STATE OF NEW HAMPSHIRE
SITE EVALUATION COMMITTEE

June 20, 2017 - 1:48 p.m. DAY 18
49 Donovan Street Afternoon Session ONLY
Concord, New Hampshire

{Electronically filed with SEC on 07-05-17}

IN RE: SEC DOCKET NO. 2015-06
Joint Application of Northern Pass Transmission, LLC, and Public Service Company of New Hampshire d/b/a Eversource Energy for a Certificate of Site and Facility.
(Hearing on the merits)

PRESENT FOR SUBCOMMITTEE/SITE EVALUATION COMMITTEE:
Chrmn. Martin P. Honigberg Public Utilities Comm.
(Presiding as Presiding Officer)

Cmsr. Kathryn M. Bailey Public Utilities Comm.
Dir. Craig Wright, Designee Dept. of Environ. Serv.
Christopher Way, Designee Dept. of Resources & Economic Development
William Oldenburg, Designee Dept. of Transportation
Patricia Weathersby Public Member
Rachel (Whitaker) Dandeneau Alternate Public Member

ALSO PRESENT FOR THE SEC:

Michael J. Iacopino, Esq., Counsel to the SEC (Brennan, Caron, Lenehan & Iacopino)
Pamela G. Monroe, SEC Administrator

(No Appearances Taken)

COURT REPORTER: Susan J. Robidas, NH LCR No. 44

I N D E X

WITNESS PANEL: DENNIS MAGEE, ROBERT VARNEY, LEE CARBONNEAU, SARAH BARNUM, JACOB TINUS

AFTERNOON SESSION

(Hearing resumed at 1:48 p.m.)

CHAIRMAN HONIGBERG: All right. Ms. Pastoriza, are you ready to go?

MS. PASTORIZA: I'm ready.

CHAIRMAN HONIGBERG: You may proceed.

CROSS-EXAMINATION

BY MS. PASTORIZA:

Q. So this is a question for Mr. Tinus.

MS. PASTORIZA: Can you put on Apple TV?

MS. FILLMORE: Dawn, can you try again, please? Having technical difficulty. It says, "Unable to connect. Network signal is too weak."

CHAIRMAN HONIGBERG: All right. Let's go off the record for a second.

(Discussion off the record)

CHAIRMAN HONIGBERG: All right. Ms. Pastoriza, you may proceed.

BY MS. PASTORIZA:

Q. So, Mr. Tinus, Photo 1, I'll represent to you that this photograph was taken last summer on

Route 116, Easton, and shows an uncovered slurry tub and an open bore hole. It was left overnight on the side of the road. Assuming these representations are accurate, does that conform with the BMPs?

A. (Tinus) It looks as though they have a tankful of slurry as you noted and then there's some straw waddles around it. But those are the typical type of BMP we would use.

Q. It's typical to leave an open slurry tub overnight by the side of the road?

A. (Tinus) You didn't ask that. You asked if it was typical. I was looking at the straw waddle, and presumably that's the downstream side. It's hard to tell from a photo the angle, obviously, but... is there another question, I guess?

CHAIRMAN HONIGBERG: Mr. Tinus, can you move your microphone closer to your mouth so that when you turn your head right and left we don't lose you?

WITNESS TINUS: Sure.

BY MS. PASTORIZA:

Q. I'll ask the question again. Is it Best Management Practices to leave an open slurry tub and an open casing on a bore hole overnight without an addition of bentonite-specific silt fence?
A. (Tinus) I've never seen this done before.
Q. Is it Best Management Practices?
A. I would probably say not.
Q. Okay. Photo No. 2, I'll represent to you that this is ACCU-VIS slurry additive that was dumped or spilled next to a Northern Pass drilling site in the White Mountain National Forest on the side of the road and it was covered with hay.

CHAIRMAN HONIGBERG: Just for purposes of this question, Mr. Tinus, and maybe the subsequent questions, assume what Ms. Pastoriza is saying is true. You don't -- we're not saying for sure that it is. But just purposes of these questions, assume that it's true.

WITNESS TINUS: Understood.

BY MS. PASTORIZA:
Q. ACCU-VIS contains acrylamide, a male

reproductive toxin, developmental toxin, and is carcinogenic. The site was 4 feet by 5 feet. It was unposted with any Material Safety Data Sheets. Is this BMP?

A. (Tinus) Is this BMP what?

Q. Is leaving spilled ACCU-VIS slurry and covering it up with hay and not cleaning it up and not putting a Materials Safety Data Sheet at the site to let people know what is there, is that Best Management Practices?

A. (Tinus) I think cleaning up is part of good housekeeping measures that should be followed. As far as leaving an MSDS sheet at the site, I've never seen that done before.

Q. So, leaving this ACCU-VIS slurry at the site is not Best Management Practices?

A. (Tinus) In my mind, that should have been cleaned up.

Q. So it's not Best Management Practices.

A. (Tinus) I guess, yes, I would agree with that.

Q. Okay. Photo No. 3, this is... zooming. This is an S.W. Cole employee straddling -- well, standing on either side of the slurry tub,

leaving a bunch of five-gallon buckets full of slurry, with a sagging, poorly-staked silt fence ready to funnel the spilled slurry into the stream if someone happens to knock it over. Is this considered Best Management Practices?

A. (Tinus) I can't actually see the condition of the silt fence, so I can't comment on that. I don't know where those hoses are leading, to be honest with you. So it's hard to comment on this. I would take issue with the gentleman standing on the bucket.

Q. Is it Best Management Practices to leave open five-gallon buckets of slurry where, if they tip over, they will flow down into a stream?

A. (Tinus) Well, if they're using the material, you know, they'd have to have it at the ready, I presume, and then they would take it away. But there's so many things that could be drawn from a photo like this. I mean, I don't...

Q. What they do with the slurry is, in the drill, as they shovel out the solids from the bottom of the tub, they put them into those

buckets. Normally if you're doing the job properly, you have a slurry recycling tank which filters all this stuff out and keeps it contained and goes off site. In this case, they were shoveling slurry from the tub into those buckets in anticipation of how they were going to get rid of it. So that's what that slurry is in the buckets for. It's not awaiting being used.

A. (Tinus) Did they take it away?

Q. Yes, they took it away.

A. (Tinus) Okay. I don't... is there another question about this?

Q. Is that Best Management Practices?

A. (Tinus) In general, the things that I noted, it's inconclusive to me.

Q. So we can expect in the future that Northern Pass may leave some five-gallon buckets full of slurry in a stream bed, and that will be something we can't report because it's appropriate?

A. (Tinus) I don't think that's a good practice that anybody would want to see happen, no, and I don't think Eversource would allow that

either with the monitoring that's going to take place with the Project going forward.

Q. So is it okay then, but it's not going to be okay later?

A. (Tinus) I don't know anything about where this photo was taken or much about the issue other than what you're stating, so it's -- I can't come to any other conclusions other than what I just said.

Q. So, Photo No. 4, it's a little bit later. Same drilling site. It's a Northern Pass inspector in orange looking on while the S.W. Cole employees load up those five-gallon buckets into the back of their open pickup truck. They also drained and then loaded up and refilled the slurry bucket. That was all driven out without any kind of covering through White Mountain National Forest. Is that Best Management Practices?

A. (Tinus) I would assume the buckets should have been covered. Had I been the environmental monitor, I would have made sure they were covered.

Q. So it's not Best Management Practices.

A. (Tinus) Well, not knowing, not seeing an active video of the truck pulling way with buckets in it, and assuming that what you're saying is what happened, I would agree.

Q. Photo 6. So this is a Northern Pass contractor. What he has is equivalent of a slurry tub. That's just a different kind of slurry tub. Slurry and the tailings are being knocked and scraped out onto the ground before being hosed into the undergrowth, which they spent several minutes doing.

Is that Best Management Practices to dump your slurry tailings from your tub onto the ground and hosing it into the undergrowth, especially near a water supply and a stream?

A. (Tinus) That shouldn't be directly discharged to a water supply or a stream or a wetland. However, it can be done into an upland area. So it's hard to tell where those resources are located from this photo.

