacity to hold
17	onto hydrocarbons. And it, in fact, did that. We
18	remediated the material that was the sponge soaking in the
19	hydrocarbons and the water discharged to the pit.
20	The other thing that you have is, you have water
21	primarily flowing into this pit. Water is going to
22	saturate the subsurface beneath that, and it's going to
23	reduce the permeability of oil in that environment.
24	So if you were to add a lot of product into that
25	pit, it would have a hard time making it through and

1 getting to groundwater.

2	And we did not have any evidence that there was
3	discharge of large amounts of free product to the pit. The
4	switchers testified to Mr. Heath that they did not see
5	significant amounts of free product in the pit and did not
6	see that only in winter on a few occasions did they even
7	notice hydrocarbon presence.
8	Q. What conclusions can you draw from the estimated
9	amounts of free product that could have possibly been
10	placed into PNM's pit over the twelve-year period, about
11	the likelihood of any of that product ever reaching
12	groundwater in free phase?
13	A. All of the data that I've reviewed suggests that
14	the free product would not have come through PNM's pit,
15	migrated through the soil column, and ended up as free
16	phase four-feet-plus of free phase on the groundwater
17	table. We simply did not handle that type of a volume
18	through that pit.
19	Q. Is that
20	A. As far as estimating the free-product volume
21	Q. Right, that leads me to my next question, is,
22	have you calculated how much you believe free product is
23	was, at least, floating
24	A. Yes.
25	Q underneath the wellpad site?

1	A. Let me go back and forth between two exhibits.
2	Q. All right, certainly.
3	A. The area that's depicted in orange was the
4	lateral extent for the free-product plume. And what I did
5	was take this area and planimeter it and created an
6	estimate.
7	We've assumed that there's 15- to 25-percent
8	relative to hydrocarbons in the saturated interval above
9	the water table, that the product thickness as measured in
10	monitoring wells was three times what was actually present
11	in the aquifer. We have assumed that the internal plume
12	shape or the contours of one, two, three, four, feet of
13	product, are similar to the external plume shape that
14	is, the boundary of the orange area shown on that map.
15	We also assume that the structural control on the
16	shape of the free product was defined by the boundaries of
17	the well pad. And we used the free-recovery maximum
18	hydrocarbon thicknesses, as well as July and October, 1998,
19	data for wells that have recently shown product, to develop
20	the estimate.
21	And our estimates range from 7700 to 13,000
22	gallons, and we believe we've been fairly conservative in
23	calculating that number.
24	Q. When you say "conservative", do you mean
25	understating?

1	A. Underpredicting.
2	Q. Okay.
3	A. So as we can see, 99 percent of the oil produced
4	at this site was managed and handled by Burlington, through
5	their equipment, through their lines, through their
6	tankage.
7	What's presence in the subsurface represents
8	about three to five percent of the oil produced by the
9	well. And the product in the subsurface is 13 to 23 times
10	greater than the maximum amount of product that would have
11	potentially reached the dehydrator.
12	The product unaccounted for by Burlington alone
13	in 1995 represents 100 to 125 percent of this material.
14	And the maximum possible free product that PNM
15	might have released, if it had made it to the water table,
16	would only account for five to eight percent of the volume
17	out there.
18	PNM has already done remediation of free product
19	at this site. We've removed over a thousand gallons. We
20	claim that we're finished here. We've removed more than
21	our contribution at this site, and therefore we're
22	petitioning for no further action and closure. We've
23	acknowledge that we have had discharges, and if anything
24	we've already remediated what we have been releasing.
25	Q. I wanted to ask about a few of the OCD

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1	determinations that have been made in this and your
2	assessment of them, beginning with Exhibit 33.
3	A. Yes. This is the letter from the OCD to Ms.
4	Gannon at PNM, and it states that "free phase product
5	contamination of ground water in the vicinity of the
6	dehyappears to be the result of disposal practices at
7	PNM's former unlined dehy" Therefore, PNM should
8	address soil and groundwater contamination under PNM's pit-
9	closure plan. And PNM did that.
10	Q. Okay. Moving on to Exhibit Well, let me ask,
11	there was a discussion on Exhibit 33 with regard to
12	upgradient contamination or soil and water contamination
13	upgradient
14	A. Yes.
15	Q being related to Burlington's Hampton 4M well
16	site. Do you agree with that conclusion?
17	A. Yes, absolutely.
18	Q. Okay. Moving on to PNM Exhibit 39.
19	A. That is the letter from OCD to Ms. Gannon, dated
20	March 13th, 1998, the subject of this hearing.
21	Q. Right, and do you have any conclusions about that
22	letter?
23	A. Well, the letter requests that "PNM take
24	additional remedial actionsto remove the remaining
25	source areas with free hydrocarbons in the vicinity of and

1	immediately downgradient of thepit."
2	PNM, in effect, complied with this order by
3	continuing to operate their free-product recovery system.
4	We were removing free product in the vicinity of PNM's
5	former pit.
6	Q. Okay. Let's talk a bit about Burlington's
7	reports, and let's go back to PNM Exhibit 30. Have you had
8	a chance to find that exhibit?
9	A. Yes.
10	Q. And have you reviewed it?
11	A. Yes.
12	Q. Do you have any disagreements with the
13	conclusions that are expressed in this exhibit by
14	Burlington?
15	A. Yes, Burlington states that they are going to
16	"assume that the vertical extent of contamination has been
17	reached" and that they're going to focus their subsequent
18	efforts "on the horizontal extent of contaminated soil."
19	We don't believe that that has been accomplished
20	at this site by Burlington, based on samples that we have
21	obtained from the excavation itself at the water level,
22	that still show soil contamination in excess of OCD
23	guidelines. The fact that we have monitoring wells that
24	are downgradient from Burlington's excavation that now have
25	free product in them, we don't feel that the horizontal

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1	extent has been addressed at all.
2	Q. Any other comments with regard to Exhibit 30?
3	A. It was primarily that, no, we did not feel
4	Burlington had gone on to define the horizontal extent.
5	Q. Let's move on to
6	A. Oh, I'm sorry
7	Q. Okay.
8	A. One thing to note is that the figures that have
9	been used in this report are, in fact, figures that were
10	supplied to Burlington by PNM, namely the groundwater
11	content for February, 1997.
12	Q. Are you aware of whether Burlington has ever
13	disputed the contours, the groundwater contours, that have
14	been established by PNM?
15	A. Not to my knowledge.
16	Q. And have they used these in their own
17	A. Yes.
18	Q own assessments?
19	A. Yes.
20	Q. Let's move on to Exhibit 31, and let me ask
21	whether you have any disagreements with any of the
22	conclusions or matters contained in this report, and the
23	basis for that disagreement.
24	A. I have reviewed the report, and I do have some
25	concern over some of the conclusions that are identified

here.

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For example, in the April 30, 1997, documentation 2 of the pit excavation on page 2, it's indicated that "No 3 hydrocarbon contaminated areas were found in" some of the 4 And the question there would be, what was the test holes. 5 6 basis for that claim? As far as we know, only visual and PID readings were taken, and those are not listed here. 7 And we have no basis upon which to review whether or not 8 9 contamination was, in fact, absent in those test holes.

Going further on monitoring wells, on page 3, it should be noted that Monitoring Wells 3 and 4 were installed by PNM to establish groundwater gradient, so although PNM is not referenced here as the source of that information, the contour map shown in Figure 3 has also been done by PNM, and it shows groundwater flowing northwest across the location.

Product samples, in the third paragraph referring to Monitoring Well 2, were also collected by PNM. We do not have any reference that PNM did this work, yet this is correspondence going to OCD from Burlington. Where is PNM getting credit for work done, versus that work done by Burlington, is the question I would have.

We also have a statement in the last paragraph on the Monitoring well section saying that one source of groundwater contamination is the former discharge pit for

1 the gas dehydrators operated by PNM. I would agree with 2 that statement as it refers to dissolved-phase groundwater 3 contamination. We fully believe we had some contribution 4 to the dissolved-phase at this site. We don't agree with 5 that as a statement that would apply to free product.

6 They claim that a second source is located 7 upgradient of Monitoring Well 4 and it's supplying a 8 dissolved-phase component. Well, we know as of October 9 that it's supplying not only dissolved-phase but free 10 product.

They also state that this is supported by the 11 fact that NAPL, or free-phase hydrocarbons, "on the 12 groundwater has been found only in the area directly around 13 the dehydration equipment." Well, we pointed out on the 14 cross-section that that's where the greatest thickness of 15 sand is, that's the likely accumulation spot for any free 16 17 product that would release. It would flow downhill and 18 accumulate in the areas that it could physically stay in, 19 being sands.

We now have free product found across the wellpad in Monitoring Wells 4, 8 and 10, all of those locations upgradient of PNM's equipment, downgradient of Burlington's operations.

24 Moving on, the temporary well sampling results, 25 we agree that the highest dissolved phase concentration

occurred in TPW-7 and TPW-5. Burlington speculates that an 1 offsite source upgradient of TPW-5 is the source of this 2 contamination. 3 I would suggest that instead, TPW-5 in the 4 location of their product storage tanks and former 5 impoundments and that the source of that contamination is 6 their storage tanks and impoundments, and not some 7 operating source. 8 Moving on to the page 4 and conclusions, 9 Burlington states that Source 1 has been identified as 10 PNM's former discharge pit and that Source Number 2 is not 11 identified but is contributing dissolved BTEX to Monitoring 12 13 Well 4. We agree that PNM is a source of potential 14 15 dissolved-phase groundwater contamination, but not free product. And Source Number 2 is unspecified, that there's 16 17 dissolved phase in MW-4. 18 The speculation that the second source is located 19 offsite and upgradient of the well location was also thrown 20 out, and they've surveyed the nearby facilities and suggest 21 a pipeline drip was responsible, a quarter mile southeast. 22 I don't believe that that was ever proven to be the case, 23 and subsequent installation of Monitoring Well 1 shows a clean well upgradient. 24 Therefore we don't believe that there is an 25

1	offsite source "offsite" meaning off the well pad
2	adding to the contamination at this site.
3	Burlington goes on to further indicate that
4	they're going to focus on identifying the source of
5	contamination upgradient of MW-4 by installing and
6	upgradient well.
7	PNM installed this upgradient well. To our
8	knowledge, Burlington did not install any additional wells
9	upgradient of the well pad.
10	Burlington further goes on to state that if they
11	discover "no contaminants in the groundwater flowing to the
12	Hampton 4M location, then further investigation will be
13	performed on site."
14	We agree that additional release points are
15	attributable to Burlington and that they should, in fact,
16	be going out and looking for them.
17	And we also agree that this is an atypical site
18	that would merit unique work plans for pursuing remedial
19	and investigative activities at this site. And Burlington
20	continues to say this in not only in this report and
21	other reports. Therefore, we would feel that it would be
22	incumbent on the OCD to request specific plans for this
23	site because of the unusual nature of contamination found
24	here.
25	Q. Again, does this report also include PNM's

1	gradient map?
2	A. Yes, it does.
3	Q. I'd like for you to look at Exhibit 35.
4	A. Yes, in addition to the gradient map
5	Q. We're back on Exhibit 31?
6	A. Yes, just for a second. I need to go back and
7	check something. Yeah, we can move on.
8	Q. Okay, moving on to Exhibit 35?
9	A. That is Burlington's report of September 19th to
10	the OCD. And looking here under "Monitoring Well
11	Construction", we've got a plan to install a well at a
12	location to determine the upgradient extent and source of
13	groundwater contamination. It indicates a well will be
14	installed and the surface and top-of-casing elevations will
15	be surveyed to the nearest foot hundredth of a foot.
16	We believe that this well that Burlington talks
17	about was actually the Monitoring Well MW-1, installed by
18	PNM, and to our knowledge we don't know of any additional
19	upgradient wells that were ever installed by Burlington.
20	Q. Okay. Anything else with regard to Exhibit 35?
21	A. One of the statements is that if the "upgradient
22	ground water samples contain minimal to no levels of BTEX
23	compounds", which was, in fact, the case at Monitoring Well
24	1, that Burlington would then "conclude the source is on
25	the well pad and will initiate Task 2", which is identified

as an on-site source investigation. 1 Burlington states in page 3, first paragraph, the 2 last sentence, that "the highest concentrations of BTEX 3 exists in the southeast quarter of the well pad indicating 4 the source may be located there." 5 We fully agree that there is a source in the 6 7 southeast corner of the well pad that is yet to be 8 addressed. And again, they restate that the "unique 9 characteristics" of the site "pose challenges of site 10 characterization and remediation." 11 12 And again, we don't feel this site falls under 13 the realm of typical, and it should be treated as such. Q. Moving on to Exhibit 37, Burlington's January 30, 14 15 1998, letter, have you any assessments of their conclusions in that letter? 16 17 Α. This is a report dated January 30th. It 18 indicates that well logs, well-completion diagrams and 19 analytical results for MW-1 are provided. 20 There is no mention that this well was installed 21 by PNM and paid for by PNM. It is just indicated that this well was completed, and here are the results. 22 23 If you actually look at the attachments, you can 24 see on the analytical reports that are in the back, that 25 the analytical reports are addressed to Mr. Denver Bearden

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So Burlington did not identify PNM as of PNM Gas Services. 1 the installer of this well and the sampler for this well. 2 Moving on to the "On Site Source 3 Investigation/Remediation", it's indicated that 4 5 approximately four feet of clean soil were removed, that an area of impacted soil was discovered under the location of 6 7 the hydrocarbon storage tanks, and the PID registered 900 8 parts per million. 9 Q. I want to stop about that. What do you understand that to mean when they say clean soil was 10 11 removed and then they found impacted soil under that? That would suggest that there was soil containing 12 Α. hydrocarbons that evident through PID readings, possibly 13 visual evidence, beneath the location of the former tanks. 14 15 Okay. So in order to get an assessment of Q. 16 whether soils had been impacted in this area, would you need to go below four feet in your excavation? 17 Α. Absolutely. 18 19 Q. Okay. If you would continue with your discussion 20 about this exhibit. 21 There's further information provided in Table 1. Α. 22 We have heated headspace PID readings shown for depths of 23 14 and 15 feet. It should be noted that depths of 14 feet along three of the four walls and on the bottom show levels 24 in excess of OCD standards, while depths at 15 feet show 25

1	fairly clean levels, and the final excavation was extended
2	to a total depth of 15 feet.
3	We reviewed prior temporary wells installed by
4	Burlington that where soil samples were taken up to 15-
5	to 16-foot interval, and those intervals show the
6	contamination above OCD guidelines. Well, they didn't
7	remove those soils in their work. They only went to 15
8	feet, so that the interval below that is still contaminated
9	above guidelines. There's still contamination that's been
10	left in place.
11	They go on to state that "groundwater seeped into
12	the excavation", so obviously they know that they are in
13	groundwater and not some sort of a perching system here.
14	And "approximately 100 barrels of water were removed" and
15	disposed of. The indication is "properly disposed" of, yet
16	we have no analyses to suggest what was in this water, so
17	we don't know whether they were properly disposed of.
18	Q. Does it indicate whether this water was even
19	sampled?
20	A. No. And it was Actually, it was stated that,
21	"Due to the soil disturbance from the dozer worka water
22	sample would not be representative of actual groundwater."
23	And they elected not to take a sample.
24	There's reference to additional monitoring wells
25	installed, and the reference goes on to identify a new well

1	installed, "identified as MW-8," "drilled and completed on
2	December 11th by Philip Services Corporation."
3	This well was actually installed by PNM. Yet
4	again there is no reference to PNM having put this well in.
5	It's represented that Burlington did this work.
6	And results are provided. Again, PNM has the lab
7	results billed and addressed to them. So again, PNM did
8	this work.
9	They indicate that "The excavation has been left
10	to promote remediation" and a source well "has not yet been
11	installed." Well, the excavation is still open, and we're
12	still waiting to see what that source well will show.
13	There is no source well as of yet in any Burlington
14	impoundment.
15	Q. Any other comments on Exhibit 37?
16	A. Yes, on sampling of existing monitoring wells,
17	Monitoring Well 4 is noted as having high BTEX, but that
18	the BTEX level has dropped.
19	While BTEX has dropped, benzene actually
20	increased in this period, and as of October of this year,
21	there's actually free product in the well.
22	Q. Was the increase in the benzene reported to the
23	OCD in this report?
24	A. No, it was simply a decrease of total BTEX. But
25	the individual constituents were not enumerated.

And --1 ο. Let me ask about benzene. Can benzene be a 2 predictor, a precursor to the presence of free product? 3 . A. Yes. 4 And why is that? 5 Q. Benzene is one of your more soluble constituents 6 Α. 7 in free product, and it will partition or move into the groundwater phase much more rapidly than some of the other 8 constituents. Once it's in the groundwater, it will flow 9 along with the groundwater, so it has less restriction on 10 its migration. 11 So benzene will appear first in many cases, and 12 it can be a harbinger, once levels are increasing, that 13 you've got more source coming. Source in this case could 14 be additional dissolved phase; it could also be free 15 16 product. 17 Q. Okay. There's a statement that goes on to say that 18 Α. "reduction in contaminant levels" is attributed to "the 19 20 remediation efforts (source removal) that have taken place to date." I assume this refers to the excavation performed 21 22 by Burlington. 23 PNM does finally get some credit here. We are 24 told that we surveyed the location and groundwater 25 elevations, and it is stated in this report that Burlington

1	or PNM will provide a map once the survey data are
2	available. I believe PNM has, in fact, provided this map
3	to Burlington.
4	There's some conclusions stating that "water
5	quality of the up gradient well", MW-1, which is the
6	subject well that it appears Burlington referred to
7	installing in their letters to OCD, but that PNM actually
8	installed it says there's no offsite source. So the
9	sources are located on the well pad.
10	It also says recent excavation work done
11	"confirmed a second source of groundwater contamination in
12	the southeast corner". We agree with this conclusion.
13	There is a second at least another source in the area of
14	Burlington's former equipment.
15	And they state that we have "hydrocarbon impacted
16	soils to a depth of 15 feet, which is the approximate depth
17	to groundwater."
18	Well, we know from their prior borings that it's
19	at least 16 feet, based on soil samples taken. So we
20	disagree with the statement that follows, that source
21	removal is complete. It is absolutely not completed in
22	this area, and more work should be requested.
23	Moving on, there's a statement that "source
24	removal appears to be effective as shown by the decrease in
25	dissolved BTEX in monitoring well MW-4."