Q. Do you not need a permit from White Mountain National Forest, where this was, to discharge slurry into an upland, which it wasn't?

A. (Tinus) I believe they had the proper permissions to do the work through the White Mountain National Forest.
Q. Is it appropriate and Best Management Practices to dump slurry that contains ACCU-VIS, which is carcinogenic, on the side of the road and hose it.
A. (Tinus) I can't say. I don't know enough about this particular part of the operation, to be honest with you.

MS. PASTORIZA: That's the end of my questions. Thank you.

CHAIRMAN HONIGBERG: All right. Mr. Palmer, then I think we're going to return to your group. And I guess Mr. Lakes is going to pick up with the questioning?

MR. PALMER: Yes, that's right.

CHAIRMAN HONIGBERG: Mr. Lakes, are you going to work from back there or come up here? Okay. Change in plans.

MS. MEYER: Yes, change in plans. Barbara Meyer. I'd like to go in advance of Carl Lakes.

CHAIRMAN HONIGBERG: Okay. You

all can see Ms. Meyer from the witness bench? All right. You may proceed.

CROSS-EXAMINATION

BY MS. MEYER:

Q. Okay. By way of introduction to the Panel --

CHAIRMAN HONIGBERG: You're going to need to introduce yourself into the microphone.

BY MS. MEYER:

Q. Okay. By way of introduction to the Panel, I'm Barbara Meyer. I live on 116 in Easton, so I'm a member of the Abutting Property Owners, Bethlehem to Plymouth Group, and so my questions will focus on the underground portion of the route.

Let's see. First of all, I wanted to ask how many wells there are in close proximity to the underground route. And you can pick your own definition of what's "close proximity." You know, is it 200 feet? Is it 50 feet? What numbers are you working with?

A. (Tinus) I don't know, off the top of my head, the exact number.

Q. Do you agree that in general it would be

better to have fewer rather than more wells in close proximity to the route from an environmental standpoint, a water-quality standpoint?

A. (Tinus) In terms of what? Just by location?

Q. Yes. Would it be better to have fewer wells along your route or more wells along the route?

A. (Tinus) I really don't have an answer for that. They are where they're at and the roads where it's at.

Q. If you're concerned about water-quality impact from the construction project, wouldn't you, just by definition, rather see fewer wells than more?

A. (Tinus) Well, I think the Project needs to -- and we are aware of where the wells are and other utilities. So, to the extent they cause complications with construction, that's all part of, you know, understanding what they're doing. And so it adds complexity. I think that's what you're getting at.

Q. Well, another thing I'm getting at is the potential for something going wrong, damage

occurring to the well either in terms of the water quality, the structure of the well itself. I mean, wouldn't it be prudent avoidance to choose a route that has fewer wells rather than more?

A. (Tinus) Well, I think as Lee and others have stated, I mean, siting the Project is an acknowledgment of trying to find, you know, the location for the facility in the road where it's going to have the least impacts to those resources. And some folks are probably aware that design efforts are still continuing in that regard to look at the underground location, to provide further avoidance to various features along the route.

Q. Right. And I realize there are a lot of other factors that would go into choosing an optimal route. But I'm just asking with regard to that one specific characteristic of number of wells. Wouldn't it be nice to have fewer wells rather than more to contend with when you're building a project like this?

A. (Tinus) Sure. But it's through a developed

or a partially developed area, so there are wells there.

Q. Okay. Wouldn't, for example, siting the Project down the median of I-93 provide a natural buffer away from wells? Wouldn't that be a particular advantage to that route?

A. (Tinus) I don't believe the I-93 route was studied. I know that there's limitations in terms of what the state allows.

Q. Yeah, other issues. But just when it comes to wells and avoiding that, the nature of that problem, the water quality in people's wells, doesn't it seem like 93 would provide a natural buffer?

A. (Tinus) You're asking a hypothetical question that I just don't have an answer to. I'm sorry. We haven't looked at comparing the route location to other hypothetical locations like that.

Q. Okay. Now, your analysis of the underground portion of the route was based on Company plans that had it under the pavement, largely; isn't that correct?

A. (Tinus) Either under or directly adjacent to

the pavement, right. On the road shoulder.
Q. Right. And the residents here, and Mr. Oldenburg, the other day, confirmed that on 116 there's really no shoulder of that road. You've got maybe a foot but -- okay. I'll let that go.

So have you updated your analysis to reflect the fact that the DOT says that they would rather see this towards the outer edge of the right-of-way, meaning away from the pavement into front yards?
A. (Tinus) The engineering team is currently working on that very effort, considering what the DOE -- DOT has provided for feedback. And I know they are looking at the design now and tweaking it to do what they need to do to make this work right for everybody, including folks that have wells.
Q. And wouldn't you expect the environmental impact to get worse the farther you move away from the pavement?
A. (Tinus) I can't agree to that. That's a broad generalization.
Q. Would it have a greater impact on vegetation,

for example?
A. (Tinus) Perhaps.
A. (Carbonneau) I would say that's possible if you're not in the roadbed or the developed shoulder and you go beyond that, it's more likely that there will be natural vegetation.
Q. And in terms of impact on wells, if, for example, like in my case, where my well is 50 feet from the pavement, the further you advance into the right -- or into the front yard, the closer you get to the well. I would imagine that's also another potential adverse environmental impact by moving away from the pavement and into yards. Would you agree with that? The potential is there.
A. (Carbonneau) I guess there is a potential. But it's not a given that there will be any impact to the well at all. But I guess, I suppose if it's a little closer, it would seem logical that there could be a slight increase in the potential at least.
Q. Can you think of any other adverse environmental impacts that might happen as you move the Project away from the pavement

and out into the yards?
A. (Carbonneau) I think that I don't know if I would say into the yards. But as you get further away from the developed portion of the road right-of-way, there's a potential for other natural resource effects, yes.
Q. Can you enumerate some of those?
A. (Carbonneau) Could be wetlands, could be streams, could be mature trees. In some cases there could be a rare, threatened or endangered plant at the edge of the right-of-way.
Q. So would you still be able to say, then, that there's no unreasonable adverse effect of this project?
A. (Carbonneau) I can't speculate on that. It would have to be an evaluation, and we have not done that evaluation.
Q. One of the other things that has changed with regard to the plans is the fluidized thermal backfill, and also, I believe, the plan for the trenches to now be 4 feet by 7 feet deep instead of 4 feet by 4 feet. So we have -- we had earlier testimony from Ms. Carbonneau.

You said you thought that the trenches were lined and so there wouldn't be any effect on well or groundwater. But Mr. Tinus said it is indeed an open trench with the fluidized backfill that contains heavy metals but that won't leach out.

A. (Carbonneau) It was not my testimony that these are lined trenches.

Q. Oh, okay. Can you correct what you said? If that was a mistake, then I'm sorry. What was your understanding about the trenches?

A. (Carbonneau) Not that they were lined. I can't recall exactly what the conversation was about, but it was not regarding lining of the trench.

Q. Okay. I thought the idea was that there was something there that would mean that any fluidized backfill wouldn't be exposed to the soil, so that it was encased in a concrete box or the trench was lined or there was something there.

A. (Carbonneau) No. The fluidized backfill goes into the trench. But below that, the cables themselves are encased. And as it turns out,

I guess it's in concrete and not necessarily in a duct bank that is open without any fill in it. So the cables themselves are not in a porous material. But then there is a fluidized thermal backfill above that which is inside the trench. But it is not lined. It will be in contact with the soil.

Q. Okay. So is it fair to say, then, you're both on the same page in terms of the construction of the trench, both Mr. Tinus and Ms. Carbonneau?

A. (Carbonneau) I think we're on the same page, yes.

A. (Tinus) Yes.

Q. Okay. So with regard to the fluidized backfill, we have Mr. Tinus saying it does include potentially heavy metals but that it will not leach these heavy metals into the groundwater. Now, this line is going to be in place forever. How do we know that 80 years down the line this is not impervious anymore to years and years of erosion, movement in the ground, that kind of thing, and things do start leaching out of this

product?
A. (Tinus) We haven't studied that. And I don't know that the line is scheduled to be in service for 80 years. I don't think -- I think it's half that. But I could be wrong.
Q. Okay. But it's your call as to when you would go in there and replace it. So the homeowner bears the risk of this deterioration potentially occurring and nobody coming in willing to replace the line.
A. (Tinus) Well, I think whatever maintenance is required on the trench and the line will be done on whatever schedule is necessary.
Q. Okay. Another thing I wanted to ask you about is with regard to fly ash. Now, my understanding is that it's not a homogeneous material, that different batches of fly ash could have different contaminants in it, that some may have a high quantity of mercury, for example, and another batch wouldn't show much mercury at all. So if that's the case, when the Company tests this product and says it's safe, how do you know that the batch that goes in in front of my house doesn't contain

different contaminants, different things than the one you tested in the lab?

A. (Tinus) I don't know anything about how that works, but I assume they have a document trail that proves that it is tested as to what they claim it is and that they're following certain standards or protocols as required by law. There is that requirement in the law. In order to use this material, it needs to be tested, and it needs to not have exceedances, for your example, of mercury and other constituents that if in larger quantities could be toxic. But these are lower thresholds that are allowed.

Q. But do you agree with my statement that fly ash is not a uniform product, not a uniform --

A. (Tinus) I think that's why they have testing, because it can vary from the source, depending on what kind of coal it came from.

Q. Okay. So it's possible that as this is being installed in our front yards, if we took a sample of the product, the fluidized backfill, and say we took it to an

independent lab and had it tested and I find high levels of mercury in this particular sample, what happens? What does the homeowner do? How do you stop the Project and say wait a minute, this has got an unusually high level of mercury?

A. (Tinus) I don't know. That's a hypothetical I don't have an answer for. Sorry.

Q. Another topic that I wanted to raise is with regard to excavating and then reusing roadside soils and that that can stir up and release petroleum products from car exhaust that might be adjacent to the road. What do you think the impact would be on a nearby well water from just the stiring up of the topsoil and releasing these petroleum -- freeing up these petroleum byproducts?

A. (Tinus) Never heard of that as an issue before. Construction is done all the time along roadsides. Municipalities install various utilities, repair pipes, replace things, upgrade them. Many years doing this, I've never heard of that brought up as an issue.

Q. If this project were going in a few feet from your own wells at your own homes, if you have well water, how long after installation would you be testing your well, and what would you test it for? So this would encompass all possible things that you might be concerned about. Just wanting to be sure what you test for.

A. (Tinus) I would follow the DES regulations for homeowners and testing wells. They have good guidance, and that covers a lot of the parameters.

Q. And how long would you test your well for to make sure there weren't any changes?

A. (Tinus) I think you'd test it once, and with the assumption that everything is okay, then you're fine. I know personally I have my own well. I test it about every three or four years.

Q. Okay. What about in the instance of blasting? What sort of pre-blasting testing do you do, and how long do you follow-up with monitoring of wells that are near blasting sites?

A. The Project intends to follow the blasting protocol that it will have in place based on the DES recommendations. Some of that includes water testing. It's also checking for physical things to the structure beforehand. So there would be a baseline analysis done to look at the structural integrity of the properties and testing the well to see if there's anything in there presently. I believe what the construction panel testified to was any wells within 500 feet of blasting, DES would like to see that done when there's 5,000 cubic yards of material removed in any location.

Q. And what do they test for?

A. (Tinus) Typical things tested for in water, including nitrates, hydrocarbons that could be released from the blasting process.

Q. Despite the DOT using Best Management Practices, some of the blasting that was done for highway construction in Windham, New Hampshire in 2009 and 2013 resulted in nitrate contamination of groundwater. So are BMPs adequate protection from the risk of

blasting near wells?

A. (Tinus) I think that's an extremely large area that they blasted, if I'm understanding your reference correctly. The amount of blasting for the Northern Pass Project is going to be pretty small, quite frankly, aside from some of the transition stations; those would be largest area. But I don't even know if blasting is going to be required along the underground route itself. We'll know more when they take additional boring information, you know, within the right-of-way and other select locations. But until we have a blasting plan, it's hard to draw conclusions about what the effects of it might be.

Q. Okay. I guess, bottom line, I get to a fundamental question, and it's going to sound like a rhetorical question, but it's really not. I'd like to hear what you have to say about that.

The question is: Who pays the price for being wrong? For the homeowners along the route, you know, this could cost us a lot of

money because we bear the risks of the contamination in the backfill. We bear the risk of stirring -- what I think is a risk of stirring petroleum byproducts down into the soil. I remember kids with lead poisoning, and that was an issue that people were looking at as to whether that's where their lead exposure was coming from. We've got the risk of blasting. You know, our families are drinking the water from wells that are 30 feet from the construction.

So my question is: If things go wrong, does anybody on your side bear any personal responsibility? I mean, is the decision made, and then you just deliver us bottled water if something goes wrong?

A. (Tinus) I think what we've been talking about up here is that, first off, DES has by fact -- by virtue of the fact they have indicated that we've addressed the concerns, and we'll continue to do so during construction and even after by following all the permit conditions, that we've acknowledged that we've done a good job

looking at the issues you're talking about.

But furthermore, the construction panel I know has mentioned that if there are any issues, that they will be addressed at the time. We don't want to go there. That costs money. That costs people's clean water. You know, we want to avoid that. By following the Best Management Practices, by doing pre-blast surveys, by doing water-quality monitoring and those kinds of things we've been talking about, we feel that we'll keep that at bay, that it won't rise to that level that you're expressing.

Q. I guess I'd have to question if one person finds a high level of mercury or finds nitrates in their well or finds something like that as a result of the Project. That impact filters down to everybody else that's along the line of the Project. So, even if the risk is small, it affects all of us that are lining the Project. It affects all of our property values.

So, to get around to a question, I guess it would be: Doesn't it make some sense,

doesn't it make a lot of sense to move this into a situation where it's away from homes and away from wells, like the median of I-93? Isn't that preferable to taking the risks, asking all of us to take these risks that I just outlined with our water quality, with our property values? We've got real money on the line. This comes out of our hide. You people are making the decision, an executive decision, and nothing really wrong happens to you if you're wrong. I mean, nothing financial happens to you if you're wrong. There are no penalties. So doesn't it make sense to try to locate this as far away from an impactful place as possible, like I-93?

A. (Tinus) I know you mentioned I-93. I mean, again, we've looked at the Project from the location where it's at and we're continuing to acknowledge the issues that folks like yourself are bringing up and keeping them in mind. And through the coming months, as the contractors are getting engaged, they're going to be made fully aware of these issues, that they need to exercise extreme caution

and common sense and do their jobs correctly. And that's why we're all working on this project. And some of us have been working on this for a very long time to bring it to this point, so...

Q. Well, and part of the reason it's taking so long is because folks like us are fighting you because of exactly these kinds of concerns. But I think that's --

MS. MEYER: That concludes my questioning.

CHAIRMAN HONIGBERG: Mr. Lakes, I think that brings us to you.

CROSS-EXAMINATION

BY MR. LAKES:

Q. Hello. I am Carl Lakes. I'm an intervenor on Route 116 in Easton, on the underground route. And I'll try to get through this as fast as possible. "Yes" and "No" answers are probably the best, but I guess sometimes you just have to say more than that. Let's begin.

When planning a project of this scope, are there regular meetings with Eversource to

discuss various environmental issues? Anybody can answer that. I don't know who would be the best.

A. (Carbonneau) Yes.

Q. Who attends these meetings from Eversource?

A. (Carbonneau) A project director and sometimes an environmental person from Eversource. It depends on what the issues are that are being discussed. And also in some cases their legal department will attend as well, sometimes engineers who are working on the Project also.

Q. Does upper management attend any of these meetings, say a VP? Is there a VP of environmental at Eversource?

A. (Carbonneau) Yes, there are definitely high-level environmental folks at Eversource that attend from time to time.

Q. Okay. And you have high-level Eversource construction folks in the room as well?

A. (Carbonneau) Yes, if there's a -- typically more engineering than construction, but high-level engineers are sometimes involved in those meetings.