Benzene was increasing, and we now have free 1 product in this well. How has source removal been 2 effective, if you look at the monitoring well immediately 3 downgradient of this location? 4 We also have the statement that "Free phase 5 hydrocarbons" were not "found in any of the temporary 6 monitoring wells in Burlington's area of operation." 7 We know that this isn't the case anymore. 8 We know we have free phase in Monitoring Well 4, we know we 9 have free phase in Monitoring Well 8. There's a 10 substantial free-phase plume in the area of Burlington's 11 12 operations. They go on to state in their Plan of Action, what 13 are we doing further, that we're going "to leave the 14 excavation open...while we monitor the...levels in...down 15 gradient wells", and they say that Monitoring Wells 4 and 8 16 are going to be indicators of their successful remediation 17 efforts. 18 Well, we know the concentrations are now free 19 phase in those wells. Remediation has obviously not been 20 successful. 21 "Once a downward trend of...levels is 22 23 established", they talk about backfilling the excavation. 24 Well, how long are we going to leave this 25 excavation open, given that we're now seeing free product

in these wells? It's a bit of a hazard out there to 1 trespassers and such. It's been open -- what? Since 2 3 December of last year, quite a while. And Burlington states that they feel that 4 5 continued groundwater monitoring will show a decrease in 6 levels. That, again, hasn't happened out here. Okay. And finally, moving on to Exhibit 43, a 7 Q. PNM letter of May 28th, 1998. 8 Actually, it's Burlington's letter to OCD. 9 Α. Yes. I'm sorry, yes, Burlington letter to OCD. 10 ο. We have here the results of monitoring well 11 Α. 12 sampling. This includes Monitoring Wells 9 and 10 that 13 were installed by Burlington. Monitoring Well 10 shows 1.41 feet of free 14 15 product. Monitoring Well 8 is noted as having very high levels of dissolved-phase constituents. And we note 33,801 16 17 BTEX. We don't have a breakout here of benzene, toluene, 18 ethylbenzene, xylene individually. And then in subsequent 19 quarters we show free phase in this well. 20 I would also suggest that the free-phase -- or sorry, dissolved-phase concentrations for total BTEX shown 21 in Monitoring Well 8 are very similar to those that were 22 23 shown in TPW-5 and -7, the temporary wells that were 24 installed by Burlington. 25 So again, had these wells been completed as

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permanent wells and allowed to equilibrate, it's very 1 likely that those wells also would have shown free product. 2 We have, progressing, an Attachment 4 that shows 3 the direction and magnitude of the hydraulic gradient. We 4 believe that that attachment is again a map provided by PNM 5 and is PNM's summary of the groundwater flow and data 6 7 collected at the site, that this was prepared by PNM. 8 The fact that water wasn't encountered in one of 9 the temporary borings is listed as an indication that the plume does not leave the location to the east. 10 Well, we have a massive excavation that's been 11 opened towards this area by Burlington in the last week. 12 13 We know that there is groundwater there; it's seeping in at 14 that location. So that location was not dry; it simply was 15 not extended deep enough to find groundwater. Are you talking about TPW-3? 16 ο. 17 Α. TPW-3. 18 Again, there's a statement that says "source 19 removal in the southeast portion of the location is having 20 a positive impact on groundwater." 21 If we define positive as, we're locating free product here, it is. We've done that in Monitoring Wells 4 22 and 8, you know, DNAPL is there, it's not improved. 23 24 The anticipated "level of free phase will 25 continue to decrease and...groundwater will clean up over

time due to the source removal..." The data hasn't shown 1 2 that. There is also a cross-section that is provided as 3 an attachment to this report, Attachment 5. We have a lot 4 5 of difficulty with this cross-section. First of all, there are no reference elevations 6 7 provided at all. 8 Q. Why is that important? 9 Α. You're trying to establish a reference datum, and 10 you're trying to say that in comparison, one point or 11 another is higher or lower. If you don't know where that datum is, it's very hard to draw conclusions of relative 12 13 presence of product in groundwater. 14 0. Okay, are we talking about the last page of this 15 exhibit? Yes, it is Attachment 5. 16 Α. 17 Okay. Q. And their depiction here indicates that the level 18 Α. 19 of free phase in Monitoring Well 10 would actually be lower than that in Monitoring Well 2. Let me point out again, 20 21 for clarity, where Monitoring Well 10 and 2 are. 22 Referring to PNM Exhibit Number 5, Monitoring Well 10 is here, Monitoring Wells 2 -- or 2, which is the 23 one depicted on this cross-section, is here, and the other 24 25 well, Monitoring Well --

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1	Q 4.
2	A 4 and 8 8 is here and 4 is here.
3	What Burlington's cross-section is saying that
4	we have this dip at Monitoring Well 10. Product is flowing
5	from Monitoring Well 2 into it and from Monitoring Well 8
6	into it, but yet we have no elevation data provided here.
7	All of the elevation data that we are aware of has been
8	collected by PNM at this site.
9	Our elevation data show that we have downward
10	gradients or downward movement of product Shall I pull
11	out the cross-section?
12	Q. Yes.
13	A. This is our cross-section which we offer to rebut
14	the one shown here, and we have downgradient flow going
15	into here. We have drawn down the levels of product by our
16	activities at Monitoring Well 6, but when you look at the
17	actual elevation at this point for the top of free phase in
18	Monitoring Well 10, and the top of free phase in Monitoring
19	Well 2, this level is higher by about .4 feet than this
20	level.
21	We do not have any type of a backwards flow of
22	product upgradient. We're pulling product here, we're
23	dropping the gradients here, everything's being pulled into
24	this well. We don't have backwards flow of product
25	upgradient or uphill. And so we submit that this elevation

1	should be thrown out completely as a representative of the
2	site.
3	Q. Any other comments on Exhibit 43?
4	A. There's a statement on the last page of the text
5	of the letter referring to "increased thickness of 'free
6	product'" and the claim that product is migrating contrary
7	to the groundwater flow direction at this site.
8	Our measurements have not indicated this. There
9	has always been flow in a downgradient, downhill direction
10	from Monitoring Well 10 to Monitoring Well 2. That has not
11	changed over time.
12	There's also a statement that Burlington "feels
13	the contamination present in Monitoring Well 10 is directly
14	related to the contamination under and around PNM's
15	operations."
16	We think it's related in the sense that the free-
17	product plume is all one plume, and it is originating from
18	sources upgradient of the location. So that is the intent
19	of that statement; we would agree that there is an
20	extensive plume, it's laterally continuous, and we should
21	look to sources upgradient to see what the release points
22	are and cut those off.
23	Q. Would you agree that it's caused by PNM's
24	activities
25	A. No.

1	Q the findings in MW-10?
2	A. No.
3	Q. Okay.
4	A. That would sum it up for this exhibit.
5	Q. We talked a little bit about the potential amount
6	that could have been released into PNM's former unlined
7	pit, and I just want to clarify, because we're talking
8	about potential amounts. Are you in any way saying that
9	the free phase that we find in the groundwater originated
10	from that pit?
11	A. From PNM's
12	Q. From PNM's pit.
13	A. (Shakes head)
14	Q. You have to answer out loud.
15	A. No.
16	Q. And we've also talked about the relative amounts
17	of potential amounts that could have been placed into
18	the groundwater by Burlington's activities and by PNM's
19	activities. And if there was going to be an apportionment
20	of responsibility as to who had to clean up what, would you
21	believe that that's a reasonable basis for apportionment?
22	A. Yes.
23	Q. With regard to the OCD's drawing the line in the
24	sand, so to speak, or drawing a line across the well pad,
25	based upon the evidence and data with regard to potential

1	sources, would you believe that that is a reasonable basis
2	for apportionment
3	A. No.
4	Q as to responsibility?
5	A. No, I do not. That line on, the cross-section,
6	would fall about here. And while that line was drawn at an
7	early time frame in this site we only had the data
8	pretty much in this area and a temporary well at this
9	location at that time the data suggested that a lot of
10	free product was in this area. It is there, because of the
11	sands. And at that time there were not wells up here that
12	showed significant free product.
13	Well, that's changed now. We've done a lot more
14	work. We have a significant free-product plume, it's
15	upgradient of PNM's operations, it's in the vicinity and
16	downgradient of Burlington's operations, and we would
17	request that a different type of an apportionment be made
18	based on the science and the site conditions at this
19	location.
20	MR. ALVIDREZ: I'll pass the witness.
21	EXAMINER ASHLEY: Mr. Carr?
22	CROSS-EXAMINATION
23	BY MR. CARR:
24	Q. Ms. Terauds, did I miss something, or am I right
25	in understanding you're not too impressed with Burlington

reports? 1 I feel that Burlington's reports have relied a 2 Α. lot on work developed by PNM and not given PNM credit, 3 necessarily, and that the reports have maybe been overly 4 5 optimistic with the success of remediation activities done 6 and the monitoring results that would be expected. 7 Q. In your testimony, you pointed out a number of 8 things with which you took issue in the reports by · 9 Burlington, correct? 10 Α. Yes. 11 When did you first see these reports? Q. I believe there's a PNM letter to OCD that 12 Α. 13 provides some of our issues and concerns, and I helped in the preparation of that letter, and that is when I reviewed 14 15 those. When would that have been? Just recently? 16 Q. 17 Α. Yes. Did you see this information in these reports as 18 Q. 19 they came in and as they were filed? 20 Probably within a month or so, yes. Α. 21 Q. Did you ever convey your concerns on these 22 matters to the OCD? 23 I conveyed them to Ms. Gannon, who is the OCD Α. 24 contact, and I know for a fact that she conveyed those to 25 Bill Olson.

1	Q. And as you have gone through these reports, is it
2	your opinion that they do not address the situation at this
3	site?
4	A. The work done to date does not address location
5	of release points, it does not address the removal of free
6	production and contaminated soil that is contributing to
7	the contamination in groundwater and free product at this
8	site. So it's incomplete.
9	Q. And these reports were in response to OCD
10	inquiries trying to get that kind of work done; isn't that
11	fair to say?
12	A. Yes.
13	Q. Is anybody out there doing anything today, other
14	than Burlington?
15	A. PNM, up until their equipment was pulled, was
16	doing free-product recovery.
17	Q. And I think you testified you were getting
18	nowhere with it?
19	A. No, I testified that we were removing over a
20	thousand gallons in the course of our work?
21	Q. And was that going to achieve anything in terms
22	of identifying the source?
23	A. No, we were simply
24	Q. Was that going
25	A removing the source of product as a source of

1	dissolved-phase groundwater contamination, but it was not
2	getting to the release points.
3	Q. We have dissolved-phase contaminants moving off
4	away from the site
5	A. Yes, we do.
6	Q down the draw or the arroyo, or arroyo or
7	whatever it is?
8	I think you testified it moves fairly quickly
9	down that draw?
10	A. Yes, it does.
11	Q. Five hundred feet a year?
12	A. Fifty to 500 feet per year.
13	Q. And how long has it been since we've discovered
14	contamination out there? Approximately two years?
15	A. I'd have to look at the chronology to see when
16	Monitoring Wells 5 and 7 were installed.
17	Q. Would you agree with me that we've known for two
18	years that there was con or since December of 1996 that
19	there was a problem here?
20	A. Let me refer to Exhibit 2 and I can better
21	answer.
22	I would say that we knew of the potential for
23	offsite groundwater contamination at the point that the
24	hydrocarbon seep was discovered. And when we had the soil
25	and hand-augur borings conducted in November of 1997 was

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1	when we first had Monitoring Well 5 installed, which is the
2	first offsite groundwater well.
3	Q. Is it possible that that plume is more than 500
4	feet long, based on your study an knowledge of this site?
5	A. We know it's 800 feet long.
6	Q. Eight hundred feet now?
7	A. At least.
8	Q. Is your free-product recovery, the free-product
9	recovery you were doing on site, doing anything about the
10	movement of that plume down the canyon?
11	A. It is not addressing the downgradient movement of
12	the dissolved-phase hydrocarbons.
13	Q. And you know that there's a home and a water well
14	a thousand feet away?
15	A. Yes, and PNM has sampled the water well that
16	exists, and at present there's no contamination.
17	Q. And while you watch this, have you done anything
18	that would prevent that plume from moving closer to that
19	water well?
20	A. PNM has installed additional monitoring wells in
21	the form of a temporary well and Monitoring Well 7. At the
22	time that we installed Monitoring Well 7, we ran into the
23	location of the Williams pipeline as another potential
24	source of hydrocarbons. And at that time, rather than to
25	muddy the waters even more by pulling in yet another party

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1	that might be contributing, we elected to stop our further
2	investigation.
3	Also, the extent of downgradient migration at
4	this site is very unusual, relative to other groundwater
5	sites that PNM has been managing. The downgradient extent
6	at most sites is typically less than 200 feet.
7	So again, this was an unusual site. Data being
8	developed suggested a large source of free product in the
9	water table, which is going to be a source for dissolved
10	phase for quite a while, and we knew we had a band-aid
11	going, nothing more.
12	Q. I don't think you understood my question. My
13	question was, what has PNM done to prevent that plume from
14	continuing to move toward Dr. Everett's water well?
15	A. And you are referring to the dissolved-phase
16	plume?
17	Q. Yes.
18	A. We have done nothing to address the dissolved-
19	phase plume.
20	Q. Now, if I understood your testimony, PNM take
21	care of contamination sites if it is the party who caused
22	it; is that fair to say?
23	A. That is PNM's policy.
24	Q. And is it also fair to say that if it were shown
25	that there were any contaminations or any contamination

1	from the former dehy pit, that PNM would be a responsible
2	party as to that?
3	A. I wouldn't say any contamination. I would say
4	you would have to show what it was that PNM released, how
5	that was impacting the environment, and then address the
6	impact.
7	Q. So even if there is contamination from PNM at
8	that pit, there are other tests before you would consider
9	PNM a responsible party?
10	A. For example, if we were to drill a boring in the
11	location of PNM's pit, and PNM had never accepted the
12	fluids, we would have and we drilled down and all of a
13	sudden we found free product on the water table, we would
14	not necessarily jump in and say we're going to remediate
15	that free product just because it's beneath our pit. We
16	would look to see, did we release it, or did others? And
17	we have determined in our evaluations that others have done
18	that.
19	Q. Okay, but my question was that if, in fact, it is
20	determined that PNM contaminated the soil below that pit,
21	before PNM should be a responsible party, PNM thinks there
22	are other things that you have to look at; is that what you
23	said?
24	A. No, I need to clarify my testimony.
25	If PNM goes into a site, identifies that its

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1	operation and its units have resulted in measurable
2	contamination, above guidelines, then we go in and
3	remediate, which we did at this site. We took out 300
4	cubic yards of soil from the pit.
5	Q. And when you left the 300 And when you filled
6	that, you had left a 12 to 15 feet soil that had over 1000
7	parts per million PID?
8	A. Yes.
9	Q. And that's over the standards?
10	A. Yes.
11	Q. Okay. Now, does your area of expertise extend
12	into oil and gas production?
13	A. No, it does not.
14	Q. You put up a production graph on the Hampton
15	4M
16	A. Yes.
17	Q and also a GOR presentation. Do you know why
18	those numbers are where they are when you see such low oil
19	production, as opposed to the gas?
20	A. I just know that there's an anomaly there and
21	that the records show zero barrels of oil for the time
22	period of record.
23	Q. Do you understand in oil and gas production what
24	is meant by critical flow?
25	A. No, I do not.

1	Q. Do you understand that there are points in time
2	where the pressure and volumes coming out of the well are
3	such that the gas can't lift the liquids, and so you
4	produce gas and no oil?
5	A. I'm not aware of oil production.
6	MR. CARR: That's all I have. Thank you.
7	EXAMINER ASHLEY: Mr. Carroll?
8	EXAMINATION
9	BY MR. CARROLL:
10	Q. Ms. Terauds, I believe you testified that in
11	Exhibits 51 and 52 there are some soil borings, SB-2 and
12	MW-2? SB-2 is in Exhibit 51, and MW-2 is in Exhibit 52.
13	A. Yes.
14	Q. And that those borings showed hydrocarbons in the
15	soil, throughout the soil column, all the way to
16	groundwater?
17	A. They show evidence of hydrocarbons in soil, but
18	the relative amounts are different.
19	Q. But they do show hydrocarbon contamination all
20	the way down?
21	A. Yes, on the indication of PIDs, yes.
22	Q. Well, does so this Doesn't this show that
23	hydrocarbon migration from PNM's pit reached all the way to
24	groundwater?
25	A. The form of the hydrocarbons is what's at issue
24	groundwater?

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1	here. The free product from the base of the pit to the
2	groundwater table is not indicated by these borings. We
3	have soil with residual hydrocarbons indicated in these
4	borings, but not free-product-saturated soil until you hit
5	the groundwater.
6	Q. But it is contamination above the standards all
7	the way down to the groundwater?
8	A. As measured by PID, yes, we have PID readings
9	that would be above OCD guidelines, yes.
10	MR. CARROLL: That's all I have.
11	EXAMINER ASHLEY: Mr. Alvidrez?
12	MR. ALVIDREZ: Just a couple of questions.
13	REDIRECT EXAMINATION
14	BY MR. ALVIDREZ:
15	Q. You were asked about whether PNM's remediation
16	efforts with respect to withdrawing the free phase from
17	MW-6 was having any effect on the free-phase contamination
18	which is downgradient. And I wanted to follow
19	A. On the dissolved-phase?
20	Q. I'm sorry, on the dissolved-phase downgradient.
21	And I wanted to follow up. To the extent you're removing
22	any the free phase, are you also lessening the potential
23	for dissolved phase downgradient migration?
24	A. Sure, you're decreasing the potential future
25	contamination.

1	Q. Now, in terms of whether PNM is remediating
2	downgradient and maybe Well, we can look at the area
3	of, I guess, MW-7, or the area between MW-6 and MW-7.
4	A. MW-5?
5	Q. Well, MW-5 and MW-7, on Exhibit 8, I think what
6	I'd like to ask you is, we've got an indication of
7	dissolved phase down in that area; is that correct?
8	A. Yes.
9	Q. And we know that Burlington has also done some
10	work on the site very recently. And is that work
11	addressing the dissolved-phase contamination between MW-7
12	and MW-5?
13	A. It's addressing it in the fact that we've
14	established one additional data point that shows that we
15	have a nondetect location, but it is not doing anything
16	about remediation of that dissolved-phase contamination.
17	Q. So Burlington is in the same seat as PNM is with
18	regard to
19	A dissolved-phase groundwater remediation
20	Q dissolved-phase
21	A yes.
22	Q. Okay.
23	A. Neither party has done anything to address that.
24	Q. All right. You were asked about hydrocarbons in
25	the soil by Mr. Carroll, and I want to clarify what is

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1	really at issue in this case.
2	With regard to soil contamination caused by PNM,
3	is PNM asking to be relieved from responsibility for that?
4	A. No.
5	Q. And as a practical matter, based on what's been
6	done out there, has that soil contamination been dealt
7	with?
8	A. Yes, both by PNM in their closure activities, and
9	further by Burlington, who's entirely removed any soil
10	whatsoever beneath the footprint of our pad at this point.
11	Q. And with regard to dissolved-phase that could
12	have come from PNM's pit, is PNM trying to be relieved of
13	responsibility for that?
14	A. No, we're not trying to be relieved for
15	responsibility for dissolved phase; we're trying to seek a
16	proportional remediation that represents our contribution.
17	Q. Okay. And with regard to free product, is that
18	really the key issue in this case
19	A. Yes, it is.
20	Q is who is responsible for free product?
21	A. Absolutely.
22	Q. Okay. I also wanted to ask you, you were asked
23	about PID readings on the way down from PNM's pit towards
24	groundwater. Is it Tell us again, what does the PID
25	measure?