Q. Is there coordination between contractors where kind of the left hand knows what the right hand is doing and so forth, where you try to work in harmony?
A. (Carbonneau) Well, during the planning of the Project, the contractors that have since been hired were not necessarily participating in those meetings during the planning process of the Project. They have been engaged more recently. In some cases they attend meetings where environmental issues are discussed. But they're not contracted through my company. They are contracted through the Northern Pass team, so -- but there is internal discussions. And there are many other meeting types that take place. So there are different groups of people meeting. There's a fairly good amount of cross-pollination of ideas and planning documents.
Q. So you were saying that there actually is a vice-president of environmental services at Eversource?
A. (Carbonneau) I don't know if it's a

vice-president. I'm not sure exactly what her title is. But Catherine Finneran has been involved in our meetings as well.

Q. At least my corporate life has normally been where corporations take the environment very seriously and usually have very high-level people attend meetings. And in this day and age, where maybe there's too many VPs, a lot of times they do show up at these meetings for input as well. But you have not seen a vice-president of environmental resources in these meetings. Is that what you're saying?

A. (Carbonneau) I'm not saying that. I'm saying I'm not sure what all of their titles are, if they're actually vice-presidents of environmental or not. Sorry.

Q. Okay. So, say you have an issue such as a wetland that will potentially be completely destroyed, never to be returned to its pristine condition. What process do you go through to finding a solution for that?

A. (Carbonneau) Well, this is a hypothetical question, so I'm not sure.

Q. I don't know if it's hypothetical. I mean,

you have to have some -- if you have a wetland that's going to be destroyed, my question is -- let me just elaborate further then.

So, say if it's going to be destroyed, you may look for an alternate route. Would that be something that might be a possibility?

A. (Carbonneau) Well, for the most part, I don't think we have too many wetlands that are going to be "completely destroyed" by this project, so I wouldn't use that term. We have wetlands that will be impacted by the Project. And to the extent that we can avoid them by rerouting an access path or a work pad or even a structure itself, then that is an effort that's worth doing.

Q. And obviously you've been working through the DES, and there are times when you need to find a variance or get a variance from the DES to move the Project along at a certain point; is that correct?

A. (Carbonneau) I'm not sure a variance is the correct legal term. There may be a

possibility that an impact that has not been approved previously may be necessary, in which case we would need to seek a permit amendment.

Q. So I'm not sure if this is a permit amendment. But basically at that point, perhaps Eversource needs to pay compensatory damages and, you know, or some sort of a cost. And I had seen where there's something like a $3- to $4 million set aside of funds with regard to some of the destruction along the route.

How is the cost determined when putting the value on killing and displacement of wildlife is the subject at hand? What is it worth? How is the final number reached, and is it negotiated?

A. (Carbonneau) I can describe to you what the mitigation requirements are under the law.

The New Hampshire Wetlands Bureau requires that you identify your wetland impacts. They have what's -- and there are a couple options for mitigation. So there's the preservation option. But you may be

referring to the ARM Fund, which is the Aquatic Resource Mitigation Fund. They have an online formula, a worksheet that you put information into. It's the area of the impact, and then it calculates based on what it might cost to actually construct replacement wetlands at a higher ratio, what that cost would be. And they turn that into what's called an Aquatic Resource Mitigation Fund payment. So it's based on the area of impact, what the land values are in that town, what it would cost to construct a replacement wetland. And that's all prescribed in the rules for the New Hampshire Wetlands Bureau.

As far as actual wildlife impacts, there are currently no specific rules or guidelines about mitigation for direct impacts to wildlife. However, New Hampshire DES does ask that we coordinate with New Hampshire Fish & Game to make sure they're aware of the impacts that are proposed and determine if there is something in addition that might be required. So, New Hampshire Fish & Game and

the other resource agencies have been provided with our compensatory mitigation plan so they can determine if it's adequate to meet their needs.

So our mitigation plan, in addition to the cost for mitigation, includes some preservation of parcels that not only have high-value wetlands with upland buffers around them, but valuable wildlife habitat based on the types of impacts that we're expecting of wildlife habitat as well.

Q. Would I assume that Eversource urges you to put forth a study which minimizes the cost to the corporation?

A. (Carbonneau) No, I disagree with that assumption.

Q. I didn't say they did. But I asked if there may be the assumption because you're working for Eversource, the impetus to find ways to mitigate the costs or minimize the costs associated with some of these issues encountered with wetlands and so forth.

A. (Carbonneau) Well, we've made many recommendations on the Project for avoiding

and minimizing wetland impacts. And within the right-of-way within the Project area, cost has never come up as a reason why they could not further avoid or minimize an impact. It's always been some technological issue based on safety clearances or terrain or some other reasons. So cost has never been an issue there. And it's never been an issue with the mitigation package either. In fact, we have way more mitigation than is even required under the rules, and the Northern Pass team never balked at our recommendation on that.

Q. Okay. Let's move on.

In a project this size, you will invariably destroy lots of trees, crush and smother wildlife, displace habitat, permanently destroy habitat, et cetera. One has to wonder about the environmental cost versus monetary value, versus not doing the Project at all.

I want you to think along these lines: Say you could pay $50,000 to a landowner to avoid a pristine wetland. Is this action

actually explored along the whole route? In other words, you know, you have an easement and you're cutting trees down and so forth, and here's this pristine wetland. And, jeez, you know, if we could only go 30 feet more over to this side and avoid it completely rather than having to deal with it in some way or hurt it or harm it in some way. Is there a reach-out to landowners in those situations to see if in fact Eversource could pay that landowner to extend the easement over to the side to avoid that wetland? Is there any actions like that?

A. (Carbonneau) Well, my -- not that I'm aware of.

Q. Okay.

A. (Carbonneau) But my understanding is the easement is -- I mean, the easement is already there. There's already a clearing with the structures in it. If we were to ask for additional easements somewhere else, then it would only increase the area of impact by building outside of the existing right-of-way. So it would be a worse

impact --
Q. Sorry. Well, not necessarily so. If you're avoiding something that's pristine, that may be worth, you know, the act of cutting down a certain portion of trees on a dry piece of land where you're avoiding it -- anyway, I'm just making a point. I just wanted to know if you actually do that, yes or no.
A. (Carbonneau) No, and I don't think any of the resources in the existing right-of-way would qualify as pristine. They've all been managed for decades.
Q. I don't know. I heard about a few pristine wetlands today.

Getting back to internal meetings with Eversource on environmental issues. Mr. -- is it Tinus or Tinnus?
A. (Tinus) Tinus.
Q. Would such things as horizontal directional drilling and the possible consequences of frack-out be discussed in these internal meetings?
A. (Tinus) With the contractors now on board, those discussions will be occurring, yes.

Q. You're part of those contractors; correct?
A. (Tinus) I am not. I work for Burns & McDonnell, the engineering folks that did preliminary engineering for the Project.
Q. Okay. So once you're done with the preliminary engineering, your company walks away? Is that what it is?
A. (Tinus) No, not at all.
Q. So you're in those meetings. Or you should be in those meetings.
A. (Tinus) Yes.
Q. And you are --
A. Me personally, though, I don't know if I'll be involved. It's more of the contractors, and then probably as needed I'll be in meetings, as might Lee and others from the environmental side.
Q. Yeah, I do get it. But I would think that there should be an environmental person there at every meeting, which I guess you're representing.
A. (Tinus) It's a good recommendation.
Q. Thank you.
Would you agree that polymers that are

mixed with bentonite for lubrication are harmful to fish, invertebrates, bottom-dwelling species and can be possible carcinogens? Yes or no?

A. (Tinus) When they're used in proper dosage, they don't cause those effects.

Q. But they do cause the effects, just like drugs and everything else, I mean, if you overdose on a drug versus not overdosing. Anyway, I understand and we'll move forward.

So is Eversource upper management, particularly those in charge of engineering and construction, made aware of the possible harmful effects of the polymers used in drilling mixtures?

A. (Tinus) I don't know.

Q. From my cross-examination of the construction panel, the attendees pleaded ignorance to any knowledge of the harmful properties of these products.

I'd like to put up Exhibit No. APOBP 42.

(Exhibit APOBP 42 marked for identification.)

Q. And on this exhibit I asked Mr. Bowes the

following: Horizontal directional drilling uses bentonite and drilling fluids made up --

(Court Reporter interrupts)

CHAIRMAN HONIGBERG: Slow down.

MR. LAKES: Sorry.

CHAIRMAN HONIGBERG: Hang on just one second. That is a very common problem. Virtually everyone has the same problem. And the stenographers know it, and they are ready.

MR. LAKES: Yeah, I don't know how they do it either. I'd go insane.

BY MR. LAKES:

Q. So, anyway, "Horizontal directional drilling uses bentonite and drilling fluids made up of polymer additives for lubrication. Are you aware" -- and this would be to Mr. Bowes -- "that these materials have been found to be toxic to fish and invertebrates and can negatively affect the aquatic environment?"

Mr. Bowes says, "I am not."

Going on further to the bottom, and then we'll move over to the next exhibit afterwards. "Are you aware that the fluid

polymer ACCU-VIS that was used with the bentonite contains carcinogens possibly harmful to humans?"

MR. LAKES: And you can put on the next one.

BY MR. LAKES:

Q. Again Bowes says, "I don't have any knowledge of the polymers or the fluids that are used besides the bentonite."

In your professional opinion, then, Mr. Tinus, should a company such as Eversource that is authorizing third parties to perform work in their name be aware of harmful products or possible negative consequences prior to the start of any project? Shouldn't all levels of management be aware?

A. (Tinus) That seems to be a prudent suggestion, yes.

Q. Moving on. Who specifies the drilling fluids to be used in HDD? To go further, does Normandeau or Burns & McDonnell review the fluids, third-party oversight? Is there any knowledge on that at all?

A. (Tinus) We haven't talked about that

specifically.
Q. Will you be talking about it specifically? I guess that's --
A. (Tinus) Now that you've mentioned it, I think that's prudent.
Q. Are you aware that there are low-toxicity, water-based polymers out there?
A. (Tinus) I'm not personally aware of that, no.
Q. Perhaps somebody should investigate that.
Is there anyone on the panel that worked with Eversource during the underground project from Middletown to Norwalk?
A. (Carbonneau) Normandeau was not involved in that, so...
Q. Mr. Tinus?
A. (Tinus) I haven't personally been. But I know that our company has worked on it.
Q. Okay. We can skip that whole area then. We'll move along quicker.
Mr. Tinus, can frack-outs get into homeowners' wells?
A. (Tinus) If they're not properly managed, I suppose the answer is yes.
Q. And I'm sure, as you may be aware, frack-out

can travel many hundreds of feet. Will Eversource screen wells and test for contamination either from frack-out or blasting within 500 feet of all wells along the route?

A. (Tinus) Pretty sure the construction panel indicated that that would be the case.

Q. All right. What is the procedure for cleaning a contaminated well from frack-out or blasting materials?

A. (Tinus) I don't know specifically.

Q. Who does know that within either -- on this panel? Is there anybody else that knows this on this panel?

A. (Carbonneau) No.

Q. I would think that's something that an environmental panel should know.

Will all frack-outs, spills, incidents of contamination, fuel spills be reported to town governments immediately and followed up by written report?

A. (Tinus) There will be a reporting protocol in place with all of these monitoring plans that are being prepared for blasting and for the

HDD, for the spill prevention/containment countermeasures plan. So that will have reporting requirements in there.

Q. And that will be reported to towns?

A. (Tinus) I assume the towns would be copied on those communications as well, yes.

Q. I would hope so, because if it's something that's affecting any of the residents in the town, then the town government and conservation commissions should be knowledgeable of that.

Let me ask you: If there is an event, how much damage will require follow-up?

A. (Tinus) I mean, without very specific -- it's hard to pinpoint what damage would require what kind of follow-up. So I don't know that I can provide a specific answer --

Q. Will there be some -- sorry.

Will there be some written sheet that can be dispersed among the communities that says, you know, this is what you can expect from us if there is a frack-out or some damage done to somebody's well, this is the follow-up, this is how we're going to do it?

A. (Tinus) I'm familiar with other projects having a similar process in place, so I think that would be done as well as part of the outreach, ongoing outreach. It's going to be extensive when construction starts. And it is now trying to get together with municipalities, to sit down with them to identify issues like the kinds that you're raising, to get a Memorandum of Understanding or agreement together that specifically outlines some of these things and hopefully some solutions to some, or answers to the questions.

Q. Okay. The way I understand it, fresh water is necessary for HDD. Does Eversource and its contractors plan on accessing streams, rivers and ponds as a source of fresh water?

A. (Tinus) I think, in terms of obtaining enough water, it depends how much they'll need at a particular crossing. There are certainly requirements that the DES has in terms of withdrawal, water withdrawals. And, you know, permission may be required from the state and obviously private landowners where

the water is withdrawn. But I also understand they're considering trucking in water.

Q. Okay. Will vacuum systems be on site at all HDD locations to quickly clean up frack-outs, spoils or spills before they can enter the streams, wetlands or other sensitive areas?

A. (Tinus) I think the crews will have appropriate equipment as specified in the plan. I don't know where that would be or how many, but they will need to have that.

Q. Are they going to have the same equipment that the geotechnical boring folks had on Route 12 and 116, leaving dispersed polymers and bentonite all over the sides of the road? Will we improve on that?

MR. WALKER: Objection.

CHAIRMAN HONIGBERG: Grounds?

MR. WALKER: He's testifying and with no foundation. I hate to use the word "no foundation," but there is zero foundation for that.

CHAIRMAN HONIGBERG: Mr. Lakes.

MR. LAKES: Okay. We'll move

on.
BY MR. LAKES:
Q. The DOT calls for the transmission line to be outside the pavement where "practicable." There's that word again. Has any environmental study been performed to help DOT determine the placement of the line, of the underground line?
A. (Carbonneau) We have done environmental work all along the underground route and provided our information to the project team and the engineers. It includes natural resources within the existing road right-of-way, and it includes everything else that we would have surveyed for in the overhead portion of the route. So it would have included wetlands and streams, rare plants, et cetera, archeological sites, all of that information.
Q. So tell me what's going to happen if DOT says you must have the transmission line off of the road. In Easton, there are places where the wetlands come right up to the side of the road, literally. How do they go through that wetland with a underground transmission line

if DOT says that's the only place you can put it?

A. (Carbonneau) They would do that as they would almost anywhere else. They would have to excavate a trench, backfill the trench and then put the topsoil that had been taken out back over the top of it.

Q. So Normandeau, whom you represent, wouldn't have an issue going through wetlands or swamps with a transmission line?

A. (Carbonneau) Well, it's not up to us. We're telling everyone what the resources are. I'm just telling you how that would be constructed if you had an underground trench that goes through a wetland alongside of the road. Clearly, that's not in our current Wetland Applications everywhere to be outside of the disturbed roadbed in the road right-of-way. So if there were additional wetland impacts resulting from a final design that expected to have greater wetland impacts, then we submit it in our Application, and we would either need to revise our Application materials or request

an amended permit.
Q. So I would assume that it would have to probably be a variance. Variances seem to be what DOT does. That's what Eversource seems to go after are variances. And there may be compensatory damages as a result of going through one of these wetlands on the side of the road. Does that sound reasonable?
A. (Carbonneau) Whether or not there is mitigation required depends whether it's permanent or temporary impact. Certainly, if you have to ask for a greater amount of wetland impacts, there's an application fee associated with that. So it will be a monetary issue whether or not mitigation is required.
Q. Thank you. Next I'd like to talk about trenching. Some of this may be a little redundant, but after hearing what I haven't heard and have heard today, I think it bears a little more talking about.
First the trench is excavated, conduit put in place, a cement pad goes over the top of the conduit, and then it's filled in with

thermal backfill, which is a cementitious type of product.