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PID measures organic vapors, nonspecific organic Α. 1 vapors. 2 And if you have a big pool of free product 3 0. underneath a given location, is it possible for those 4 vapors to originate from that pool of free product? 5 Yes, it is, and in the excavations being done in 6 Α. 7 the last week, we've had reports of meters near the 8 excavation pegging out. So obviously vapors can migrate 9 and travel. 10 Q. So can the source of those readings be the free 11 product, rather than the former pit location? 12 Α. Yes. That's all the questions I have. 13 MR. ALVIDREZ: EXAMINER ASHLEY: Mr. Carr? 14 15 MR. CARR: No questions? EXAMINER ASHLEY: Mr. Carroll? 16 17 MR. CARROLL: No questions. 18 EXAMINATION BY EXAMINER ASHLEY: 19 20 Ms. Terauds, I have a few questions about the Q. 21 condensate, which seems to be the source of this 22 contamination. What is the volatility of this kind of 23 condensate? 24 Α. We've got the API gravity numbers for both Dakota 25 and Mesaverde. It suggests that the Dakota is fairly

volatile in our estimation. We had a 90-percent flash 1 number provided by Mr. Heath in our calculations of what 2 would have moved off into the vapor-phase versus ended up 3 4 on the ground. The Mesaverde is a more paraffin product, API 5 product of about 55. It's a lot less volatile. 6 7 And the majority of the product that we had 8 calculated that might have come through the PNM dehydrator was likely -- and ended up on the ground surface, was more 9 likely to be Mesaverde because it is less volatile. 10 11 What would be the viscosity of this condensate? 0. I'd have to look and see if we did that analysis. 12 Α. 13 Okay. Just in regards to the nature of Q. 14 condensate, would you say that this would migrate rather 15 easily or flow very readily through the ground below it? 16 Α. Based on our attempts to recover free product in 17 Monitoring Well 6, I'd say it's moving fairly slowly. 18 Also the fact that some of our monitoring wells 19 have had to be in place for several quarters before they 20 detect free product, again, that's indication that it moves 21 fairly slowly. 22 Q. Okay. I've got a question about some of the 23 monitor wells again. Can you tell me the ages of -- or when Monitor Wells 2 and 6 were installed? 24 25 Α. I'd have to look at the chronology, Exhibit 2.

Monitoring Well 2 was installed in December of 1 1996. And the free-product-recovery well, four-inch well, 2 Monitoring Well 6, was installed October 30th, 1997. 3 And what about Monitor Wells 4 and 8? Ο. 4 Monitoring Well 4 was installed early on, on 5 Α. January 31st, 1997. Monitoring Well 8 was installed 6 7 December 11th, 1997. In the time since Monitoring Wells 4 and 8 were 8 0. installed, up until this last time when a free product was 9 discovered in 4, have either one of them had free product? 10 11 Did 8 have free product? 12 Α. Eight had evidence of sheen during installation, 13 and I believe that on the next round of sampling -- I'd 14 like to refer to an exhibit. 15 Q. Okay. 16 It might clarify the history of free-product Α. discovery. That would be PNM Exhibit 49. 17 18 Q. Okay. 19 And if we look at Monitoring Well 8 --Α. 20 Just a minute. Okay. **Q**. -- under the free-product thickness column, which 21 Α. 22 is the second column from the right, it indicates sheen in 23 January of 1998, and free product the next time it was 24 sampled, at .37 feet, in April of 1998. 25 Q. Okay.

For Monitoring Well 4, we've had a slightly Α. 1 2 different case. We've had benzene concentrations increasing over time from about 800 to 1400 parts per 3 billion benzene in July of this year. Then in October of 4 5 this year we had .63 feet of product appear in this well. So it appears the increasing benzene 6 7 concentrations were a precursor to the arrival of free 8 product. 9 Q. Which well was that again? Monitoring Well 4. 10 A. 11 Q. Okay. Okay, got it. Another question. It seems that if what PNM is 12 13 saying, is that the source is upgradient even from Monitoring Wells 4 and 8 --14 15 Α. Yes. 16 Q. Okay. -- and Monitor Wells 2 and 6 have a rather 17 substantial amount of free product in them at this time, how come there wasn't --18 19 Α. Monitoring Wells --20 -- 2 --Q. 21 -- 2 does not exist anymore. Up at the last time Α. it was sampled, we had about two feet. 22 23 Q. Okay. 24 We had decreased the level over time because of Α. 25 our free-product recovery efforts.

1	Q. On Exhibit 49 it's 2.15 feet
2	A. Yes.
3	Q as of the 9th of November?
4	A. Yes.
5	Q. Okay. Well, it seems to me, or you can help me
6	out here on this, that if there's free product in 2 and 6,
7	and there always has been free product in there, how come
8	there hasn't been more free product detected in 4 and 8?
9	A. Eight was installed fairly recently in the scheme
10	of things. It was installed in January of this year.
11	Q. Uh-huh.
12	Q. And there Again, in the process of drilling,
13	you're going to be smearing the sidewalls, and you're
14	developing the wells to try and remove that mudcake and
15	allow product and water to enter the well in an
16	unrestricted fashion. Sometimes, despite your efforts at
17	developing, it may take a while for that cake to break down
18	and product and water to be able to enter. Water is going
19	to enter it much more easily than product.
20	But the fact that we had product appear in the
21	very next quarter and that we had noted a sheen as we were
22	pulling in water during development, it was obviously in
23	the subsurface at that location and it simply took a while
24	to be able to enter the well.
25	Q. Well, why do you say that, then, that or how

do you account for the fact that MW-4 hasn't had any 1 product until the 5th of October? 2 There we look at the benzene trend, and we see 3 Α. that that product in Monitoring Well 4 may have recently 4 arrived at that well location, because dissolved phase 5 started out fairly low --6 Uh-huh. 7 Q. 8 -- 800 ppb, it increased to almost double that, Α. and then all of a sudden we have free product. I don't 9 10 know if something changed in terms of operations at the site. PNM had no active operations now, in 1998, other 11 12 than the recovery of our product, which we've been pulling 13 things towards. 14 So maybe in the course of our free-product 15 recovery, increasing the gradients of that, we've moved 16 some of the source towards Monitoring Well 4. That could 17 have, in fact, happened. 18 Okay, so in Monitor Well 8, you think that over Q. 19 time as you continue to monitor this and since it's 20 developed, that the free product will increase in that well if the source is not removed? 21 It may increase, it may stay steady. 22 Depending Α. 23 on water-table fluctuations, there may be periods where you 24 don't see it because the water table has risen above the 25 level where the saturated material is.

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1	Things bounce around to some degree, but the
2	appearance of free product in that well
3	Q. Uh-huh.
4	A shortly after drilling suggests that
5	Monitoring Well 8 is near a free product source.
6	Q. Okay.
7	A. We don't know what that source is.
8	EXAMINER ASHLEY: Okay. I have no further
9	questions.
10	MR. ALVIDREZ: May I ask a few follow-up?
11	EXAMINER ASHLEY: Yes.
12	FURTHER EXAMINATION
13	BY MR. ALVIDREZ:
14	Q. I'm troubled by some of the questions that the
15	Hearing Examiner was asking and perhaps some of the
16	inferences that were being drawn from those questions.
17	Now, again I want to clarify with regard to the
18	fact that the product layers or thickness are relatively
19	higher in MW-6 and MW-2 than they are upgradient at MW-4
20	and MW-8, can you draw any conclusions from that with
21	regard to the source of that product?
22	A. The accumulations themselves aren't necessarily
23	going to tell you much about where the source is located.
24	They are more of an indicator of where you have the sand
25	lenses in this environment that allow free product to

1 | accumulate.

2 So the free product really coincides with the 3 area of thicker sands. We have a very thin layer of sand 4 in the area of Burlington's operations.

5 So even if there was a huge release up here, it 6 would move on downgradient and pool here, because that's 7 where you're going to have the greatest permeability for 8 product, is in thicker, coarser sands, which just happen to 9 underlie this location in the vicinity of PNM's former 10 operations.

Q. You also were asked about why it took a while for
MW-4 to show free product. Are there -- Can there be
physical or geologic explanations for that?

Α. It could be that we weren't very successful at 14 15 developing that well. Maybe we left the mudcake intact 16 that also prevented product from showing up right away. 17 However, based on the dissolved benzene, I would say that 18 the free product was probably in the vicinity and has been 19 now able to finally reach that well, either due to natural 20 gradients, induced gradients, or a new source coming in. 21 0. That's what I wanted to ask, is, what 22 conclusions, if any, can you draw about the possibility of 23 an intermittent source? The appearance of product in Monitoring Well 4 at 24 Α.

25 this time is a question in our minds. Is there something

new that's contributing, is it something that's been 1 pulsing over time? You see it, it stops, it shows up 2 Those types of issues. 3 again. We don't know -- We don't operate the equipment 4 out here currently. We have no good way of shutting things 5 off and poking around in everybody else's machinery to see 6 7 what's going on. We think that should be the 8 responsibility of the people operating that equipment. 9 As far as continuity of sources, we didn't see the free-product thicknesses decrease, despite free-product 10 removal over time, which is what we would have expected 11 with a small source that was -- that could have possibly 12 13 have come from PNM's areas of operation. But instead, over time, we see that we're 14 applying a band-aid to a huge bleed, and that points to 15 sources other than us. 16 17 MR. ALVIDREZ: No questions. EXAMINER ASHLEY: Mr. Carr? 18 MR. CARR: No questions. 19 20 EXAMINER ASHLEY: Mr. Carroll? MR. CARROLL: No questions. 21 22 EXAMINER ASHLEY: This witness may be excused. MR. ALVIDREZ: That concludes our case-in-chief, 23 24 Mr. Hearing Examiner. 25 EXAMINER ASHLEY: Okay.

MR. ALVIDREZ: Oh, actually, I'm sorry. There 1 was one thing that counsel for Burlington had indicated 2 that they were interested in getting into --3 MR. CARR: Yes. 4 MR. ALVIDREZ: -- the record, and I think that's 5 It would be Burlington 4 -appropriate. 6 MR. CARR: Yes, that's right. 7 MR. ALVIDREZ: -- which are the most recent 8 results with regard to some soil borings. And had 9 10 Burlington not done that, we would have. So with your --MR. CARR: We believe it's appropriate that I can 11 12 move their admission. That would be Burlington Exhibit 4. 13 MR. ALVIDREZ: That would be fine, thank you. Exhibit 4 will be admitted into 14 EXAMINER ASHLEY: evidence at this time. 15 Mr. Carr? 16 17 MR. CARR: I would suggest it would be an appropriate time for a lunch break, Mr. Examiner. 18 EXAMINER ASHLEY: Okay, that sounds good to me, 19 20 or at least a break. 21 Okay, we will take a lunch break, and this hearing will reconvene at one o'clock. Thank you. 22 23 (Thereupon, a recess was taken at 11:55 a.m.) (The following proceedings had at 1:05 p.m.) 24 25 EXAMINER ASHLEY: At this time the hearing is

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called back to order for Division Case 12,033. 1 MR. ALVIDREZ: Mr. Hearing Examiner, with your 2 permission, we'd like to recall one of our witnesses, 3 Rodney Heath, to respond to a question that was asked of 4 Ms. Terauds with regard to the production of oil and gas 5 and the ratios between the two. 6 Mr. Heath isn't here right now, so I don't 7 8 propose we delay the hearing to await his return, but 9 perhaps at some point during the presentation we can call him back on the stand. 10 Oh, is he? He's here. 11 If -- As I understand it, Mr. Carroll and Mr. 12 13 Carr have no objection to --MR. CARR: We have no objection. 14 15 MR. CARROLL: No objection. MR. ALVIDREZ: -- a brief line of questioning. 16 EXAMINER ASHLEY: That's fine, Mr. Heath can be 17 called, recalled. 18 MR. ALVIDREZ: Mr. Heath, we'd like to have you 19 back on the witness stand for just a moment, real quick. 20 21 MR. HEATH: Okay. 22 EXAMINER ASHLEY: And you know you're still under oath? 23 MR. HEATH: Yes. 24 25 MR. ALVIDREZ: If I may, Mr. Hearing Examiner?

1	EXAMINER ASHLEY: Yes, sir, Mr. Alvidrez.
2	RODNEY T. HEATH (Recalled),
3	the witness herein, having been previously duly sworn upon
4	his oath, was examined and testified as follows:
5	DIRECT EXAMINATION
6	BY MR. ALVIDREZ:
7	Q. Mr. Heath, you were present in the hearing room
8	when Ms. Terauds was asked a question by Mr. Carr on cross-
9	examination about issues that would happen to allow oil
10	production to cease yet gas production to continue. And
11	I'd like for you to please tell us what you would expect
12	under that scenario with regard to the gas pressure
13	lowering so much that it can't lift the liquids.
14	A. Well, it wouldn't be the pressure, necessarily,
15	but the volume. It's pretty common in the San Juan Basin,
16	in fact, I'd say the majority of the wells require some
17	type of method of unloading them as the oil builds up, or
18	water or hydrocarbons, whatever builds up at the wellbore.
19	And if some method of unloading the well isn't
20	used, then ultimately the well could completely load up and
21	die as a result of those liquids in the wellbore.
22	And if you had a situation where you had a
23	dropoff you had a buildup of the hydrocarbons or the
24	water, whatever, in that wellbore, the fluid, you'd also
25	get a corresponding dropoff of gas volume at the same time.

-	O Did you goo that parameting to the production
T	Q. Did you see that, according to the production
2	records that you reviewed?
3	A. No, I That was one of the things that I first
4	looked at to see. Well, maybe what was happening is
5	particularly the Mesaverde side, that it was simply had
6	just loaded up.
7	But I didn't observe that the gas volume had
8	dropped off like that. And in fact, that chart indicates
9	that the gas volume stayed relatively constant.
10	Now, to show that, for example, this well does
11	have a problem staying unloaded, presently they're running
12	a plunger lift to lift the well it's commingled and
13	obviously they didn't put a plunger in to lift those
14	liquids if they could just let it go and the gas flow would
15	remain the same. So
16	Q. What does a plunger lift do?
17	A. Well, a plunger lift is It's actually a solid
18	interface, that they shut the well in, allow it to drop to
19	the bottom, then open the well back up. If there is enough
20	pressure in the wellbore to lift it, a plunger will lift
21	the liquid, flow against the flowing line pressure.
22	In this case they don't have enough velocity or
23	enough pressure to get that plunger to lift, so they're
24	actually opening the well up to the atmosphere for a period
25	of time they don't know whether it goes through the

entire cycle or not -- but long enough to get it traveling, 1 2 coming up the wellbore. So in this particular well I would conjecture 3 that it is experiencing problems, particularly with the 4 Mesaverde, because dual completion, I suspect that with a 5 relatively small tubing string that they could have used 6 one of two methods to unload that well. 7 One, they could have run a plunger --8 Would that be the more common method? 9 Q. I would think it would be less likely in this 10 Α. case because of the small tubing, but I don't know that for 11 12 a fact. The other method they probably could have used --13 and I'm just conjecturing; I don't know; no one's told 14 me -- they could have just unloaded the well to the 15 atmosphere by blowing it or using an emitter, it could be 16 17 blown by hand. But to have kept the gas flow relatively 18 19 constant, I believe they had to use some method to keep the 20 hydrocarbon liquids unloaded from that wellbore. Now, what 21 happened to those liquids I don't know. 22 MR. ALVIDREZ: That's all the questions I have. 23 CROSS-EXAMINATION BY MR. CARR: 24 25 Q. Mr. Heath, you don't know what methods were used

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on this well during the period in 1995 and 1996; that's 1 what you said? You're just -- It's just conjecture? 2 3 No, what I am saying is, I don't believe that the Α. hydrocarbons -- the liquid hydrocarbons that suddenly seem 4 5 to quit being produced and recovered, that that actually happened. 6 7 Those hydrocarbons were produced. 8 Now, how they were produced, whether they were using a plunger or they were intermitting the well, what 9 10 they were doing, they were using some method to lift those hydrocarbons, or else the well would have loaded up and 11 12 your gas flow would have dropped off. 13 Q. Do you know what happened at that well between January, 1995, and 1996? 14 15 Α. No, I do not. 16 MR. CARR: Thank you. 17 EXAMINER ASHLEY: Mr. Carroll? 18 MR. CARROLL: No questions. 19 EXAMINER ASHLEY: I have no further questions. 20 You may be excused. Mr. Alvidrez? 21 22 MR. ALVIDREZ: Thank you, Mr. Hearing Examiner. 23 EXAMINER ASHLEY: Mr. Carr? 24 MR. CARR: Thank you. At this time we would call 25 Paul Rosasco.

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1	PAUL ROSASCO,
2	the witness herein, after having been first duly sworn upon
3	his oath, was examined and testified as follows:
4	DIRECT EXAMINATION
5	BY MR. CARR:
6	Q. Would you state your name for the record, please?
7	A. Paul Rosasco, R-o-s-a-s-c-o.
8	Q. Mr. Rosasco, where do you reside?
9	A. Golden, Colorado.
10	Q. By whom are you employed?
11	A. Engineering Management Support, Incorporated.
12	Q. And what is your position with Engineering
13	Management Support, Incorporated?
14	A. I'm a principal engineer, and I'm also president.
15	Q. And what is your relationship in this case to
16	Burlington Resources?
17	A. I've been retained by Burlington to review the
18	data in this matter and to advise them on the methods of
19	remediation of the wellpad area.
20	Q. Have you been out to the well site?
21	A. Yes, I have.
22	Q. Are you consulting with them on the methods to be
23	utilized to remediate contamination at the Hampton 4M?
24	A. Yes, I am.
25	Q. Have you previously qualified as an expert

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witness in other forums? 1 Yes, I have, several times. Α. 2 And what forums? 3 Q. The US Court in several districts, various state 4 Α. 5 courts. And how have you qualified in the past as an 6 0. 7 expert witness? In what area? Geology, hydrogeology and engineering as it 8 Α. relates to groundwater contamination, soil contamination 9 and remediation. 10 Could you review for Mr. Ashley your educational 11 Q. 12 background? 13 Α. I have a bachelor's in geology from the University of Oregon and a master's of engineering in 14 15 engineering geology from Colorado School of Mines. And when did you receive your degree from the Q. 16 17 Colorado School of Mines? Α. 1985. 18 Since 1985, would you review your work experience Q. 19 20 for the Examiner? Α. Well, even before that, but beginning in 1985, I 21 spent ten years with the consulting firm of Harding Lawson 22 Associates doing investigations and remediation of various 23 Superfund sites, RCRA sites, landfill sites, hydrocarbon 24 25 sites and so forth, and then for the last four years as

1	engineering management support I've done similar types of
2	work. I also did that work prior to 1985.
3	Q. Okay, and for how long prior to 1985?
4	A. I've been involved in waste disposal and site
5	characterization and remediation since projects, since
6	1979.
7	Q. Are you a registered engineer?
8	A. Yes, I'm a registered civil engineer in the State
9	of Colorado.
10	Q. When were you employed by Burlington?
11	A. I was first contacted by Burlington in this
12	matter in May of 1998.
13	Q. And at that time what were you asked to do?
14	A. To review the various reports and the data
15	generated in this case, to advise Burlington on what
16	additional data may be necessary to try to answer the
17	source issues, to evaluate with Burlington possible
18	remediation scenarios.
19	Q. And have you completed that work?
20	A. To the extent that the work is still ongoing as
21	we are still performing, I'm doing remediation and
22	assessment.
23	Q. Are you still actively involved in that effort to
24	remediate this site?
25	A. Yes.