As background, Route 116 has many areas of swamp and wetlands. I know there has been a lot of back and forth on this, but today I was just given some evidence that I want to introduce right now. And here we go.

(Pause in proceedings)

BY MR. LAKES:

Q. So, again, I know there's been a lot of back and forth on this business about the fill. But I was just given some evidence that I want to introduce. This is from the DOT Conference Report, dated October 5th, 2016, for a meeting held on September 27th. And the host was -- there was a whole host of Eversource attendees there, but this was a DOT conference with Eversource people present.

CHAIRMAN HONIGBERG: Mr. Lakes, can you show us the first page of this document?

MR. LAKES: Yes. Can you flip that over, please?

I meant to do that. Came up so recently, I hadn't put total thought into it. But that is the cover page of that meeting. States all of the people that were there for this meeting. And DOT was presenting -- or not presenting, but they were running the meeting. But Eversource was also presenting information.

CHAIRMAN HONIGBERG: Is this already an exhibit?

MR. LAKES: No, it just happened. I'm going to have to add a number to it.

CHAIRMAN HONIGBERG: You don't happen to know what number that would be, do you?

MR. LAKES: I might be able to tell you, actually.

CHAIRMAN HONIGBERG: That's all right. It's whatever the current number is plus one.

(Exhibit APOBP 43 marked for identification.)

MR. LAKES: And then if you

would, Campbell, please flip that over.
BY MR. LAKES:
Q. In it Eversource presented to DOT fluidized thermal backfill information, and this is what it says: FTB, fluidized thermal backfill, is water-permeable, similar to DOT gravels, does not create water dams and behaves as a French drain in poor soils.
First, I must ask again after hearing this back and forth today about what this stuff really is. And I think Mr. Tinus kind of gave the last word on it, but this seems to go in direct opposition to what you were saying, where you were saying it was a solid block, basically impervious. Which is it?
A. (Tinus) Right. What I was commenting on was the concrete encasement for the lines, for the underground cable. This material as noted is more permeable.
Q. Okay. Maybe I misunderstood. I heard, you know, the FTB so many times back and forth, I wasn't sure what I was listening to.
So you agree with Eversource that this material is permeable and acts as a French

drain.
A. (Tinus) That seems right, yeah. I'm sure an engineer wrote this.
Q. Yup. Yeah, they always get us in trouble.
Second, is it possible that a longitudinal line could act as a French drain redirecting water and groundwater away from one area and causing issues in another? Is that possible? Has it been studied?
A. (Tinus) That particular scenario described has not been studied, no.
Q. Could the existence of a trenched transmission duct bank cause wetlands to become unbalanced and cause environmental damage either by not flowing through the transmission line or by flowing along the line?
A. (Tinus) I think that's contrary to what this is saying, a French drain meaning that it flows from one side of the road to the other, if that's the scenario you're trying for us to -- presenting for us.
Q. Well, the scenario I'm trying to paint is that the French drain allows water to just --

you got to remember there's a solid thing inside this thing which is blocking water, at the same time allowing it to flow along the line.

And I guess my next question would be: If this is possible, would this or could this be mitigated through permanent trench breakers or trench plugs which are used extensively in the pipe industry particularly, but I did find it used within transmission lines particularly in the Tennessee area, particularly where slopes are involved and water could run from a higher location along the transmission line to a lower location?

A. (Tinus) I think we'd have to direct that to the engineering team and see what they think about that.

Q. Could you do that for us?

A. (Tinus) I will.

Q. Thank you.

MR. LAKES: Okay. Could you please put up Exhibit 44.

(Exhibit APOBP 44 marked for

identification.)

BY MR. LAKES:

Q. Okay. Mr. Tinus, you said in your Prefiled Testimony, as per the exhibit, that no new impervious surfaces will be created by the undergrounding activities. Well, isn't the cement pad over and around the line impervious? I don't understand that statement.

A. (Tinus) That's buried. It's the concrete I was talking about the around cable, so it's not on the surface.

Q. I'm going to say that again. It says, "No new impervious surfaces will be created by the undergrounding activities." Isn't the cable and the cement pad which you said earlier is impervious, impervious?

A. (Tinus) But it's not at the surface. I was pointing out that we're not creating an impervious surface, because this is talking about in the context of the alteration of terrain. So we're not adding an additional paved surface over the top of the cable, if you will.

Q. Okay. I may have misunderstood that.

And then looking further down on the page, it says, "Because the underground work will be located within and along the edge of existing roadways," which we know we don't even know, "the underground cable installation work is not likely to create a high potential for impacts to water quality if appropriate BMPs are followed."

So, based on some of the things I've mentioned about French drains and things of that nature, I think you would agree that it may be at least worth studying some of that to see if that underground installation could in fact, where it's placed next to streams or wetlands or in wetlands, that that be studied.

A. (Tinus) It's certainly a consideration as the engineering is moving forward.

Q. I've noted in the Tennessee Department of Environmental and Conservation State Manual that no blasting will be permitted in the excavation of trenches that are parallel or lie within 50 feet of a stream or wetland,

including all stream crossings. Does this sound like a sensible BMP?
A. (Tinus) I think it's hard to conjecture not knowing what they're planning to do and geologic conditions which we don't have all the information in on yet, so...
Q. What does the current New Hampshire law say on this?
A. (Tinus) For blasting?
Q. Yes, in terms of proximity to streams and wetlands, et cetera.
A. (Tinus) That you need to have appropriate blasting protocols in place, Best Management Practices. So, understanding what the underlying materials are, understanding where the water is flowing, certainly understanding how much blasting you're going to need to do, what sort of charges, the amount of detonating material, where the rocks are going to go, I mean, a whole host of factors for each spot where you're doing blasting.
Q. So, say you're going to lay the cable -- or trench the cable through a wetland on 116. You get down a few feet and there's ledge and

you've got to blast it open. What Best Management Practice is going to cover that particular scenario?

A. (Tinus) I don't know. We'd have to get our heads together on that one.

Q. Hmm. Okay. I'm going to jump to something new. The next thing I want to talk about is the issue of climate change.

With worldwide temperatures rising and changing, rainfall patterns --

CHAIRMAN HONIGBERG: Mr. Lakes, just let me stop you.

MR. LAKES: Yeah.

CHAIRMAN HONIGBERG: Would this be a good time for you to take a break?

MR. LAKES: Sure.

CHAIRMAN HONIGBERG: Sounds like you were ramping up a new topic.

MR. LAKES: Yeah.

CHAIRMAN HONIGBERG: All right. So let's take a ten-minute break.

MR. LAKES: Yeah, thank you.

(Recess taken at 3:08 p.m., and the hearing resumed at 3:25 p.m.)

[Mr. Way not present for remainder of afternoon proceedings.]

CHAIRMAN HONIGBERG: Mr. Lakes, you may proceed.

BY MR. LAKES:

Q. So I was going to go on to something new until I came up with a few more questions in between.

So, Mr. Tinus, did you mention that there will be more geotechnical boring along the underground route? Was that mentioned by you at all?

A. (Tinus) I think they need to do a few more in certain locations, but mostly along the overhead route.

Q. Would you agree that it certainly needs to be done on the underground portions where it was in the road and now it's off the road? Maybe there needs to be more found out about that, particularly around wetlands, streams, things of that nature.

A. (Tinus) I don't know exactly where they're proposing doing it, so we'll have to wait for the engineers to tell us where they need the

additional data.
Q. Okay. And finally there's this business with the fly ash and so forth with that meeting that Eversource had that I mentioned, the DOT meeting about the FTB, the fluidized thermal backfill being permeable, acting like a French drain. Would fly ash be more prone to be released from a surface that is not solid, enclosed and encased?
A. (Tinus) The way this material behaves is, even though it's permeable, it's even more solid than I think you're indicating. I think this is a constituent of material that starts out as fluid or flowable and then it hardens. It does harden. And again, from the source of the material, it's all tested and approved to meet certain standards, whatever those are. And that's the material that's used everywhere for projects like this and others around the state and New England and other locations in all the uses I've already mentioned. So this is ubiquitous material.
Q. Can Eversource give us a written guaranty

that no fly ash will come out of the thermal backfill that's being used?