May it please the Examiner, we tender MR. CARR: 1 Mr. Roscasco as an expert in soil and groundwater 2 contamination and remediation. 3 4 EXAMINER ASHLEY: Mr. Rosasco is so qualified. (By Mr. Carr) Mr. Rosasco, do you have an 5 Q. opinion as to whether or not the PNM former dehydration pit 6 is a source of free product? 7 Based on my review of the data and observations 8 Α. made in the field, it is my opinion to a reasonable degree 9 10 of scientific certainty that free product was released from the former PNM pit. 11 Now, I'd like you to explain what you base this 12 Q. 13 opinion on. And I think first it would be important if you 14 would explain the terminology that you're going to be 15 using. 16 Α. I have a set of four slides that I used in 17 another matter, that have -- if it would please the Examiner, I'd like to show briefly. I think we -- It's 18 going to be hard to see them, and I think we have paper 19 20 copies for the parties. MR. CARR: Mr. Examiner, I'm not intending to 21 22 offer these into evidence; they're for demonstrative 23 purposes only. The evidence will actually be the 24 substantive testimony from Mr. Rosasco, but I think it will make it easier just to follow his testimony. 25

1 EXAMINER ASHLEY: Okay. (By Mr. Carr) All right, Mr. Rosasco, let's go 2 0. 3 to the first of the slides, and I would ask you to review 4 the terminology that you'll be using. All right, this is just -- And like I said, 5 Α. Yes. 6 there's copies. This is just a generic source. In this 7 case it was looking at a tank, but it could be any source that has had a release of hydrocarbon product. 8 In this 9 case, we're looking at a pinhole leak from a tank, for 10 example. 11 ο. And that is the sort of green-shaded area above the word "residual"? 12 13 Α. Are we going to have the lights on or off? 14 MS. RISTAU: We were hoping there was a halfway 15 point. THE WITNESS: Okay, that helps a lot. Okay, 16 17 yeah. This is the olive-brown color that's shown right there as a source area. And this represents conceptually 18 19 what has happened where a release has occurred, free 20 product has migrated down to the water table, and I'm going to go through the terminology of where we see hydrocarbons 21 in the unsaturated zone, what we call the capillary fringe, 22 the free-product zone, and it also has a slide in the lower 23 right of the dissolved phase. 24 25 And these are shown in the four boxes here, and

1	if we can go to the next slide we can go through each one.
2	These four boxes represent Just a moment,
3	Paul. Paul, just a moment.
4	These four boxes just represent typical sand
5	grains, for example, with other phases that would be found
6	adjacent to each of those.
7	So let's look first at the upper left box, the
8	unsaturated, and we have a blow-up of that.
9	Once free product has moved through the
10	unsaturated zone hopefully in a downward direction,
11	Paul. Okay what will happen is that in the
12	unsaturated zone we will have open voids that have air in
13	them, in this case, there will be some residual water
14	trapped in various pore spaces or adhering to the sides of
15	the sand grains. There will also be free product that will
16	be left, again, trapped in the pore spaces or adhering to
17	the sides of the sand grains and so forth.
18	The product is moved down through this zone.
19	There is no free product. It won't drip when you grab the
20	sand at this stage, but it will have hydrocarbon in it, it
21	will have a strong odor, and it will have high
22	concentrations of hydrocarbon-related constituents. This
23	is what occurs in the unsaturated zone after the free
24	product has moved through it.
25	If we look at the next slide, this is what we

would have down in the water table where now in the zone of
the floating hydrocarbon we have essentially continuous
pore spaces filled with hydrocarbon but still have some
water in the spaces. The hydrocarbon does not completely
displace all of the water. And it represents a more or
less continuous phase of hydrocarbon that moves through the
subsurface.

8 If we can go to the next slide, Paul, real 9 quickly.

10 And adjacent to each of the sand grains, on each of the sand grains, we will have some residual material 11 trapped where actually it's free-phase hydrocarbons. We'll 12 have some that is absorbed onto or otherwise partitioning 13 14 to the aquifer material, the sand grains, or if there's carbonaceous material, it will partition to that. And then 15 in addition, what we have, the water that's there will have 16 17 dissolved contamination present in it.

18 If you could go back to the first slide, Paul,19 please?

So this slide represents what has happened after a release has occurred. The release is no longer occurring. We have residual hydrocarbon trapped in the unsaturated zone. We have some trapped in what we refer to as the capillary fringe, we have some free-phase floating product here, and then we have a dissolved plume down below

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1 it. And that's the terminology.

2	And the free phase moves generally down the water
3	table, but it is a function of the heterogeneity, the
4	various differences in the sand layers and the clay layers
5	and the other materials, and even within individual sand
6	layers, the differences in the degree of cementation that
7	cause preferential pathways for migration of the free
8	product.
9	So it is not as simple as it just floats down the
10	water table and you get from here to there, because it's
11	going to be controlled by permeability contrasts within the
12	subsurface that allow it to move in directions not
13	necessarily consistent with the water-table gradient, but
14	in the general direction of the water table, but moving
15	back and forth through the permeability, the more porous,
16	more permeable zones.
17	Okay, that's the terminology that I wanted to
18	just review before we answer the questions.
19	Q. (By Mr. Carr) In reaching your conclusions
20	concerning the contribution of free product from the former
21	pit, what data did you utilize?
22	A. I reviewed the data from the original removal,
23	excavation performed by PNM, although much of the results
24	were not available to me. The boring logs from Philip said
25	the PID readings were obtained by PNM, and they didn't

1	record those. I think we saw those this morning, as I
2	recall, or yesterday, I can't remember which.
3	I did not have access to the chemical analyses of
4	those samples, but did consider the fact that they were
5	taken, at least.
6	And then I looked at what was obtained by
7	Burlington when they drilled Oh, excuse me, I looked at
8	the borings that had been drilled, the MW-2 and MW-6 and
9	the results of those borings. I looked at the results of
10	SB-2, which was a boring just drilled about a month ago by
11	Burlington at my request through both the There was one
12	boring drilled through the former Philip excuse me,
13	former PNM pit, and one boring drilled adjacent, as close
14	as we could get to the former Burlington pit, because that
15	pit is still open. I also reviewed And I reviewed the
16	results of the sample analyses obtained from those borings.
17	I also reviewed the results of the PID readings
18	being obtained in the field during the current excavation,
19	the results of the chemical analyses of samples obtained
20	during the current excavation, and then my observations
21	made when I was out there last week to observe the
22	remediation activities.
23	Q. Based on these field observations and this data,
24	what can you conclude?
25	A. As I indicated earlier, it is my opinion to a

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reasonable degree of scientific certainty that free product 1 did move out beneath and adjacent to the former PNM pit and 2 moved down into the subsurface. 3 Is this a source of contamination at this site? 4 ο. 5 Yes, it is. Α. Could this be the result of vapor moving up 6 0. 7 through the formation? 8 Α. No, the soil concentrations that we're seeing are 9 way too high to be vapor coming off of the water table. 10 And the elevation of the samples -- For example, samples were obtained in the boring drilled by Burlington a month 11 ago at a 15- to 16-foot depth and showed benzene at 36 --12 13 or excuse me, BTEX at about -- approximately 36,000 parts 14 per billion. Samples were obtained at an 18-foot depth 15 that showed BTEX at approximately 100,000 parts per billion. And at a 21-foot depth it showed BTEX at 16 17 approximately 400,000 parts per billion. These 18 concentrations are well above that that you would get from 19 vapor-phase partitioning. 20 When you heard the evidence this morning, were 0. 21 you surprised to hear that the thickest free product was 22 under the former pit? 23 I quess not surprised. Based on the work that Α. I've done at refineries and bulk facilities and oilfield 24 25 processing areas and other areas, generally, for the vast

majority of them, the free product is usually present at 1 In this case, we probably have more than one 2 the source. source. We have free product in a number of different 3 4 areas, or have releases that could have caused free product in a number of different areas. 5 So I was -- It doesn't surprise me that the free 6 7 product occurred beneath the former pit. It may be a combination of the release that occurred at that pit, it 8 9 may be a combination of accumulation in that area due to differences of the permeability of the sand --10 11 Is it your opinion that this pit is a source of ο. 12 the contamination at this site? 13 It is my opinion that free product was released Α. from this pit and moved down to the water table. 14 Mr. Rosasco, you're not saying that PNM is the 15 Q. only responsible party out here? 16 17 No. Α. That Burlington is a responsible party? 18 0. 19 No, that's clearly the case, we've looked at the Α. 20 data from the Burlington, pit and there's high levels of 21 BTEX and TPH and PID readings and so forth at the 22 Burlington pit, much of which were removed. 23 But based on the data that was obtained by PNM 24 this July and a subsequent sample obtained by Burlington, 25 there's clearly an area in the south -- excuse me, get this

1	right northeast corner that still has some contamination
2	in it that has to be removed.
3	Q. And when you say the northeast corner, are you
4	talking about the original excavation in that pit?
5	A. Yes, the samples that were obtained right at the
6	water table.
7	Q. And if that was the southwest corner, that would
8	also be correct? Just where the pit is, correct?
9	A. I knew I'd get it wrong, not matter what I did.
10	No, it was the Excuse me, it would be essentially the
11	northeast corner. The pit itself is in the southeast
12	corner of the pad, but we're talking about the northeast
13	corner of the excavation of the former Burlington pit.
14	Q. All right. I'd like to ask you to review the
15	activities of Burlington at this site at the present time.
16	These slides, I'd like you to start with the one entitled
17	"Ongoing Burlington Activities"
18	A. Yes.
19	Q and really explain what has been done.
20	A. Burlington, like PNM, received a letter on
21	September 1st from the OCD requiring additional
22	investigation and remediation of source areas, and also
23	requiring groundwater investigations.
24	Burlington submitted on October 28th a work for
25	the additional investigation and remediation required by

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1	OCD and began initiating those activities on November 10th,
2	consisting of, first, removing of the remaining
3	contaminated soils beneath the former dehydrator pit and
4	where the dehydrators themselves were.
5	And along with removing those soils and getting
6	down to the water table, investigation of the occurrence
7	and the extent of free-phase product. We went down and
8	tried carefully to examine the areas where water was
9	issuing, which seams, and where free product was present,
10	and began remediation of the free product.
11	Q. And what was the objective of this effort?
12	A. The objective of the overall effort is to remove
13	all of the remaining source material, to remove the free
14	product, to remove the soils that contain residual
15	hydrocarbons.
16	These would be free product that is not in
17	continuous phase but is stuck as globules on the soil and
18	would act as an ongoing source. Even once we finished
19	pumping all of the free product, there would be residual
20	globules down in the water, right at the water-table
21	surface, and this effort would remove all of that, to take
22	away not only the free product but all the source of the
23	dissolved contamination.
24	Q. Would the time it takes to actually clean up this
25	site was that a factor in your decision to take this

1 approach to the remediation?

There were a number of factors. One was the Α. 2 timing, the ability to get in there and get it done fast. 3 We have a plume of dissolved contamination moving off site. 4 We were extremely concerned about Dr. Everett's water well 5 and the potential for the plume to affect the water quality 6 in that well and wanted to take action as quickly as 7 possible to remediate the source. 8 At the same time, we did install the additional 9

Me the same time, we did install the additional monitoring well that has been mentioned previously here today, to assess the water quality down near and in the vicinity of Dr. Everett's well and whether the plume had reached that location yet.

We wanted also, as I said, to get all of the contamination out. It's been my experience that no matter how much free product we pump off, we will not get it all.

17 There will continue to be tenths of feet, you 18 know, a few tenths, sheens and so forth, that act as 19 ongoing source of dissolved-phase contamination that cannot 20 be removed by pumping with a scavenger or a skimming-type 21 pump system. You can only skim it down to a certain depth, 22 a certain thickness, and the pump is no longer efficient. 23 And in addition, it will be left out throughout 24 the area, and that pump has a very small radius of 25 influence, based on the fact that it only pumps for a few

minutes several times a day. It just doesn't cause that 1 much drawdown. Nor should it, because if it does, it 2 smears it out. So you cannot get it all out. 3 You also have, even if you could get -- somehow 4 miraculously get every drop of free product that's floating 5 and continuous, you have all the residuals, the residual 6 hydrocarbon that is a free-phase but not continuous, not 7 flowing -- it won't be a liquid; it will be adhering to the 8 9 soil grains -- that also acts as an ongoing source. Are you obtaining data as to the potential 10 Q. sources of contamination as you go through this remediation 11 12 effort? To the extent that we can identify the occurrence 13 Α. and extent of free product and it allows us to assess what 14 the sources are, we are trying to do that. But that is --15 I mean, to be honest, the foremost objective is to 16 17 remediate the sites, to get after it and not worry so much about the source characterization. If we can get that 18 information -- and we are attempting to do it -- we will do 19 It may be that we will never get the answer. We just 20 it. want to get the source remediated, though. 21 When you are on the site -- You were present for 22 Q. 23 the testimony this morning, were you not? Yes, sir. 24 Α. 25 And you understand there's been some criticism of 0.

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1	going out with a bulldozer, as Burlington has been doing?
2	A. Yes, I understand that.
3	Q. Why are you using a bulldozer?
4	A. Based on the experience that Burlington had when
5	they remediated their pit, there is no other way to remove
6	those soils. They had tried to use an excavator, to do a
7	more surgical type of excavation, but the excavator cannot
8	rip through the hard sandstone layers that were identified
9	at the site and discussed by PNM's personnel and also have
10	been identified by Burlington. It's the only way that they
11	could get in and actually remove that material, based on
12	their experience.
13	Q. What are the results of Burlington's ongoing
14	remedial activities?
15	A. I have a slide that summarizes this, but
16	basically two parts.
17	We removed contaminated soils from a depth of 12
18	to 24 feet beneath PNM's former dehydrator pit and the
19	dehydrators themselves. PID readings in the contaminated
20	area range from 100 up to the 3000 was actually at the
21	water table, so I'd say the highest level we got There's
22	one that was about 2700, and there were several in the
23	1500, as has been testified to earlier this morning. Those
24	were the types of readings that were obtained above the
25	water table.

We have laboratory analyses that I believe are 1 Burlington Exhibit Number 4. I'll talk about those in a 2 minute. 3 4 Burlington has removed -- As of Monday or so, they had removed approximately 2150 yards of contaminated 5 6 soil. In addition, we identified groundwater and free 7 8 product in discrete sand seams, and some of those, particularly at about a 24-foot depth, were of very limited 9 10 lateral extent. There was a sand seam that was on the eastern wall of the excavation, or near the eastern wall, 11 just to the east of where our former Well Number 2 was, 12 13 that was issuing water out of a thin seam at about a 24foot depth. 14 In addition, as was testified to earlier, there 15 16 was water coming up from the borehole of MW-2 and MW-6, 17 that also contained initially some free product. 18 Burlington has -- I have not been out there, but on Monday they built some berms and partitioned it, and 19 20 it's been reported to me that the free product is no longer 21 issuing from the wells, but it is still issuing from this 22 one discrete sand seam at about 24 feet. 23 Q. Were you surprised to discover the separate sand 24 seam? 25 Yes, the conceptual model that had been presented Α.

in all of the previous reports assumed a uniform watertable-type condition and that it was uniformly saturated and the product was floating on the water table. When we got out there it was clear that -- due to permeability contrast, that this actual -- the water and the free product occurred in seams that would come out from the -issued water and free product into the excavation.

Q. Has Burlington excavated -- Are they excavating
9 to the water table?

The initial approach was to excavate to the water 10 Α. table so that we could get down there and look and see what 11 was occurring, to get all of the residual hydrocarbon-12 contaminated material from above the water table out, and 13 then to create a sump that we could pump water and free 14 15 product out of, at least initially, and look and see whether we could more quickly, in essence, dewater the 16 17 entire seam.

If we can't, then we'll go and rip the overburden 18 19 off of it and go strip the seams back, back up into the site, continuing up to the south, towards the Burlington 20 pit. And as I indicated, they will also go in and rip the 21 area in their former pit in the northeast corner where the 22 two samples, one by PNM and one by Burlington, have shown 23 24 that there is residual hydrocarbon-contaminated soil still 25 present.

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1	Q. Do you have a slide that you can use in reviewing
2	Burlington's approach to groundwater remediation?
3	A. Yes, and I've kind of
4	Q. Would you do this, and also identify what else
5	remains to be done at the Hampton 4M?
6	A. Yes. At this point, all of the contaminated soil
7	between the former dehy pit and the former dehys, up to the
8	down to the water table, has been removed. They were
9	still checking the walls of the excavation, and I believe
10	there may be some above the water table in the north wall
11	still remaining. But that's the access to the pit right
12	now. It will have to be taken out at a later time.
13	They will they have yet to do, but will do
14	They're removing the remaining contaminated soils in the
15	former Burlington tank pit. And as I indicated, in the
16	very northeast corner there was some material, and I want
17	to clarify.
18	There's been some testimony about having left
19	material from a 15- to 16-foot depth and that the
20	contamination was down to 16 feet, and the pit only went to
21	15. I think those were field observations on the depth.
22	The true depth of the pit is 17 feet, and there were clean
23	soil samples obtained from the bottom of the pit.
24	So based on that data, we believe that all of the
25	material from the bottom of the pit was removed, but

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clearly we did not get what was left in the side of the 1 pit. And although there may have been a reported sheen on 2 the water, there has certainly not been any free-phase 3 hydrocarbon that has accumulated. And the most recent 4 water-sample tests indicate the water is clean, it doesn't 5 contain levels above the standards. 6 So we believe what's left there is still a -- is 7 a fairly small amount, but it is still there and needs to 8 be removed if we're going to take every bit of the material 9 out of this site. 10 And that's the previously excavated pit at the 11 0. 12 southern end? 13 Α. Yes. 14 In addition to that, as I indicated, we began on 15 Monday to remove free product and groundwater by pumping that off. We will continue that, although we had to stop 16 17 that this week because everybody involved is here, instead of out there doing the work, but we'll go back to doing 18 19 that. And if we can dewater it, if we can see a 20 21 decrease in the amount of water -- I'll be frank, I haven't 22 quite figured out where all the water is coming from. This is a fairly small arroyo, it's a fairly small basin there. 23 There shouldn't be an extensive amount of water. We've got 24 25 ridges on three sides of that area. There just is not a

1 long sand seam that should contribute.

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2	So we expect that the water should decrease over
3	time, and we'll just try to dry it out first. If we don't,
4	then we'll have to pump it out and go rip the seam up. But
5	either way, we'll go remove all the hydrocarbon material
6	until we get enough done in terms of both in terms of
7	either excavation or dewatering or both, to get the source
8	material taken out of there.
9	Q. Summarize the objectives of Burlington's efforts
10	at this site.
11	A. The objective is pretty simple. It's to take all
12	the material that can be a source of free-phase or
13	dissolved contamination off of the site.
14	MR. CARR: That concludes my direct examination
15	of Mr. Rosasco.
16	EXAMINER ASHLEY: Mr. Alvidrez?
17	MR. ALVIDREZ: Yes, I have some questions.
18	CROSS-EXAMINATION
19	BY MR. ALVIDREZ:
20	Q. Mr. Rosasco, I wanted to ask As I understand
21	it, the first time that you had any connection with this
22	site at all was May of this year; is that correct?
23	A. Yes, sir.
24	Q. And at that time you were presumably provided
25	with the data that had been developed by both Burlington

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1	and PNM to review; is that correct as well?
2	A. The data that was available up through that time,
3	yes, sir.
4	Q. Right. And from that, you were able to determine
5	that Burlington up through that point in time had basically
6	taken the position that it was not responsible for the free
7	phase that was underlying this site, isn't that correct?
8	A. There certainly was some in some of the early
9	reports of that where they made those allegations, yes,
10	sir.
11	Q. Well, that was their position, wasn't it?
12	A. Not at the time that I met them. They indicated
13	that if it was their source, it would be their source; they
14	would have to remediate it. But I will agree that some of
15	their earlier reports did have that language in it.
16	Q. Oh, so back in May when they came to see you,
17	they said, You know, we are responsible for the free phase?
18	A. No, what they indicated to me was if they were
19	responsible they would deal with it.
20	Q. I see. Well, based on the data that had been
21	developed, did you draw a conclusion that, in fact,
22	Burlington was a source for part of this free phase?
23	A. Not in May, no, sir.
24	Q. Okay, when was it that you made that
25	determination?