[No verbal response]

Q. Let's move on. Okay. The issue I want to talk about now is climate change.

With worldwide temperatures rising and changing, rising and changing rainfall patterns, future water flow could be restricted. In Brazil, for instance, there are plans to dam the Amazon, but the fear is that there will not be enough water to produce electricity a hundred percent of the time, so other dams on other rivers are being considered to supplement this. So the only solution that developers have developed is to dam and dam and dam more rivers. The fear still persists that if climate change affects output, then the Project will have created deep environmental damage and not fulfilled its goal of continuously supplying electricity. In fact, issues like this with water supply are happening regularly all over the world.

Can anybody on this panel today say that

10, 15, 20 or 30 years from now that the rivers in Quebec will continue flowing and be able to meet the needs of Quebec and the continuously growing number of transmission lines coming into the U.S.A? Don't all step up.

A. (Varney) I have not heard anyone suggest that rivers in Canada would dry up within the next 20 years.

Q. I wouldn't -- I wouldn't expect it since the Province of Quebec makes so much money off of doing that. I would doubt very much even if they did know they would say it.

But basically what I'm saying here is it is possible with what's going on today with climate change that there could be drastic changes in the future that could cause the rivers from the north to dwindle to the point where a project like this could be totally useless.

A. (Varney) Highly unlikely.

Q. But likely. But possible; right?

A. (Varney) Highly unlikely.

Q. Okay. And as an addendum to that, isn't it

true that Hydro-Quebec is already planning on damming additional sites as a result of the future demand? Perhaps you, Mr. Varney, know more about this.

A. (Varney) I don't know about their long-term plans. I do know that they have a project under construction now, La Romaine Project, which is four generating units, I believe. There's information about it that's been provided as part of discovery, I believe by the Applicant. And two of the generation units have already been constructed, I believe about 910 megawatts. Another one is being completed this year. And the final one, which is about 245 megawatts, the final piece of it will be in operation beginning in 2020, according to the schedule that was submitted as part of discovery. And I believe it's also on the HQ web site. I believe I saw it there.

Q. Okay. So Quebec is probably doing the same thing that Brazil is doing by moving to more and more rivers. Not sure if it's all about water flow. But it continues to put more

rivers in danger, as far as future climate change.

A. (Varney) What I do know is that the state developed a strategy -- the Government of Quebec developed a strategy to expand their hydroelectric production to go along with wind and other sources to provide for the needs of the province, as well as other provinces in Canada, and also to import to the United States after the needs of Quebec were accomplished. And they've been undertaking these projects independent of Northern Pass. Northern Pass is not causing them to build anything. They have undertaken these projects as part of a government strategy. And I believe that part of their initiative is associated with the fact that it's relatively clean energy and reduces CO2 emission in the province and within Canada.

Q. All right. We'll talk some more about that later.

Continuing on the subject of climate change, I'd like to ask the panel if they believe climate change is real, directly

affected by man and a threat to ecosystems around the world. "Yes" or "No" would be the best answer.

A. (Varney) Yes.

Q. I'd like everybody to answer that question.

A. (Carbonneau) Yes.

A. (Barnum) Yes.

A. (Tinus) Yes.

A. (Magee) Yes.

MR. LAKES: Please put up Exhibit 45.

(Exhibit APOBP 45 marked for identification.)

Q. This is Article 5(2) of the Paris Climate Agreement. Note that the parties are encouraged to take action to implement and support a policy which approaches -- which has positive incentives for activities relating to reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of carbon stocks.

Would not the permanent deforestation along the transmission line in New Hampshire

and the tremendous deforestation of old and new reservoirs in Quebec be in direct violation of this directive?

A. (Varney) As I indicated, the reservoirs are either already completed or under construction and are independent of the Northern Pass Project, not caused or triggered by the Northern Pass Project. And as you know from the frown on your face, you probably know that the construction started before this Application was submitted, well in advance.

The other part of your question related to forest cutting. And yes, this project will primarily follow existing rights-of-way, which will minimize the amount of forest cutting that will need to occur associated with the Project. And there'll be a relatively narrow right-of-way within the existing managed forest areas where they will be placing new rights-of-way. In addition, they of course are following some transportation corridors as well. There will be some reduction, but that reduction is a

very small percentage of the forest cover within the state. You know, we're the second most forested state in the country. It's obviously well forested in the North Country as well. And the amount of cutting is relatively small in comparison to the total forest cover. I believe it's about .0022 percent. And in terms of numbers, it's a very small fraction of the overall CO2 benefits that are associated with the Project. Probably wouldn't even move the decimal point.

Q. I do take issue with your statement that Northern Pass will not be a part of the use -- or be part of new construction of reservoirs up in Canada. It really becomes a cog along with the rest of the transmission lines, et cetera, that are being built in the United States which then forces Hydro-Quebec --

MR. WALKER: Objection.

Q. -- to go further.

CHAIRMAN HONIGBERG: Mr. Lakes, don't argue with the witness. Just move on to

your next witness.

MR. LAKES: Okay.

BY MR. LAKES:

Q. So, would you agree that Northern Pass will be one of the parties to increased usage of electricity from Hydro-Quebec, which will cause them to continually dam more rivers for export of electricity?

A. (Varney) I disagree.

Q. Tell me why you disagree.

A. (Varney) They have their own policies. They have their own NEPA process. They have their own permitting processes. And I don't know anything about trying to increase number of reservoirs post-Northern Pass. I haven't seen or heard anything about that. And I don't think it's related. It's coming from the existing system, in the same way that we have a ISO-New England grid and we draw out of the grid. In this case, it would be out of their reservoir system, and it's not triggered by the construction of this project. It was started well before this project ever came before the state of New

Hampshire.
Q. I understand that. But isn't Northern Pass and then the other Northern Passes that are going to happen after that --
A. (Varney) You're speculating --
(Court Reporter interjects.)
A. (Varney) I can't speculate.
Q. All right. Let's move on.
WITNESS VARNEY: That was my fault. I interrupted him. I'm sorry.
MR. LAKES: Please put up Exhibit APOBP 46 from The Concord Monitor.
(Exhibit APOBP 46 marked for identification.)
Q. This is titled, "Sununu Says New Hampshire Won't Join Climate Alliance."
"Republican Governor Chris Sununu says New Hampshire won't join a growing number of states that are pledging to uphold the Paris Climate Agreement following President... Trump's decision to back out."
MR. LAKES: Now let's move on to the next exhibit, Campbell.
(Exhibit APOBP 47 marked for

identification.)

BY MR. LAKES:

Q. And continuing in this article, it says, "While the initiative was launched last week by Democratic governors in California, New York and Washington, Republican leaders in Vermont and Massachusetts have also signed on. Democratic governors in Connecticut and Rhode Island have made their states part of the coalition," as well. Says, "Our administration looks forward to continued bipartisan collaboration with other states to protect the environment, grow the economy and deliver a brighter future for the next generation." That of course is the governor of Massachusetts, not the governor of New Hampshire.

And just going down a little further as I was reading, it says Mr. Sununu said, "You know, it's not my job to go through the whole Accord and look at the in-depth impacts across the country economically... The President has done that, his team has done that, and they've made the decision they feel

is in the best interest of the United States, and I stand by that." Even Charlie Baker, the Republican Governor of Massachusetts, the coveted prize of Eversource sees merit in this alliance.

Are you aware, Mr. Varney, that Mr. Sununu is a staunch supporter of Northern Pass and was for ramming the Project through the White Mountain National Forest even before the underground was introduced?

A. (Varney) No.

Q. Are you aware that he's a staunch supporter now with the way it is?

A. (Varney) I've read that he is in support of the Project in the media, general media. I have not spoken with him directly.

Q. I'd like to ask each member of the panel if they agree with Mr. Sununu not joining the Climate Alliance. "Yes" if you agree with Mr. Sununu, or "No" if you do not agree.