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I still am not sure -- Well, let me back up. Α. Ι 1 believe, based on the soil concentrations, it is very 2 likely that free-phase product was released through 3 Burlington's former pit. So I believe they were a source 4 5 of the free-phase hydrocarbons. 6 In the time that I first came on, I looked at the 7 information. All the data I had indicated there was no 8 contamination left in that pit. And I believe at that time 9 the downgradient wells, Well 4, for example, did not show 10 any residual -- did not show any floating hydrocarbons. 11 With the discovery a month ago of floating 12 hydrocarbons and the samples that were obtained by PNM in 13 July and by Burlington in October at the corner of the pit, 14 I believe it's still likely now that there is a source of 15 contamination in the northeast corner of that former 16 Burlington pit. 17 ο. And would you also agree with PNM's assessment in terms of the gradient flow of the water? 18 19 Α. I believe in a general sense the gradient is I've looked at the various maps. PNM has 20 correct. 21 indicated a general northwest gradient. The most recent 22 map actually shows a -- I've got to get a map out to make 23 sure I get my directions correct. 24 The most recent map actually shows more of a 25 westerly gradient at the site, from the pad down towards

1	the arroyo, the most recent water-leveltable maps that
2	I've seen. And I believe that in general You know, it
3	varies, but in general a northwest direction is acceptable
4	for purpose of general characterization.
5	However, given that the water occurs in these
6	various seams, that does not mean that is the direction of
7	groundwater flow. That is the direction of the hydraulic
8	gradient, one factor that controls the direction of
9	groundwater flow.
10	Q. You wouldn't dispute, though, that groundwater
11	flow is from Burlington's operations towards PNM's
12	operations, would you?
13	A. Well, actually, based on the gradient most
14	recent, it actually would say the flow is from the east to
15	the west and would flow across the pad towards the arroyo
16	and not necessarily have a northerly component.
17	But as I've said, all that is, is the gradient.
18	That is one component of what causes groundwater to flow.
19	The permeability pathways are the other factor, and those
20	we don't have information on.
21	Q. Okay. With regard to the recent work that's been
22	done out there in the vicinity of the pit, PNM's former
23	pit, is it my understanding that the flow is coming in from
24	the west side or the east side, I'm sorry?
25	A. The flow is The regional water table, if you

will, or the more or less continuous water table, we have 1 not encountered that yet. We saw water flowing up the two 2 3 wellbores, MW-2 and MW-6. We saw a -- We cut into a seam that at the time 4 that I was there it was a couple of feet wide and a couple 5 inches thick, and it would have been located approximately 6 to the east of MW-2 and MW-6, along what at that time was 7 the eastern wall of the excavation. 8 9 Q. Okay. And that is also where the -- I guess you 10 also testified that there was a system of berms set up, and 11 cells, so you could assess where the product was coming from; is that correct? 12 13 Α. On Monday -- I have not seen that. That was not there on Friday. I've been --14 15 But that's been reported to you? Q. It's been reported to me that they put some berms 16 Α. 17 -- After they pumped the hundred-barrel -- approximately 80 18 -- they saw 100 barrels, they removed approximately 80 19 barrels of material, they then built berms in there that 20 segregated that out. And what's been reported to me, but I have yet to see, is that there was no more hydrocarbon 21 22 coming up from the MW-6, MW-2 borings, the wells. It was 23 still issuing from the sand seam on the eastern side of the 24 excavations. 25 Q. That would indicate a source of free product from

1	the eastern wall, if you will, away from PNM's original
2	pit; isn't that correct?
3	A. No, sir.
4	Q. Well, I thought that's what you just testified
5	to.
6	A. That is not what I testified to. I testified as
7	to where it was coming from into the pit. That does not
8	have anything to do with where the source was, because that
9	easily could be free product that has occurred in that
10	seam, and we're just draining it out. Where it came from
11	has nothing to do with it. Where it is in the pit, where
12	it discharges, has nothing to do with where it came from.
13	Q. With regard to your testimony relating to the PNM
14	pit as being the source, you don't have any calculations to
15	how much free product made it to the groundwater from PNM's
16	pit, do you?
17	A. No, sir.
18	Q. With regard to the illustrations that you used
19	and I want to We don't have these marked as exhibits,
20	but I want to look at what you called your generic exhibit
21	that has the tank with the bottom an apparent hole in
22	the bottom. That shows a situation where you have product
23	leaking through the soil and then hitting the water table;
24	is that correct?
25	A. Yes, sir.

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1	Q. And then the gradient flow of the water on this
2	depiction is to the right; isn't that correct?
3	A. Yes, sir.
4	Q. And what you see is a situation where the
5	floating product the bulk of it doesn't directly
6	underlie the source; isn't that correct?
7	A. In this particular conceptual drawing, that's
8	correct.
9	Q. And likewise, the plume goes down the gradient
10	flow as well; isn't that correct?
11	A. That is correct, sir.
12	Q. Now, in your dissolved-phase depiction, it
13	appears to me that what you've got there is grains of sand.
14	I think that's what the brown blobs are that you depict; is
15	that correct?
16	A. Yes, sir.
17	Q. And then nothing but hydrocarbon in there?
18	A. No, sir, that is the dissolved phase. That is
19	the water containing dissolved constituents in it.
20	Q. Okay, I don't see any water depicted there, I
21	guess, is
22	A. Maybe I used a poor choice of colors. I actually
23	made these up for a totally different matter and then just
24	got these shipped to me this morning. That would be
25	dissolved it's not intended The color choice got

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1	washed out in the color-copying. That actually is shown as
2	a pink in the original, and it is not the red of the
3	hydrocarbon.
4	Just so it's clear, I'm showing dissolved phase.
5	That will contain molecules of the various hydrocarbons
6	dissolved in water. It is not hydrocarbon free phase or
7	residual.
8	Q. All right. With regard to your other depictions,
9	for example, the depiction that shows unsaturated levels,
10	this one
11	A. Yes, sir.
12	Q this doesn't correspond to any type of
13	specific BTEX reading or anything like that, does it?
14	A. No, this is just to explain the mode of
15	occurrence of hydrocarbon and water and air and soil above
16	the water table.
17	Q. All right. And I noted in the excavations that
18	were done underneath the pit that there was quite a variety
19	of quite a range, if you will, of readings, from as low
20	as a hundred ppm, which is a fairly low reading, BTEX, all
21	the way up to 3000 ppm; isn't that correct?
22	A. No, those readings were obtained I'm sorry, I
23	may have misunderstood your question. Are you talking
24	about under the pit?
25	Q. My understanding is that you excavated soils

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under the pit --

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A. Okay.

Q. -- and that they showed a variation of a low of
4 1000 to upwards of 3000.

Actually, there were samples as low as -- I think 5 Α. the lowest we saw was 19.5 in the sidewalls. We were 6 7 trying to delineate the lateral extent, so there were low samples at the outer edges. Those were the samples in the 8 9 center of the excavation that it indicated contaminated 10 soils, and they range from 100 to 3000, as I indicated 11 occurred at the water table itself, and was where the -either residual or possibly floating free product may still 12 13 be present.

Above that elevation there was one sample at about a 22-foot depth, as I recall, that was 2700, and most of the rest of them ran between 800 and 1500.

Q. With regard to the remediation that's being carried out by Burlington, are you the one that came up with this remediation strategy?

A. In conjunction with Burlington. We discussed it.
I believe I listed a couple of criteria we looked at. We
also considered the cost of doing it versus -- being out
there for another year or two, trying to do it remote,
versus excavation and just getting it done.
Q. Have you ever utilized this method at similar

1	sites?
2	A. Excavation? Oh, yes.
3	Q. But to this same magnitude?
4	A. Larger.
5	Q. Okay. Would you agree that this method of
6	remediation makes it difficult to create any reference
7	point so that you can actually pinpoint a source?
8	A. I will agree that the surveying that is being
9	done is field surveying and is plus or minus a foot or two
10	feet, that type of surveying, and that those types of
11	locations are approximate to within those range.
12	We could call out a registered surveyor,
13	establish benchmarks and do it, but again, our goal is to
14	get this material out. It's not necessarily first and
15	foremost. Not necessarily to try to within, you know,
16	centimeters, try to figure out exactly where things occur.
17	I mean, this is a construction operation. We've
18	got a bulldozer out there trying to rip things up. So, you
19	know, we're not going to go out there and try to measure it
20	with a pair of calipers.
21	Q. And there's not a lot of soils management going
22	on out there in terms of making sure your contaminated
23	soils don't get mixed in with your clean soils and type of
24	thing; isn't that correct?
25	A. To the best of the ability, those two are being

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1	segregated. But based on the fact that a bulldozer is
2	being used, there is no doubt that some clean dirt is being
3	mixed with some contaminated dirt, which then is being made
4	contaminated dirt.
5	Q. Okay, and we're actually talking about very large
6	volumes of soil
7	A. There's a lot of soil
8	Q that was originally contaminated?
9	A that's correct.
10	Q. And I want to talk a little bit about the
11	sampling that was done. As I understand it, at 18 feet in
12	the boring that was done below PNM's pit, that only 36 ppm
13	benzene was detected; is that correct?
14	A. Actually, that was a sample at 15 to 16 feet.
15	Q. Okay.
16	A. That's correct. They did not obtain any samples
17	deeper because they ran into free product.
18	Q. Okay. Well, 15 or 16 feet. I think the report
19	we got was 18 feet. But that is less than the OCD closure
20	standard of 50 ppm; isn't that correct?
21	A. That is correct.
22	Q. Okay. What With regard to source
23	identification, I mean and that is identifying where
24	this source originated, isn't that tied into responsibility
25	for cleanup of the contamination?

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STEVEN T. BRENNER, CCR (505) 989-9317

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1	A. I believe the data shows that releases have
2	occurred at both parties' facilities, so both parties are
3	responsible parties. I believe what you're talking about
4	would go to allocation.
5	Q. And you haven't made any attempts at allocation;
6	is that correct?
7	A. Not at this point with ongoing investigations to
8	generate additional data. There's no point in doing it at
9	this point.
10	Q. I'm sorry?
11	A. Not at this time, because we have ongoing
12	investigations to obtain additional data.
13	Q. And what are these ongoing investigations?
14	A. The excavation of the material, to go back and
15	figure out where it's occurring.
16	Q. Okay. Anything else that you're doing?
17	A. Not at this time, no. It's to go out and remove
18	the material. To the extent that helps us answer it, so be
19	it.
20	Q. You testified that you know that there is a
21	source of contamination in the southeast portion of the
22	well pad where Burlington made its excavation. Why didn't
23	you start your work over there?
24	A. I left it to the people on site to decide how to
25	do it. That was a relatively small volume down at the

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water table, so it's part of the seams, if you will, that 1 might have to be looked at, versus the material that was 2 still above the water table. We wanted to remove all of 3 that first so then we could try to figure out a way to 4 strip all of the overburden off if we have to go and remove 5 this seam. 6 You could have started at that end, but then you 7 have quite a bit of clean dirt to remove before you get to 8 9 contaminated dirt. 10 This way, we could remove contaminated dirt first 11 and get it off the pad and create more space. Wasn't part of the impetus to get moving on this 12 0. 13 site the fact that we had a hearing coming up before the 14 OCD on the very issue of responsibility? 15 Α. Well, I guess -- I didn't know for sure whether 16 we'd continue to have a hearing, so I don't know that that necessarily was the issue. As late as last Friday --17 Do you remember discussions to that effect? 18 0. 19 Α. No. Even as late as last Friday, we were 20 discussing whether we should even go forward with the 21 hearing. The impetus was that we got the letter September 22 1st, we had to get something done. PNM had declined to participate so Burlington said, This is what we'll do, 23 let's go do it. 24 25 Q. Why is Burlington going after soils rather than

the free product itself? 1 2 Well, in order to get to the free-product layer, Α. we had to remove the soils that were up above it, the 3 4 unsaturated soils. When do you anticipate that Burlington will start 5 Q. excavations, or soil recovery, and perhaps free-product 6 recovery, at the southeastern portion of the well pad? 7 8 Well, I don't know that we'll start free-product Α. 9 recovery at the southeastern portion, because there is none 10 at that location. There's a little bit in MW-4, but 11 there's none in the pit, and there's none in the soil right 12 there. We were discussing that, I've reiterated several 13 times to Burlington that that has to be done. 14 I think 15 they're waiting to see first -- and we discussed this --16 whether we could dewater the seam and get rid of the water 17 and that flowing free product first, and then we could go 18 in and strip everything off. If we can't dewater it, then we've got to strip it off and move it as wet soil. 19 20 So we're trying to see if we can dewater it That was the intention, to start this week. 21 first. 22 Will the plan be to take that bulldozer and just Q. 23 keep working in a southward direction? If we can't figure out any other way to do it, 24 Α. 25 that's the way it will be. We'll have to remove all that

1	soil to get after that seam.
2	Q. And will you end up taking the well pad out
3	altogether, if that's necessary.
4	A. We'll take it out and replace it as we go. We'll
5	move the clean dirt aside and excavate the dirty dirt and
6	put the clean dirt back down and rebuild the well pad as we
7	go.
8	Q. Are you aware of Clean Water Act requirements
9	with regard to navigable waters in the United States?
10	A. I am.
11	Q. And are the activities impacting any of the
12	arroyos up in the area of the Hampton 4M well?
13	A. No, I personally went out and observed it, and
14	even before we started it I stressed to Mr. Hasely that we
15	had to be absolutely sure not to push any dirt into the
16	arroyo, that the dirt had to be kept back from the water,
17	the flowing watercourse in the arroyo. He assured me he
18	would watch that.
19	When I went out on Friday I checked it, and there
20	was nothing that had been pushed into it. At one point I
21	saw the bulldozer operator getting close, and I asked to
22	make sure that they advised him not to push any more dirt
23	over into that area.
24	Q. Has that seep been covered up by the soil?
25	A. It had not been as of Friday. I have not been

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1	out there this week, no.
2	Q. With regard to the issue of the dissolved phase,
3	I guess Burlington has known about the existence of the
4	dissolved phase under their site for quite some time; isn't
5	that correct?
6	A. I can't say when Burlington first knew about. I
7	know PNM discovered it in January of or December of
8	1996.
9	Q. Okay, and I'm
10	A. And I assume they knew shortly thereafter, so
11	Q. Well, I'm really talking about the presence of
12	dissolved phase under Burlington's own portion of the
13	wellpad.
14	A. Without having the dates in front of me, I assume
15	they found out sometime either during the time the wells
16	were drilled or soon afterwards when the samples came back.
17	Q. And you're talking about the wells Even the
18	temporary wells showed that there were dissolved phase;
19	isn't that correct?
20	A. That's correct.
21	Q. And if we go back in the chronology, I mean
22	that's been a long time since Burlington's known about
23	that; isn't that right? It's been over a year?
24	A. It's been at least a year, at least a year, sir.
25	Q. At least a year. And during that period of time,

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Burlington did not take any action to aggressively address 1 those groundwater problems; isn't that correct? 2 Beyond installation of the trench and the attempt Α. 3 to cut off the seep to the arroyo, no, they have not taken 4 any action on the groundwater. 5 They've basically let things set at a static 0. 6 7 state or not doing anything until you were called out and looked at this area in some more detail; isn't that 8 correct? 9 I guess I wouldn't agree that it wasn't till I 10 Α. was called out. My understanding when I asked them and 11 looking at the documents is, they excavated their pit, they 12 13 removed all the contaminated soil, they were then 14 monitoring to see if that resulted in cleanup of the 15 groundwater, which it hasn't, and then came back out to do additional work. 16 17 And it was -- it became pretty obvious to you Q. 18 after you came on the job that there was, in fact, a source 19 upgradient, that is, towards Burlington's operations of the 20 free product? 21 Α. I believe the soils data and the information 22 that's been obtained indicates it's likely that the 23 Burlington pit was a source of free product. 24 Q. Okay. What BTEX levels would indicate to you 25 saturated soils?

1	A. That's a very complicated equation to sit down
2	and look at it, to talk about it. You basically could look
3	at hydrocarbons BTEX is only four compounds out of a
4	hundred or more that make up hydrocarbon.
5	BTEX, in conjunction with other chemicals, if we
6	had full chemistry scans, we could go through and do
7	calculations on a partition basis and calculate whether or
8	not there was fully saturated I assume you're referring
9	to hydrocarbon-saturated materials. We don't have enough
10	data to answer those questions at this point. Nor would I,
11	if it's a science project, I wouldn't necessarily
12	advocate it's not of any additional value.
13	Q. We talked a little bit about the results of the
14	testing that was done in the area of PNM's pit, and we had
15	readings I think I had said 18 feet. You said they
16	were, I believe, 15 and 16 feet.
17	A. I can clarify that, if you wish.
18	Q. Well, yes, I mean
19	A. Do you want me to clarify it?
20	Q. Well, what I'm asking about, we have BTEX levels
21	that what you said, were 15 of 16 feet of 36 ppm.
22	A. There are several samples, and I think that's
23	where we're getting confused.
24	There was a soil boring drilled about a month
25	ago, and there was a sample from 15 to 16 feet that had a

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1	BTEX level of 36,000 parts per billion, or 36 parts per
2	million. In addition, there were two samples taken, one at
3	18 feet and one at 21 feet, during the current excavation.
4	The sample at 18 feet showed 102,000 parts per billion of
5	BTEX or 102 parts per million. The sample at 21 feet
6	showed four hundred and I can't remember exactly. I
7	think it's 420,000. We have that sheet, it's Exhibit 4.
8	Q. Well, let me ask
9	A. Can I just finish?
10	Q. Certainly.
11	A. Okay. Just to get the numbers correct here,
12	we've got it four hundred and Well, no, I'm not going
13	to be able to find it quickly. I believe it's 410,000 or
14	420,000 parts per billion, total BTEX.
15	Q. Okay. So the levels at 21 feet were higher than
16	the levels at 18 feet, according to the testing that was
17	done; is that correct?
18	A. That's correct, but these two samples were not
19	one above the other. They were at two different locations.
20	Q. But they're in the same relative area; isn't that
21	correct?
22	A. Beneath the former pit and dehydrators, yes, sir.
23	Q. Right. And that would be indicative that there
24	is some contamination occurring from the groundwater up;
25	isn't that correct?

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1	A. No, no. These levels are much too high to be
2	vapor-phase contamination coming up from the groundwater
3	table. We'd be looking, you know, soil gas readings that
4	were in the part-per-billion range. We've got PID readings
5	in the part-per-million range, or a thousand times greater
6	than what we would typically see if it was coming off of
7	the water table.
8	Q. I'd like you to look at Exhibit Oh, it's going
9	to be 50 or 51 in the PNM exhibit volume. Actually, it's
10	going to be 51.
11	A. Okay.
12	Q. And maybe you've got
13	A. If that is the September 1st letter.
14	Q. It's the SB-2
15	A. Oh, excuse me, I'm sorry, I had 47. Hang on a
16	minute. It's the soil borings?
17	Q. Yes, sir.
18	A. Okay. Well, I'll just use your notebook, if you
19	don't mind. Okay.
20	Q. What I'd like to direct your attention to is SB-
21	2.
22	A. Okay. This is 50 Which exhibit? I'm sorry,
23	51?
24	Q. It's under 51.
25	A. Okay.

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1	Q. Tab 51.
2	A. You're referring to the soil-boring log or the
3	results of the analyses?
4	Q. Actually, I'm on the results of the analysis.
5	A. Okay.
6	Q. And there is a Now, can you tell us where $SB-2$
7	was made?
8	A. SB-2 was obtained at a depth of 15 to 16 feet in
9	a boring drilled through the location of the former PNM
10	dehydrator pit.
11	Q. Okay. Are you familiar with the pit-closure
12	standards that are applicable?
13	A. I have discussed those with Mr. Hasely, yes.
14	Q. Okay. So isn't it true that had this test just
15	been done with regard to this particular pit when it was a
16	new pit and we came back with total BTEX readings of
17	36,960, as indicated here, that that would have qualified
18	that pit for closure?
19	A. That result in and of itself would have been less
20	than the 50 ppm standard, that's correct, sir.
21	Q. Are you How often have you been out at the
22	site since they've been doing the bulldozing out there?
23	A. Well, only since they started last week. The
24	only time I've been out was last Friday.
25	Q. Okay, just one time?

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1	A. Yes, sir.
2	Q. Do you have any responsibility for health and
3	safety at the site?
4	A. No sir.
5	Q. With regard to the remediation plan you talked
6	about, one of the things you looked at was cost?
7	A. Yes.
8	Q. What's this going to cost Burlington?
9	A. Their estimate was that it would be approximately
10	\$60,000 to \$80,000 to excavate all the soils.
11	Q. And when you talk about \$60,000 to \$80,000,
12	you're talking about dollars?
13	A. Yes, sir.
14	Q. And what volume of soils? What amount of soils
15	are we talking about that's taken into account in this
16	estimate?
17	A. We don't know for sure at this point. That's an
18	estimate to go in and remove the area round the PNM pad, to
19	remove some small volume at this point of soils around the
20	Burlington pad, and to pump off the fluids and, if
21	necessary, start to excavate back in the seams to get the
22	most contaminated zones in the seam.
23	Q. Who developed this estimate?
24	A. Burlington did.
25	Q. Do you know how Burlington handles its budgeting

for environmental cleanup? 1 2 Α. I did not ask them that, no, sir. That's all the questions I have. 3 MR. ALVIDREZ: 4 EXAMINER ASHLEY: Mr. Carroll? MR. CARROLL: No questions. 5 EXAMINER ASHLEY: Mr. Carr? 6 7 MR. CARR: No redirect. 8 EXAMINATION 9 BY EXAMINER ASHLEY: 10 I just had one question about -- going back to Q. the gradient that you talked -- you said right on the pad 11 12 it seemed to be more from the east to west? 13 Α. Based on the most recent map prepared by PNM, 14 yes, sir. 15 Can that vary over time? I mean, can it change Q. 16 directions? 17 I believe it can. I don't think that a dramatic Α. 18 change from north all the way to west is probably a 19 seasonal change in this drainage. I think it reflects the 20 uncertainty we have as to what the actual gradient is, 21 because there is no recharge or anything that could be 22 driving that. We'd either have to have recharge or 23 discharge to cause a change in the gradient. But I believe some seasonal variations could 24 25 occur where we'd have some changes, but probably not 90
1	degrees. That probably is more our uncertainty over what
2	the directions are.
3	Q. Okay. What about the contamination that seems to
4	exist in the area northwest of or out northwest of the
5	seep?
6	A. Oh, the dissolved-phase contamination?
7	Q. Yes.
8	A. Yes, sir.
9	Q. Is that Is the gradient there also east to
10	west?
11	A. No, I would Well, the gradient there is
12	essentially north northwest, and I believe that's just
13	following down along the arroyo itself in the more
14	permeable zones.
15	You'll get a zone of weathering that increases
16	the permeability that will be deeper beneath an arroyo,
17	because you do have water collecting there, and it helps
18	increase the permeability over time.
19	So I believe it's basically just following the
20	more permeable materials along the arroyo itself.
21	EXAMINER ASHLEY: Okay. All right, I have no
22	further questions.
23	MR. ALVIDREZ: I did have a follow-up related to
24	your question about groundwater gradient.
25	EXAMINER ASHLEY: Okay.

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1	FURTHER EXAMINATION
2	BY MR. ALVIDREZ:
3	Q. Have you gone out Have you personally taken
4	readings to verify the relative elevations that we're
5	talking about when you're talking about the groundwater
6	flow from east to west?
7	A. No, that actually comes off of a drawing prepared
8	by PNM that I saw that on.
9	Q. Okay. But as I understand it, you're trying to
10	compare the various levels within the excavation; is that
11	right?
12	A. No, that was a drawing of the more or less
13	overall gradient, prepared by PNM. What we're talking
14	about is the depth of occurrence when we go into the
15	excavation. Where does the water and free product occur
16	within a vertical column.
17	Q. Okay. With the situation with the excavation and
18	the way this excavation has been handled, wouldn't you
19	expect the area of occurrence or the entry into the pit to
20	be somewhat lower than where the actual water table is?
21	A. You certainly could. That was one of the things
22	that we uncovered by doing this excavation that none of us,
23	I believe, were aware of, is that there was a seam at the
24	24-foot depth that had fluid in it that previously, I don't
25	believe, had been identified on the bogs, I think because

1	it was so thin that it takes some time for water to flow,
2	that when you drill a boring, you just don't see it, and
3	then we complete wells and we get a composite over several
4	seams. So I don't think that had been identified
5	previously.
6	MR. ALVIDREZ: No further questions.
7	EXAMINER ASHLEY: Mr. Carr?
8	MR. CARR: That concludes our presentation.
9	EXAMINER ASHLEY: You may be excused.
10	THE WITNESS: Thank you.
11	MR. CARR: We have no other witnesses.
12	EXAMINER ASHLEY: Okay. Mr. Carr? I mean, Mr.
13	Carroll?
14	MR. CARROLL: Yes, I have a witness. The
15	Division calls Bill Olson to the stand.
16	WILLIAM C. OLSON,
17	the witness herein, after having been first duly sworn upon
18	his oath, was examined and testified as follows:
19	DIRECT EXAMINATION
20	BY MR. CARROLL:
21	Q. Mr. Olson, will you please state your name and
22	residence for the record?
23	A. My name is Bill Olson, and my residence is
24	general delivery, Lamy, New Mexico.
25	Q. Mr. Olson, who is your employer and what is your

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1 position with that employer?

2	A. I'm employed with the New Mexico Oil Conservation
3	Division's Environmental Bureau, and I am a hydrogeologist
4	for the Bureau, responsible for groundwater contamination
5	cases, remediation, investigation, et cetera.
6	Q. Will you briefly run through your educational
7	background for the Examiner?
8	A. I have a bachelor's degree in geology from the
9	New Mexico Institute of Mining and Technology and a
10	master's in hydrology from the New Mexico Institute of
11	Mining and Technology.
12	Q. And Mr. Olson, have you attended any special
13	conferences or seminars or workshops, regarding groundwater
14	remediation for contamination?
15	A. Pretty much on an annual basis.
16	Q. How many groundwater remediation cases would you
17	say you've overseen in the last How many years have you
18	been with the Division?
19	A. I've been with the Division for approximately
20	a little over ten years. I also worked for two years on
21	groundwater contamination investigations for the New Mexico
22	Environment Department as well.
23	Q. And how many cases involving groundwater
24	contamination have you overseen?
25	A. For the Division I currently oversee over 500

groundwater cases in the state. 1 Q. Mr. Olson, you're the man who has drawn this line 2 3 in the sand that we keep referring to. We are going to 4 find out where exactly you drew this line and why you drew 5 this line. 6 When did you become first acquainted with the case at issue here? 7 I first became familiar with the case, I believe 8 Α. 9 it was the beginning of January, January 7th, roughly, when I received verbal notification from Maureen Gannon. 10 January 7th of this year? 11 Q. I'm sorry, January 7th of 1997, that there was 12 Α. groundwater contamination at the Hampton 4M site. 13 And what action did you take at that time? 14 Q. At that time there was no action. 15 Α. We were waiting then. PNM works under a groundwater management 16 plan with us which requires the -- I say "requires" -- it 17 sets out the procedures to follow in the cases of 18 groundwater contamination, which includes verbal 19 notification to the Division within 24 hours of discovery 20 of the incident, and then follow-up within 15 days, written 21 notification. 22 23 Subsequent to that, their actions are covered 24 under a generic groundwater management plan for the San 25 Juan Basin for all pit closures that they encounter

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1	groundwater at.
2	Q. And did they follow their plan in this case?
3	A. And under that they were following along with
4	their groundwater management plan, yes.
5	Q. Who initially did you designate as the
6	responsible party?
7	A. The only indication of contamination we had at
8	first was from PNM, so we assumed at that point that PNM
9	was a responsible party for contamination at the site.
10	Q. And when did Burlington enter the picture?
11	A. After subsequent monitor wells were put in by
12	PNM, which showed that we did have contamination upgradient
13	of the PNM pit site.
14	Q. And how many times have you visited the site?
15	A. Oh, approximately three or four times I've been
16	out to the site.
17	Q. And have you been reviewing all the documentation
18	that's been filed with the Division?
19	A. Yes.
20	Q. Was there evidence here today which you hadn't
21	seen prior to the hearing?
22	A. Yes, there's some new data that's been presented
23	as well as, I believe, some of the cross-sections and some
24	of the data that the Division hasn't seen before.
25	Q. And approximately at what time did you designate

both parties as responsible, or did you add Burlington? 1 I believe it was in August of 1997 that the 2 Α. Division first set out essentially as was described 3 earlier, drawing a line in the sand and saying that 4 contamination above this point was due to Burlington or 5 would be the responsibility of Burlington, and below that 6 7 point would be the responsibility of PNM. So where exactly was the line drawn? 8 0. Just to the south of the dehydration equipment, 9 Α. 10 which would be just upgradient of the pit area where the 11 bulk of the free-phase product as it was known at that time 12 was occurring. And what are your reasons for the designation of 13 Q. 14 each of PNM and Burlington as a responsible party? 15 From the evidence presented to us at that time, Α. it was clear that we had two sources of contamination. 16 17 One, the PNM dehydration pit, and additional -- somewhat, 18 I'd say, unknown locational sources north -- or south of that, which would be upgradient on the Burlington side of 19 20 the pad. 21 Q. And have you seen anything since that initial 22 designation of both parties as responsible parties that would change your mind, prior to this hearing? 23 24 Α. Prior to this hearing, no, I had seen nothing that really would change my mind. One of the major things 25

we had seen, and I think that was alluded to by 1 Burlington's witness, was that the majority of the product 2 was based under the area of the dehy pit, in that vicinity. 3 And all the data that had been presented to us showed that 4 we did have some free-phase product, but much less quantity 5 6 upgradient to the south. And have you seen anything during this hearing 7 Q. that would make you change your mind as to who are 8 9 responsible parties? 10 I think -- It's still clear to me that we still Α. have two sources of contamination at the site, PNM's dehy 11 12 pit and the upgradient activities of Burlington on the 13 wellpad. Mr. Olson, I'd like to discuss your experience 14 0. 15 with other sites that are similar or analogous to this 16 site. Have you seen any other groundwater-contamination 17 sites where there was dehy -- dehydrator sites with free 18 product? Yes, we have. Just in about fifteen minutes this 19 Α. 20 morning I ran through some of the case files and picked up 21 six -- at least six cases that we had free-phase product 22 contamination from dehydrators, pit sites. That's all in 23 the San Juan Basin. 24 Q. And what was the thickness of this free product? Some of the sites range anywhere from about a 25 Α.

1	tenth of a foot of free product to up to three feet of
2	product.
3	Q. Do you want to discuss any of those particular
4	sites?
5	A. Yes, what I kind of wanted to get at I mean,
6	there was some testimony coming up that this is kind of
7	unique for dehydration sites. I think the experience of
8	the Division that is not the case. We have seen this at
9	other sites.
10	One in particular, which had approximately three
11	feet of product in it, there is no upgradient source at
12	that point other than the dehydration unit, so that the
13	product at that site was clearly a result of the disposal
14	into the dehydration pit.
15	And in that case, I believe, when that pit was
16	remediated, the pit had actually been out of operation for
17	approximately ten years at that point, and we still had a
18	significant amount of free-product contamination at that
19	site, right directly on the downgradient side of the pit.
20	Q. You said three feet of product?
21	A. Yeah, up to three feet of product.
22	Q. Have you observed the pits or dehydrator tanks at
23	sites?
24	A. Yeah
25	Q. And have you observed any free product floating

1 on top or in those pits or tanks?

2	A. Yes, when I was originally hired by the Division,
3	I was hired to study unlined pits in the San Juan Basin.
4	That was also my master's thesis work. And in that As
5	part of that, we looked at over 200 sites in trying to
6	select study sites for the San Juan Basin, to look at
7	potential for groundwater contamination from unlined pits.
8	During all those field inspections, it was not
9	uncommon to find a dehydration pit with product in it.
10	Some I'd even find with paraffins as well, in dehydration
11	pits.
12	So it's not an uncommon experience of mine to
13	that that had happened, especially back in through the
14	early 1980s, prior to some of the OCD's groundwater-
15	protection measures that were implemented for the
16	vulnerable areas.
17	Q. Was there even one site that shut down a
18	community water well?
19	A. Yes, there's one that was highlighted during some
20	of the initial vulnerable-area studies, which resulted in a
21	community water supply being shut down at that point.
22	Q. What community was that?
23	A. That was Flora Vista community water supply.
24	Q. And that contamination was due to a dehydrator?
25	A. That was due to a dehydration pit, yes.

Mr. Olson, have you been following or monitoring ο. 1 what Burlington is currently doing at this site? 2 Yes, I was out to inspect the site last Friday, 3 Α. while the excavation was ongoing. 4 And you're aware of their current plan as to what 5 Q. they're going to do with this site? 6 7 Yes, they submitted a plan to us, I believe it Α. was October 28th. 8 9 At that point we hadn't really responded to it, 10 because we feel that that falls within their already-11 approved pit-closure plan for the San Juan Basin, which is 12 already --13 0. And that's a similar plan to what PNM has? Which is a similar plan to PNM's, yes. 14 Α. 15 Now, even after Burlington finishes the work it's Q. 16 currently doing, what remains to be done at this site? 17 Α. The source removal is just one aspect of this. We still have the aspect of groundwater contamination 18 19 that's going to be residing upon completion of the 20 excavation activities, and that will have to be dealt with, 21 I guess, at that time. 22 We also have ongoing monitoring that's needed, 23 and right now I believe PNM is still conducting that monitoring, as far as I know, on the downgradient monitor 24 25 wells which go down along the arroyo.

But the Division's main position back last March, 1 when it directed PNM to do some additional work, was that 2 we needed to cut off -- essentially cut off the head of the 3 beast, where we had free-phase product. 4 Most of the Division groundwater-remediation 5 activities these days are done through natural attenuation, 6 and it was our feeling that with the source -- the bulk of 7 the source removed, we would start to see some large 8 decreases in dissolved-phase contamination downgradient 9 from the source areas, which is down along the arroyo. 10 That area itself is physically difficult to look 11 12 at doing any type of removal or other types of actions due 13 to site terrain. There's private-property issues, 14 pipelines, as well as getting into whether you need permits 15 for working in a waterway of the US. 16 Q. And I take it from your March 13th directive that 17 you believe just removing the free product was not going to 18 remove the source of that product? 19 Right, that's correct. Α. 20 Q. Mr. Olson, do you have anything else to add at 21 this time? 22 Α. I don't think so. 23 MR. CARROLL: That's all I have. 24 EXAMINER ASHLEY: Mr. Alvidrez? 25 MR. ALVIDREZ: Yes, I do have some questions.

EXAMINATION
BY MR. ALVIDREZ:
Q. Mr. Olson, perhaps it would be useful if we could
refer to one of PNM's exhibits here. And we've talked a
lot about this line, and I've got a highlighter, and why
don't you show us where this line was that you drew between
PNM and Burlington?
A. Well, I believe
Q. This is Exhibit 8.
A. I believe the line was just on the south side of
the present where the dehydrator was located prior to
all the excavation work. It's not in that location
currently.
Q. Right. Now, in terms of responsibility for
cleanup, show me which side of that line was Burlington's
responsibility.
A. It would be on this map I'm not sure what the
directions are it would be
Q. To the right is to the north.
A. To the right is to the north
Q. To the left
A it would be to the south of that line. To the
north of that line we
Q. Can you put a "BR" on the side of the line
A. Sure.

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1	Q that you're talking about?
2	And PNM's?
3	And am I correct that basically the line was
4	drawn because PNM's activities were mostly to the right of
5	that line and Burlington's activities were mostly to the
6	left of that line?
.7	A. It was drawn because the surface facilities, as
8	well as the source area was all downgradient from that
9	line, yes.
10	Q. Now, if I understood your testimony Have you
11	changed your mind about that, about this line
12	A. About this line?
13	Q the line you've drawn?
14	A. No, at this point I think the PNM pit I mean,
15	obviously we had testimony that free liquids, hydrocarbon
16	liquids, have been discharged to the pit. We see other
17	sites with similar ranges of types of contamination that
18	have resulted in free-phase product contamination. There's
19	a high probability that the product underneath is due to
20	both Burlington and PNM.
21	Q. Let me specify, the product underneath PNM's
22	former pit?
23	A. Yes.
24	Q. And you're saying I want to get this on the
25	record now. You're saying that Burlington contributed to

1	some of that product?
2	A. Yes.
3	Q. Wouldn't you agree that Burlington contributed to
4	the vast majority of that product?
5	A. The Division has not been willing to sit here and
6	say we're going to apportion what part of product is due to
7	one party versus another. It seems to be, to the Division,
8	that that's a civil matter to be taken up between the
9	parties at that point.
10	Q. That wasn't my question. I'm asking you, based
11	on your experience, as to whether or not you believe that
12	the vast majority of that free product stems from
13	Burlington's operations rather than PNM's operations.
14	A. I'd say at this point it seems to me that it's
15	both. I'm not saying the vast majority is one or the
16	other.
17	Q. You can't make that determination?
18	A. I don't think I'm willing to make that
19	determination, no.
20	Q. Okay. Well, let me ask, with the way you've
21	drawn this line, you've left Burlington with, you know, an
22	area of the well pad which isn't too big for their
23	responsibility, and you've left the rest of the world
24	downgradient to PNM for their responsibility?
25	A. And I'll also let you know, at the time this

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determination was made we had virtually no free-phase 1 product known to us above this line. There was a small 2 amount of product that was right in the vicinity of the 3 dehydration unit, and the only evidence we had to us at 4 that point when that line was drawn was that there was a 5 large amount of product directly underneath the dehydration 6 7 pit and some small amounts of product upgradient of the 8 pit. 9 Q. Okay. I thought you hadn't changed your position 10 about the demarcation of responsibility. Am I incorrect about that? 11 I still don't change my point for demarcation at 12 Α. that point. I'm just saying that that -- that the evidence 13 at that point was far clearer when we drew that. I agree, 14 now that we look at it, there is a larger portion of 15 product that's coming in. I'll agree with you. 16 I mean, 17 the evidence clearly shows that. 18 Q. And wouldn't you agree that that portion that's 19 coming in from Burlington's side is also contributing to 20 this dissolved phase that goes down the wash? 21 Sure. Α. 22 Q. And wouldn't you agree that Burlington has responsibility for that? 23 I agree that both parties would be responsible 24 Α. 25 for what goes on down the draw from there.

So the OCD is no longer drawing that line and Q. 1 saying PNM is responsible for all of the dissolved phase 2 that is heading downgradient; is that -- Am I understanding 3 you correctly? That just PNM is responsible for that? 4 Well, that's also interesting, because I heard 5 Α. testimony earlier today that PNM stated that they would 6 7 take responsibility for all the dissolved-phase 8 contamination, so they were --You may have misheard the testimony. I think it 9 Q. 10 was the dissolved contamination that they caused. 11 But --Α. I would agree with you that there is a 12 13 commingling of a plume, and that the resultant 14 contamination is most likely a result of both sources. 15 0. Okay. Now, the work that's been done at the site in terms of the investigation has all either been done by 16 17 PNM or Burlington; is that correct? Α. 18 Yes. 19 Q. And would you agree that PNM had been acting 20 responsibly and diligently in terms of trying to clean up 21 its pit and trying to get a handle on sources of potential product, at least up until the time of the March letter 22 23 where they were ordered to go off site, go even further? 24 Α. Yeah, I'd say PNM's been very diligent working 25 with us.

1	
1	Q. Okay. And in fact, it had been, really, the most
2	active party out on this site up until fairly recently;
3	isn't that correct?
4	A. That's correct.
5	Q. You talked a bit about the percentage of sites
6	where there is a where you find free phase, where at
7	dehydrator sites where you find free phase. And as I
8	understood it, you oversee something like 500 sites, right?
9	A. That's correct.
10	Q. And of those 500 sites you've been able to
11	identify six
12	A. That was only
13	Q with free phase?
14	A in the fifteen minutes I was allotted this
15	morning to look at the files.
16	Q. But you don't have I mean, off the top of your
17	head
18	A. I have no numbers of total sites, of dehydration
19	sites, pit sites, that have product, I don't.
20	Q. You would agree, though, that it's a relatively
21	rare occurrence where you have free phase underneath a
22	dehydrator pit, where there's just a dehydrator, there's no
23	potential upstream or upgradient source?
24	A. I'd say it would be pretty true, whether it was a
25	dehydrator or a separator. If the equipment is working

1	properly, there shouldn't be product in the pit to start
2	with, whether it's a separator or dehy, that the equipment
3	should only be discharging waters which have dissolved-
4	phase contamination.
5	Q. Have you ever seen a site where there is free-
6	phase, where the where there was Well, let me
7	withdraw that question and re-ask it.
8	Have you In the sites where there is free-
9	phase product, dehydrator sites with a free-phase product,
10	in most instances isn't it also the case where there are
11	upgradient activities which are also potential sources?
12	A. It's possible, yeah.
13	Q. Well, isn't that
14	A. The well pads themselves are
15	Q what you see most of the time?
16	A. The well pads themselves are usually a mix of
17	activity. Sometimes you can have three to four pits across
18	a pad. We've seen Easily you could see a separator,
19	dehy pit, tank-drain pit and blowdown pit at a site,
20	potentially, so and typically, they aren't discharged
21	all to the same pit, they could be scattered across the
22	pad. So it's not uncommon for there to be another source
23	of contamination on the pad, whether it's upgradient,
24	downgradient.
25	Q. Okay. With regard to the six other sites that

1	you've surveyed earlier, I think you said the product
2	thickness of the free phase ranged from one foot to a
3	maximum of three feet; is that correct?
4	A. I think it was approximately a tenth of a foot up
5	to
6	Q. I'm sorry, a tenth of a foot, very slim
7	A. Right.
8	Q up to a maximum of three feet.
9	A. Uh-huh.
10	Q. And in this case we had a substantially wider
11	band of free phase; isn't that correct?
12	A. That's correct.
13	Q. So that would be even more unusual, to have a
14	free-phase band of that thickness underneath the dehydrator
15	or near a dehydrator?
16	A. I agree, this is not a typical case. But it's
17	also not uncommon for a free-phase product.
18	Q. Are you really overseeing what Burlington is
19	doing out there in terms of their remediation?
20	A. We don't essentially have the staff or resources
21	to babysit people through remediation activities. We rely
22	on spot-checking, a lot of our inspection activities are
23	actually covered by the district offices who visit the site
24	more frequently than we do because they are readily
25	available in the area.

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1	Q. Do you have any problems with the approach that
2	Burlington is taking in terms of taking that dozer out
3	there and scraping things away?
4	A. No, I don't. This approach has been used at a
5	number of sites throughout the state, and it has been
6	effective in removing the sources. Whether, you know, it's
7	cost-effective is another story, but the Division itself is
8	not in the position of telling people how to remediate a
9	source. We set performance standards for remediation and
10	cleanup that we look to be achieved and don't look to the
11	actual method. If we looked to methods, then we would
12	discourage people from looking at innovative methods for
13	remediation of contamination.
14	Q. Well, do you think this is a cost-effective way
15	of cleaning up the groundwater contamination out at this
16	site?
17	A. I'd say it's most likely going to you know,
18	it's costly method for remediation. It may also be more
19	effective, though, in the short term, even though it costs
20	more.
21	So I guess it's a trade off, whether you want to
22	look at and this Other companies have brought this to
23	us before when they've done a similar approach, that they
24	prefer a short-term, more costly method, over a long-term
25	system that may cost an equivalent amount, or possibly a

1	little less, their idea being, as has been expressed to us
2	by a number of companies, that they are kind of in and out
3	of there. That's what they like. They don't want a long-
4	term activity.
5	Q. Would you agree that this approach is much more
6	invasive in terms of its effect on the environment?
7	A. In terms of effect on the environment, I would
8	probably say no. In terms of invasive for that well pad,
9	yeah, it's very invasive.
10	Q. Well
11	A. I don't see any overall environmental detriments
12	to what they're undertaking.
13	Q. So they haven't had to take out any vegetation or
14	anything like that to move all this volume of soil, or
15	cover up any vegetation or anything of that nature?
16	A. Most the area I think that would be limited
17	from what I saw when I was out there Friday. There might
18	have been some, but it seemed to me it was mostly the
19	activity was conducted mostly on the well pad.
20	Q. You indicated that you had seen, in your
21	experience, free product discharged into dehydration pits
22	at various locations, and I just want to clarify. You're
23	not saying that you saw free product in the unlined pit at
24	the Hampton 4M site, the dehydrator; is that correct?
25	A. No, I'm not.

I do have one more question, and that really has Q. 1 to do with a matter of practice, I quess, policy, I don't 2 know. But in most cases where the OCD is making a 3 determination about responsible party, where there are a 4 5 succession of owners at a given site, who does the OCD look to first in terms of the responsible party? 6 7 Α. We look to the current owner/operator. To us, 8 all parties who are operators at the site are potentially 9 responsible parties. We look to the current owner/operator 10 as responsible. 11 In this case, Williams is the current owner and 12 operator of this site, however, we have been working with PNM due to past contractual agreements that have been in 13 14 place between Williams and PNM. 15 Q. These aren't contracts between the OCD and PNM, by any means, are they? 16 17 Α. No, they're not. So in the ordinary course of things, had this 18 Α. 19 issue come up, you would have looked to Williams? 20 Α. That's correct. Actually, if Williams had failed 21 -- or if PNM failed to do the work that was essentially the 22 responsibility of Williams, we would have required Williams 23 to conduct the actions, then. 24 MR. ALVIDREZ: I have no more questions. 25 EXAMINER ASHLEY: Mr. Carr?

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1	EXAMINATION
2	BY MR. CARR:
3	Q. Mr. Olson, when you go out and first look to the
4	current operator as the person to whom you turn to
5	remediate a site, by doing that are you making any
6	suggestion, or is there any suggestion there that others
7	who may have contributed to contamination at that site are
8	not also responsible?
9	A. They are also responsible.
10	Q. And you don't get out to the site and start
11	determining how much one party is responsible, as opposed
12	to the other; is that right?
13	A. No, and that was part of the reason for us
14	drawing the line as we did. We didn't feel we could sit
15	here and decide what portion of the downgradient plume is
16	due to what party. We felt that was a civil matter.
17	Q. When you go out and supervise or monitor
18	remediation at a site, is it fair to say that most sites
19	require a site-specific approach to the contamination?
20	A. That's correct.
21	Q. And when you are out there and looking at
22	something like you have here today when you drew the line
23	on the cross-section, are you taking any position
24	whatsoever on what percentage of responsibility should be
25	assigned to one party, as opposed to the other?

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Α. No, we are not. 1 You're not here to say that PNM is fully 2 ο. responsible? 3 Α. 4 No. 5 Q. You're not here to say that Burlington is fully 6 responsible? No, we believe both are responsible at the site. 7 Α. And you're not taking any position on how much 8 Q. either one of those parties may ultimately be responsible 9 10 for what has happened here? 11 Α. That's correct. 12 MR. CARR: That's all I have. Thank you. 13 EXAMINER ASHLEY: Mr. Carroll? 14 MR. CARROLL: A little redirect. 15 REDIRECT EXAMINATION 16 BY MR. CARROLL: 17 Q. Mr. Olson, when you directed PNM to remove additional source material in your March 13th directive, 18 did PNM remove any additional source material? 19 No, they didn't. 20 Α. 21 0. In fact, they appealed that decision; that's the 22 subject of this case. And they also requested a stay where 23 they wouldn't be required to remove any source material; 24 isn't that correct? 25 Α. That's correct.

1	Q. And even when the stay was lifted, did PNM remove
2	any additional source material?
3	A. No, they didn't. We had met with them I don't
4	know if we had met or had phone discussions about this.
5	And the Division at that time kind of decided we wouldn't
6	push the issue, even though it was an outstanding issue,
7	and that our main concern was what that downgradient
8	migration of the plume was.
9	And that resulted in our September first letter
10	that went out, to look at what the downgradient extent of
11	the plume was. We wanted to have some handle on that while
12	the appeal was ongoing.
13	Q. And in your September 1st directive, where you
14	asked PNM to perform additional investigative actions, was
15	that performed?
16	A. I'm sorry, say that again?
17	Q. Did PNM, in response to your September 1st letter
18	to where you required PNM to perform additional
19	investigations, did PNM perform additional investigations,
20	other than what they were currently doing?
21	A. We had received correspondence from them, that
22	they were trying to obtain landowner access, and it sounded
23	like they were trying to work with Burlington at that time,
24	but that's the only thing that we had received.
25	We didn't know of any investigation activities

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1	that were occurring until just recently when, I guess,
2	Burlington, as I understand it, put in the downgradient
3	monitoring well down by the residences down there.
4	Q. Does the OCD consider taking corrective action as
5	an admission of liability?
6	A. No.
7	Q. The OCD is just concerned about getting the site
8	cleaned up?
9	A. That's correct.
10	Q. Stopping further contamination and then cleaning
11	up the contamination that was there?
12	A. Yes.
13	MR. CARROLL: That's all the questions I have.
14	MR. ALVIDREZ: I do have some follow-up, based
15	on
16	EXAMINER ASHLEY: Okay, Mr. Alvidrez?
17	MR. ALVIDREZ: the line of questioning.
18	FURTHER EXAMINATION
19	BY MR. ALVIDREZ:
20	Q. You testified, I guess under my questioning, and
21	also under Mr. Carr's examination, that the OCD doesn't
22	make a determination as to apportionment of responsibility;
23	isn't that correct?
24	A. That's correct.
25	Q. But isn't it true that the fact that you drew the

1	line in the sand right here, isn't that really a de facto
2	apportionment as between Burlington and PNM at this site?
3	I mean, isn't that the practical effect?
4	A. I'd say it is for regulatory purposes, yes.
5	Q. So you do apportion, the OCD does apportion at
6	some sites, responsibility?
7	A. I would say that the contamination down there is
8	most likely due to both sources of contamination. We have
9	a free-phase product plume, which in my opinion is a result
10	of both source areas, with the dissolved-phase
11	contamination down there most likely a result of both
12	sources.
13	But at this point in time, and especially when
14	that was drawn, we only had one known source of product,
15	and that was PNM, of substantial product, that was known
16	based on the evidence at that time.
17	I think as far as OCD goes, it wouldn't matter to
18	us whether one party did it, whether both parties did it,
19	or Burlington did it all at that point, as long as the site
20	Our ultimate goal is remediation of the site, is what
21	we're statutorily required to do.
22	Q. But by imposing upon PNM all of that
23	responsibility, you, in fact, apportioned responsibility on
24	the part of PNM, right?
25	A. I

On March 13th? Q. 1 It's not an apportionment of responsibility. I'd 2 Α. say it's a responsibility of PNM to the agency. That does 3 not mean that they have no recourse for civil action for 4 5 people that they think may have contributed to contamination on their site. 6 7 So as of March 13th, when you issued your letter, Q. 8 had PNM just let things stay as they were, PNM would have 9 been responsible for all of the contamination that went 10 downgradient, and Burlington would have only been 11 responsible for the contamination upgradient on a portion 12 of the well pad; is that correct? 13 Α. That's correct. 14 So by filing this appeal and by having a close Q. 15 review of the data, the OCD has changed its mind about the 16 relative responsibilities; isn't that correct? 17 Α. I think the Division has always maintained that the contamination going on downgradient is due to both 18 19 sources. I don't think that's changed. 20 We knew we had high-level dissolved-phase contamination at the time of the determination back up 21 22 in -- I believe it was Monitor Well 4 --23 So on --Q. 24 -- which was placed at that time. Α. 25 Q. On March 13th, you knew that some of that

contamination under PNM's wellpad site was Burlington's? 1 Α. That's correct. 2 But yet you were only going to require PNM to 3 Q. clean it up? 4 5 We had set out, because of the amount of product Α. 6 that we were seeing at that point and the lack of product upgradient, that the bulk of the contamination was PNM's 7 from there on down, which is why we drew that line. 8 But you've changed your mind a bit since then; is 9 ο. 10 that correct? 11 Α. I'd say that, you know, to me -- I don't think I've changed my mind. I mean, what I'm saying is that 12 13 there's two sources, they are both responsible. And the contamination under PNM's pit, there's still contamination 14 15 from Burlington. I believed that back then in March when 16 we'd requested that action from --Gosh, I've looked through the files that's an 17 Q. exhibit, and I didn't see a letter in March to Burlington 18 19 telling them to clean up the free phase. 20 Α. There was no letter to Burlington in March, and I have look back -- Bear with me. I have a summary; it might 21 22 refresh my memory. 23 0. Sure. Yeah, at that point we are working under --24 Α. 25 Burlington had already been conducting work back through --

1	and submitted a report to us back in January of 1998 on the
2	investigation work they had done.
3	And at that point we felt that was covered under
4	the subsequent letter to OCD, sent to Burlington under
5	April 7th of 1998, which was, you know, two to three weeks
6	after the letter we sent to PNM.
7	Q. So on April 7th, that's when you directed
8	Burlington to undertake recovery of free phase?
9	A. No, at that point Burlington had gone through
10	with their excavation activity in the southeast corner of
11	the pad. Through their report they had stated they had
12	water seeping in the excavation, no product. They had
13	removed water and fluids from the excavations and which
14	is maybe a misunderstanding on our part, as we understood,
15	that came through in their report, that Monitor Well 1 and
16	MW-8 were installed by Burlington; it was submitted in
17	their report to us at that point.
18	The results of what we saw from at that point
19	showed that the upgradient well, MW-1, had some low-level
20	BTEX, but below standards, and MW-8 had no product.
21	Q. I guess
22	A. What I was just trying to get at is that they had
23	submitted they already had an active report, that we had
24	not reviewed, on our desk at the time that we sent out the
25	requirement to PNM. That document of theirs contained

recommendations for actions at the site, remedial actions. 1 And I quess my question was really fairly ο. 2 limited, and what I asked for is, where is the letter from 3 the OCD to Burlington to clean up free phase? 4 There was no product -- There was no letter to 5 Α. them at that same time. 6 Has one ever been written to Burlington to clean 7 0. 8 up the free phase? 9 A. At that point we were just going through under 10 their current plans, which included for them remediation 11 under that report that was submitted to us in January, 12 which was still under review at that time. 13 Q. And even though you knew Burlington had 14 contributed to free phase and was -- and that their 15 remediation proposals up to that point in time weren't 16 addressing free phase at all, the OCD didn't require 17 Burlington or tell Burlington they had to start addressing free phase? 18 At that time we had very little knowledge of 19 Α. 20 product on Burlington's side of the pad. 21 I may have misunderstood. I thought that you had Q. 22 testified back in March of 1998, you knew that that free 23 phase under PNM's pad, at least some of it, in your opinion, had come from Burlington. 24 25 Α. I was talking about there was a sheen of product.

1	I was talking about a very small amount, which is really
2	not even a recoverable amount of product at that point,
3	from if you were to try to pump that from a well at that
4	point.
5	Q. Just to clarify a question that Mr. Carroll had
6	asked about the March 13th letter, and that's Exhibit 39 in
7	the booklet, and maybe it will help to look at that in
8	terms of what PNM did and didn't do. Have you found
9	Exhibit 39?
10	A. Yes.
11	Q. There was some suggestion that PNM basically did
12	nothing in response to that letter, but I want to clarify.
13	I mean, PNM did continue to recover free phase from the
14	at this site; isn't that correct?
15	A. That's correct.
16	Q. And that's what this letter had asked them to do;
17	isn't that also correct?
18	A. It could be argued that that The letter
19	requires that they take additional remedial actions within
20	30 days to remove the remaining source areas with the free-
21	phase hydrocarbons in the vicinity of and immediately
22	downgradient of the dehy pit.
23	Q. And PNM, in fact, had talked to you,
24	representatives of PNM had talked to you and said that
25	we're appealing this, we're going to be good citizens and

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keep running our recovery well, but we need to get a 1 determination on this appeal before we start undertaking 2 3 more work; isn't that correct? 4 Α. That's correct, we had some verbal conversations, 5 and I agree, we told them as long as they were recovering 6 free-phase products we really didn't have a problem with 7 what they were doing at that point. 8 Q. And just so it's clear, I don't want there to be a suggestion that PNM was somehow ignoring or thumbing 9 10 their nose at the OCD, but there was actually a dialogue, give and take, going back on about what would be done? 11 That's true, I don't believe they were thumbing 12 Α. 13 their nose at the OCD. 14 MR. ALVIDREZ: Okay, that's all the questions I 15 have. 16 EXAMINER ASHLEY: Mr. Carr? 17 MR. CARR: No questions. 18 EXAMINER ASHLEY: Mr. Carroll? 19 I just have one follow-up question. MR. CARROLL: 20 FURTHER EXAMINATION BY MR. CARROLL: 21 22 Q. Mr. Olson, Mr. Alvidrez seems to be a little 23 confused as to the distinction between regulatory 24 responsibility and legal liability. The OCD assigns 25 regulatory responsibility for cleanups, does it not?

That's correct. Α. 1 And when they find a party has contributed to the 2 Q. contamination in the site, they require -- they again 3 require that party to clean up the site? 4 That's correct. 5 Α. Now, if there's more than one source of 6 0. 7 contamination, that doesn't affect the legal liability 8 between the parties? That's true. 9 Α. 10 But the OCD does assign responsibility for one or Q. 11 more of those parties to clean it up? 12 Α. Yes. MR. CARROLL: That's all I have. 13 14 MR. ALVIDREZ: I have -- I've got to ask a 15 question --16 EXAMINER ASHLEY: Okay. 17 MR. ALVIDREZ: -- based on that. 18 EXAMINER ASHLEY: That's fine. 19 FURTHER EXAMINATION 20 BY MR. ALVIDREZ: 21 Is the responsibility that the OCD is assigning Q. 22 joint and several liability, in effect? 23 Α. I'm not an attorney so I don't feel qualified to 24 answer that? 25 Q. Do you know what that means?

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1	A. I have a little understanding of it. I'm not
2	going to sit here and say that I'm going to issue a legal
3	opinion on what is
4	Q. Well, I'm not looking for a legal opinion. I
5	guess just your opinion as a regulator.
6	A. I think PNM is responsible for the activities
7	that they have conducted, and that is discharging to the
8	unlined pit.
9	Q. And is the corollary true, that PNM is not
10	responsible for activities that they did not conduct?
11	A. I would probably say so. That's the position of
12	the Division is just who is responsible for the actual
13	activities.
14	MR. ALVIDREZ: Okay, thank you.
15	EXAMINER ASHLEY: Anything further?
16	MR. CARROLL: Well, I have a follow-up.
17	(Laughter)
18	EXAMINER ASHLEY: Okay, Mr. Carroll.
19	FURTHER EXAMINATION
20	BY MR. CARROLL:
21	Q. It's not the OCD's position that the allocation
22	of liability must be determined before one party is ordered
23	to clean up a site if the contamination is so intermingled
24	that one party can't clean up their 50 percent and leave
25	the other 50 percent in the ground? You don't wait till a

1	determination is made before an order is issued or a
2	directive is issued, do you?
3	A. No, we do not. We act based on protection for
4	surface water, ground water, human health and the
5	environment. That's our mandate.
6	MR. CARROLL: Thanks.
7	EXAMINER ASHLEY: Is there anything further in
8	this case?
9	Okay, what I'd like for Mr. Alvidrez and Mr. Carr
10	and Mr. Carroll to do is to prepare a draft order, and if
11	you could have that to me by December 7th, I would
12	appreciate that.
13	And
14	MR. OWEN: December ?
15	EXAMINER ASHLEY: December 7th.
16	MR. ALVIDREZ: Do you require findings and
17	conclusions and that sort of thing, fairly detailed?
18	EXAMINER ASHLEY: Yes.
19	Now what I'd like to do is take about a 15-minute
20	break and then, when we come back, I'd like to have closing
21	statements from each one of you. And Mr. Alvidrez, you can
22	go first and then
23	MR. CARR: Actually I mean, do you want to go
24	first? Normally the Applicant gets to go last.
25	MR. ALVIDREZ: Yeah, I would think that would be

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1	a useful
2	EXAMINER ASHLEY: Okay, that sounds fine. Will
3	you
4	MR. CARR: I'll go first, or if
5	EXAMINER ASHLEY: Mr. Carr go first, Mr. Carroll,
6	and then Mr. Alvidrez.
7	Then we'll come back We'll reconvene at 3:05.
8	MR. OLSON: Mr. Hearing Officer, am I dismissed?
9	EXAMINER ASHLEY: You're dismissed, yes.
10	(Thereupon, a recess was taken at 2:55 p.m.)
11	(The following proceedings had at 3:10 p.m.)
12	EXAMINER ASHLEY: This hearing will come back to
13	order.
14	Mr. Carr?
15	MR. CARR: May it please the Examiner, this may
16	be the first case where an Oil Conservation Division
17	Hearing Examiner has ever been asked by someone to declare
18	that it is not a responsible person for contamination,
19	where they are asking the OCD to exempt it from
20	responsibility for actions in the oilfield.
21	And you've heard a lot of evidence, a lot of
22	evidence which is irrelevant to the issue before you, some`
23	which is. You've heard received testimony on a number
24	of issues. Some of those are false issues.
25	But like so many cases that appear complicated at

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the outset, when you take this case and analyze it, I think 1 you'll find at the core it's very simple for there is but 2 one question that you must resolve, and that is whether or 3 4 not PNM is a responsible person under the definition of 5 that term in the Oil Conservation Division Rules and 6 regulations. 7 And there are really two parts. Is PNM an owner or an operator? And I don't 8 9 think there's any dispute in this room that they owned the 10 facility and that the first part of the test is made -- is 11 met. The second part of the test is whether or not 12 13 they must complete Division-approved corrective action for pollution from the leases. And so I think your inquiry 14 15 means that you must look at the facts of this particular 16 case and determine if they fall in that category. Did they 17 pollute? Must they clean it up in accordance with the Division directive? 18 19 And I think the evidence is clear that they owned 20 the dehydration unit, that they took gas for a number of 21 years from a well and ran it through that dehydrator, that they extracted liquids, and the liquids were water and 22 23 hydrocarbons, and they discharged them into an unlined 24 earthen pit. 25 They were not required to install dehydration,

they elected to do it. They were not required to use 1 unlined pits, they elected to do it. And they discharged 2 hydrocarbons into that pit. And at that time those 3 hydrocarbons escaped into the environment while they were 4 under the management and control of PNM. 5 Mr. Heath couldn't give us an exact number. He 6 7 said at one point 50 gallons a year, another time perhaps 200 gallons a year. But there's no dispute some 8 9 hydrocarbons were discharged by PNM at its dehydrator, and 10 they contaminated the environment. I submit to you by your 11 definition they are a responsible party. 12 They come here and they complain about 13 remediation efforts, the ongoing efforts of Burlington. 14 But I think you ought to remember that on March the 13th, 15 the OCD did ask them, direct them, to go out and engage in 16 source removal. 17 On September the 1st you asked us, Burlington, 18 and PNM to go out and investigate and conduct additional 19 work concerning the extent of the downgradient 20 contamination, and no matter what their conversations were, 21 the facts are that they just appealed your decisions, they 22 sought stays, they refused to pay their share of what you asked them to do after March the 13th. 23 They have not conducted any activity that will 24 25 locate the source or prevent that plume from moving down

1 the hill.

2	Burlington asked them several weeks ago to go out
3	and remediate the site, and they declined. And now they
4	object to the methods that we are using, and I submit to
5	you they don't come before you with very good standing on
6	that issue, because they could have acted and they have
7	not.
8	When we look at the matters that have been
9	presented in this case, I think it's important to remember
10	that the issue isn't Burlington, the issue is PNM. We
11	haven't asked you to declare we're not a responsible party.
12	We admit that we are, and we're trying to remediate the
13	site, and then in the civil courts, if we can't work it
14	out, we may be meeting PNM again.
15	But that's not here. And whether we get a score
16	of 8 to 2 by someone else I'm sure we could do it 10 to
17	3 in our favor if we counted other events the bottom
18	line is, you're not asked to evaluate the remediation
19	efforts that have taken place. You're not here to
20	interpret the contracts. You're not here to evaluate PNM's
21	obligation to serve.
22	Unfortunately for PNM, some things come with a
23	guaranteed rate of return, but they don't have any bearing
24	on whether or not they contaminated soil and groundwater at
25	this site.

And you are not here to allocate responsibility 1 in terms of who pays what. As has been pointed out by Mr. 2 3 Olson and by Mr. Carroll, you allocate regulatory responsibility to get this site cleaned up. 4 And you're also not here to hear 5 characterizations or mischaracterizations, interpretations, 6 7 misinterpretations of what this agency's Environmental 8 Bureau has done to achieve the statutory duties that are 9 assigned to it to get this site cleaned up. And there are false issues that have been raised. 10 11 The ownership of the hydrocarbons isn't the issue. Who contaminated is. And that, when they raise that, is an 12 13 issue that is not one that can serve any purpose but to 14 confuse your determination. 15 The issue is, is PNM responsible? They own the 16 facility, they contaminated at the site. They discharged hydrocarbons into an unlined pit, soil and groundwater 17 contamination resulted. When they remediated the site 18 19 initially, they only went to 12 feet. When they stopped, by their own admission, the soil at the base of their 20 excavation contained over 1000 parts per million on a PID 21 22 test. They left contaminated soil in the ground. 23 The question when you analyze this case is The answer is equally simple. On the evidence 24 simple. before you, and under the definition of "responsible party" 25

in the OCD rules, PNM is a responsible party. And if 1 you're to honor your duty as someone who is enforcing those 2 rules, you will find that they are. 3 EXAMINER ASHLEY: Thank you, Mr. Carr. 4 Mr. Carroll? 5 MR. CARROLL: May it please the Examiner, the 6 7 Division has as its foremost goals in cases like this the 8 prevention of further contamination and the cleanup of the 9 contamination that is there. The OCD looks to owners and 10 operators of facilities that discharge contaminants. It 11 doesn't matter whether those owners or operators are prior 12 or current, co-existing or concurrent, they look to owners 13 and operators. 14 Mr. Olson's initial investigation in this case 15 showed to him that two parties are responsible for the 16 contamination. Actually, Williams and Burlington is the 17 current owners. PNM then stepped into the shoes of 18 Williams due to contractual liability, and their operation 19 of the pit when the contaminants were discharged from the 20 pit. 21 Burlington has admitted to its responsibility. 22 PNM's witnesses have admitted that it owned and operated 23 the pit during the times of discharge, that discharges were directed into the pit, and that they did cause dissolved-24 25 phase contamination. Other witnesses testified that that

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1 would also cause free-product contamination.

The Division has seen -- or Mr. Olson has seen nothing at the site, up to this hearing, that would change his or the Division's mind. Mr. Olson or the Division has seen nothing during this hearing that would change its mind that PNM is a responsible party.

7 The Division is concerned with the precedent that 8 is -- that could be set by this case. While there is contamination -- and the evidence shows that it is flowing 9 10 downgradient -- there has been -- I don't know if you want 11 to know if you want to characterize it as dragging feet, balking, declining to comply with directives, politely 12 13 declining, and second-guessing the OCD as to what should be done. 14

The OCD has directed the parties to do certain things. PNM at various times says, Well, we're going to do some of it, we're going to do what we think we should do and not what you think we should do. We do not think that is the precedent that you want to set in a decision.

20If you are a responsible party and you're21required to do the work, you should do the work.

You have a chance to acknowledge public policy in this case. PNM has brought up an obligation to serve. As a public utility, it has an obligation to serve the public of New Mexico. We submit that not only is it an obligation

to serve the public of New Mexico with natural gas, it is 1 also an obligation to clean up contamination caused by a 2 public utility. 3 And the OCD is not without its own obligations to 4 5 It has statutory duties and responsibilities to see serve. 6 that remediation is contained and cleaned up. The OCD does not treat corrective action as an 7 8 admission of liability. The OCD does treat corrective 9 action as required actions that protects the public health 10 and the environment, as statutory duty. 11 When you decide this case you're going to look 12 closely at the Application. This Application does not ask 13 for an allocation of liability, nor should. 14 This Application only asks that PNM not be 15 considered a responsible party in this case. The evidence has shown that -- and PNM's own admissions has shown that 16 17 it is a responsible party. 18 As a responsible person, PNM should be required 19 to follow OCD directives regarding cleanup, regardless of what it thinks other parties' liabilities might be. And we 20 21 think that is the public policy that should be set by your 22 decision, and that is what the public policy should be for the best interests of New Mexico. 23 24 EXAMINER ASHLEY: Thank you, Mr. Carroll. Mr. Alvidrez? 25

Yes, Mr. Hearing Examiner, it's, I MR. ALVIDREZ: 1 think, very important to put this case in context in terms 2 3 of timing, and we've got to go back to March 13th, 1998, because that's the determination which PNM is appealing. 4 And there has been a lot of discussion about PNM 5 6 wanting to shirk its responsibilities, not wanting to 7 accept responsibility for contamination, and that is 8 absolutely untrue. 9 A lot of water has passed through the seep since March 13th, and a lot of data has come up. And I think if 10 11 we look at the data, PNM has been proven right. 12 If we go back to March 13th, what you had was Burlington saying, We didn't do anything with regard to 13 that contamination under the site. We didn't have anything 14 15 to do with that free product. Oh, we've got some dissolved 16 phase and we've got this pit, and we're going to leave it 17 open and it will volatilize up into the air, but we didn't have anything to do with that free product that was sitting 18 19 under PNM's former site. 20 Well, PNM suspected, and told the OCD and told 21 Burlington, we think we've got a problem upstream. And as 22 more and more data have been developed, PNM has been proven 23 right on that point. And in fact, Burlington's own expert has come in 24 25 and said, Yeah, we did it, we contributed to that free

1 phase hydrocarbon.

2	Instead of pillorying PNM for not doing
3	something, OCD out to send PNM a thank-you note for finally
4	getting Burlington out there to do something, to do
5	something to address what it acknowledges is a problem that
6	it created.
7	I want to talk about what PNM's objective is
8	here. As I said before, PNM is not trying to skirt its
9	responsibilities. To the extent PNM contributed soil
10	contamination, it's absolutely willing and has addressed
11	soil contamination. To the extent free phase is an issue,
12	that has been caused by PNM, PNM is willing and has
13	addressed free phase.
14	What this case is about is that pool I said
15	"free phase"; I'm talking about dissolved phase.
16	What this case is about is the pool of free-phase
17	hydrocarbons that have been sitting out there at this site,
18	that Burlington acknowledges it caused, at least in part,
19	and that has not been addressed until PNM filed this case,
20	and until their expert that they brought in to look at this
21	case looked at the evidence and made a determination, By
22	gosh, PNM is right, we did contribute, at least in part, to
23	that free phase that's sitting underneath PNM's site.
24	That's the point at which Burlington started taking action
25	out here.

Now, I disagree very much with Mr. Carr about
 whether or not things are relevant, as far as ownership of
 the product is concerned.

We have the testimony of Mr. Heath, and this testimony is completely unrebutted, that if Burlington's equipment is operating correctly, it should have a very, very high efficiency rate, it should remove the free product that would go down and hit PNM's dehydrator, and that we shouldn't have a problem with regard to contamination on PNM's end.

11 It's only when something goes awry upstream of 12 the process, a process that PNM has absolutely no control 13 over, that we have a situation that leads to the situation 14 where there's contamination in the pit to begin with. And 15 I think that's extremely important when you're looking at 16 what occurred outside -- at this particular site.

We also have, very much unrebutted, the fact that PNM has been recovering product for an extended period of time, for over a year until its wells were torn out by Burlington, and we saw that there was not much impact with regard to the removal of that product. And that leads to a situation where there is a continuing source.

We submit it was patently unreasonable for the OCD to require PNM to go in and recover free phase without first identifying and stopping the upgradient source of

contamination. And regrettably, at this hearing, as of
 November 20, 1990, we have established there is indeed an
 upgradient source, but we haven't pinpointed it yet. We
 still don't know where it is.

And you heard Burlington's own expert saying, you know, we hope that this addresses the problem, but it might not, and that free phase may continue to come on down, and we're just going to have to keep eating away at this site till we get up to the place of our old operations.

I submit that under these circumstances it would be unreasonable to require PNM to go and embark on a situation where they've got to keep recovering free phase in perpetuity until at some point in time we've identified what that upgradient source is. And that's what has not been done here.

We know it's up there, everybody admits it, 16 everybody acknowledges it, but the OCD has not required 17 Burlington to go in and specifically identify where on its 18 19 property that this free phase is coming from. And until 20 that's done, all the efforts in the world about cleaning up 21 down here at PNM's former pit site are not going to be effective. And it is not good regulatory policy to follow 22 23 something like that. It will not clean up this site, and 24 it will be a complete waste of money.

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We've also seen that at the time the March 13th

letter was issued, it wasn't based on any science; it was
 simply a line in the sand in terms of whose equipment was
 located where.
 And what the data have shown, the evidence has

shown, clearly, is the fact that you have equipment
overlying some area does not mean that any contamination
that is resulting underneath that equipment occurred from
that equipment. Indeed, the data show that the
contamination has flown upgradient from Burlington's
operations down to PNM's site.

We also have unrebutted in this case the relative quantities of free product that could have possibly been emitted by PNM versus what could have been emitted by Burlington. And you can see it's a very, very small amount. If PNM contributed in any respect, it's unlikely it would have reached the groundwater in a free-phase form.

And we believe that our data is more believable, our interpretation of the data is more believable, our people have been on the site much longer, they are much more familiar with the site, they have made predictions about what is going to happen at the site, and those predictions have come true with regard to finding more and more free phase as we go upgradient.

24PNM's experts have been right. They have a25proven track record.

The jury is still out on what Burlington's 1 activities are going to result in with regard to their 2 excavation. And we know, we know, that their data, their 3 4 interpretation of the data has been wrong, dead wrong. And I think that needs to be taken into account 5 when you sit down and try and decide, do we believe PNM's 6 7 experts when they say the material could not have gotten to the water table in the free phase, or do you believe 8 Burlington's experts when they say that it could have 9 10 reached the water table in the free phase? PNM's got the proven track record, as being right. Burlington does not 11 12 have a very good track record in that regard. 13 With regard to apportionment, I submit to you that what the Division has done, whether it wants to or 14 15 not, in connection with this case, was to make an apportionment out there, that their effect of drawing the 16 17 line in the sand was to say, PNM, you're responsible for 18 the great bulk of the contamination at this site. And it 19 wasn't based on science, it wasn't based on anything other 20 than an arbitrary and capricious line in the sand. 21 And we have submitted competent testimony, 22 competent expert evidence, as to what PNM could have 23 possibly contributed in this case, under the worst-case 24 scenario for PNM, and it is a very, very small amount. 25 And we have also shown that through PNM's

remediation activities, it has recovered all of that and 1 more, that PNM has recovered all of the possible free 2 3 product that could have placed into this aquifer, and more, if you believe that PNM contributed to the aquifer. 4 That 5 is unrebutted. And what we are asking for here is a 6 determination that PNM's responsibility with regard to the 7 free-phase product is terminated, and we think we've 8 9 carried our burden of proof on that issue. 10 EXAMINER ASHLEY: Thank you, Mr. Alvidrez. One other note of business I wanted to take care 11 12 of was, I wanted to move the deadline for having that draft order to the 18th of December. That way it will give all 13 parties a chance to review the record. 14 MR. ALVIDREZ: We appreciate that, December 18th. 15 16 EXAMINER ASHLEY: Okay. And also, if you could provide that in hard copy and diskette format, I'd 17 18 appreciate that. 19 MR. ALVIDREZ: The order? EXAMINER ASHLEY: Yes. And if there's nothing 20 further in this case --21 22 MR. OWEN: Mr. Examiner, what --23 EXAMINER ASHLEY: Yes? 24 MR. OWEN: -- what word-processing do you want 25 that in?

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1	EXAMINER ASHLEY: Word, if you have it.
2	And if there's nothing further in this case, Case
3	12,033 will be taken under advisement.
4	(Thereupon, these proceedings were concluded at
5	3:30 p.m.)
6	* * *
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13	l da l
14	G complete record of the foregoing is
15	heard by me on 11.10 No. 12033.
16	Mark Jalon 1998
17	Conservation Division, Examiner
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CERTIFICATE OF REPORTER

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

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

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

WITNESS MY HAND AND SEAL December 7th, 1998.

STEVEN T. BRENNER CCR No. 7

My commission expires: October 14, 2002

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