MR. WALERS: Objection. Relevance, Mr. Chairman.

CHAIRMAN HONIGBERG: Mr. Lakes, how is this relevant?

MR. LAKES: Well, my retort I guess to that is I look at Mr. Sununu as being the 900-pound elephant in the room. He's head of the Executive Branch, the DOT, DES, SEC. They're all under his purview. And his environmental leanings are appropriate to explore since he has made his position quite clear. And at the end of the day, I want to find out if, again, the panel, which earlier did say that they're in favor of the Paris Climate Accord, is not in agreement with Mr. Sununu's leaning in that regard.

CHAIRMAN HONIGBERG: I don't see how this is relevant. I'm going to sustain the objection.

MR. LAKES: Okay. Let us move on.

BY MR. LAKES:

Q. Moving on to maybe simpler things.

During construction and after, will any herbicides or pesticides be used along the underground route?

A. (Carbonneau) Eversource currently does not use pesticides and herbicides in New

Hampshire. And to my knowledge, there are no plans to do that in the future. I can't speak to what New Hampshire DOT does or doesn't do. And to the extent that this could overlap their right-of-way, I don't know.

Q. Okay. Thank you. That's great to know. How many environmental monitors will police the underground route? Does anybody know that?

A. (Carbonneau) We don't know the exact number of environmental monitors. We do expect there will be more than one. They will be deployed as needed around the state as work occurs in different locations. But I can't tell you how many.

Q. Okay. Since Northern Pass is hiring these monitors, why should we believe their intentions to do good by the people versus Eversource's instructions?

A. (Carbonneau) Their role is to make sure the Project complies with all of the permit conditions and all of the regulations that will apply to the work. They have the

ability to stop the work if there is a compliance problem that is significant. It's in the Applicant's best interest to make sure they comply with all of the requirements because the consequences of not complying are very substantial. They could have their work stopped. They could be fined. There's lots of issues. It's in their best interest to make sure that they are in compliance with all of the permit conditions and rules.

Q. Okay. Will there be proactive monitoring and remediation of trenching in HDD sites to verify such issues as trench settling, frost heave issues, precipitation, pooling of water or any other remaining impacts associated with construction? And how long will this monitoring go on for?

A. (Carbonneau) Jake, do you have any --

A. (Tinus) I would just say I think some of those issues were raised by DOT. So I think the construction guys and engineering folks are in discussions over issues like that. DOT is certainly concerned about the roads after we go through them, as have been

expressed by some intervenors, too.

MR. LAKES: Okay. Next I'd like to put up Exhibit No. 48.

(Exhibit APOBP 48 marked for identification.)

Q. This is a letter to Craig Rennie of the DES, sent by George Dana Bisbee. This was a response to comments submitted by the Society for the Protection of New Hampshire Forests, dated April 21st, 2016.

Please put up number 49.

(Exhibit APOBP 49 marked for identification.)

BY MR. LAKES:

Q. It's part of the same letter and says the following about complete burial. This is from Mr. Bisbee. "Even if complete burial of the Project were practicable, impacts would be less only if the burial occurred in the disturbed roadbed or shoulder of a transportation corridor. Outside of a disturbed road footprint, burial impacts could be greater than overhead structure impacts in existing transmission ROWs. This

would be the case, for example, along interstate highways like I-93, where DOT restrictions require infrastructure, if allowable, to be located at the edge of highway corridor far outside the disturbed roadbed. Unlike a linear... line where there is little opportunity to change the location to minimize impact, NPT's design reflects the major effort taken [sic] to avoid and reduce impacts by shifting transmission structure foundations out of wetlands along the overhead line."

My contention is that the same argument that Mr. Bisbee is making for I-93 holds entirely true for the whole underground route of 302, 18, 116, 112 and Route 3. Would the panel care to comment?

A. (Carbonneau) My understanding is that there may be different standards associated with a limited access highway such as I-93 and the need to put the construction out of the edge of the right-of-way because access to the construction sites, my understanding is it's not a allowed from the highway or from the on

and off ramps. So access would require constructing a whole access path and road and trench at the very outer edge of the right-of-way. That was my understanding.

Q. May I interrupt?

A. (Carbonneau) That may not be the case on some of the secondary roads.

Q. If I could, the same rules apply to the roads on which we live. Exactly the same rules. They don't change on I-93. They don't change on 116. They're the same. And if the DOT forces them to follow the Manual and put it as far over to the side, then they're creating as much if not more destruction that would happen along I-93. Do you agree with that?

A. (Carbonneau) I haven't evaluated either alternative that is outside of the very edge of the right-of-way. I'm sure the resources within those locations differ. I can't say by how much. But certainly if you are not in the disturbed roadbed, there are greater impacts to natural resources if you are out at the very edge of the right-of-way and it

happens to run through people's yards and wetlands and streams that are not culverted.

Q. Okay. Going to move on. Mr. Varney, I see you have a very colorful resume.

A. (Varney) Thank you.

MR. LAKES: Please put up Exhibit APOBP 50. I don't know whoever came up with those numbers...

(Exhibit APOBP 50 marked for identification.)

BY MR. LAKES:

Q. At the bottom of that particular exhibit it says, From 1989 to 2001, I served as Commissioner of the New Hampshire Department of Environmental Services. By virtue of that position, I also served as a member and as Chairman of the New Hampshire Site Evaluation Committee for that same period of 12 years; is that correct?

A. (Varney) Yes.

Q. Now going to ask you some questions with regard to your past experience in relation to your present capacity as president of Normandeau.

Have you, in your capacity as president of Normandeau and a contractor of Eversource, had face-to-face meetings with DES?

A. (Varney) Yes.

Q. Have you, in your capacity as president of Normandeau and a contractor with Eversource, had face-to-face meetings with the SEC?

A. (Varney) Only at the hearings along with the public.

Q. Okay. In your own mind and actions, how do you see your role in this project within the context of your job history?

A. (Varney) My job history?

Q. Yeah, as being a SEC Chairman, DES and so forth, and now you're sitting on the other side of the table. Just wondering what goes on in your mind in terms of how you address that internally.

A. (Varney) Stick to the facts, stick to the science and be honest.

Q. Okay. Do you think that your past experience could unduly influence appointed officials?

A. (Varney) No.

Q. So, moving on, Mr. Varney. In your Prefiled

Testimony, you said this about the purpose of your testimony. And this actually is on the same page, just at the top. It says, "What is the purpose of your testimony?" And you answered, "The purpose of this testimony is to provide the SEC with my assessment of the benefits that the operation of Northern Pass Transmission Project... will have on air quality and the Project's consistency with the goals of state, regional and national air quality and climate quality" -- sorry -- "and climate change policies." And I think, just to elaborate on that... that you have mentioned in your Prefiled Testimony as well that you concur with Julia Frayer's London Economics Analysis; correct?

A. (Varney) I've used her analysis and her modeling to calculate the significant emission reductions and significant greenhouse gases that are associated with the Project.

Q. And you have a lot of experience from prior work in doing that sort of thing; correct?

A. (Varney) I've been involved in climate change

and air-quality issues for many years.
Q. The basic premise being that, you know, as part of these -- well, let me back up a little bit.
She did say that the Northern Pass line would avoid 3.2 metric tons of CO2 in New England. Do you agree with that?
A. (Varney) Those were the numbers that she calculated for the Project in her most recent update, which were just very close to her original estimates.
Q. Yeah, I'm not trying to take it apart.
A. (Varney) No, that's okay.
Q. I can't understand half of the things she says.
But isn't her basic premise that clean hydropower is the key asset in reaching these carbon savings? Is that reasonable to say?
A. (Varney) It's the displacement of fossil fuel generation in New England.
Q. Do you know how her calculations were arrived at?
A. (Varney) Through a modeling effort.
Q. So did you study those models --

A. No.
Q. -- and so forth?
A. No.
Q. So you agree with it, but you don't know how exactly it was calculated.
A. (Varney) I have accepted her numbers which have been presented to the SEC and her reports and testimony that was associated with that.
MR. LAKES: Okay. Now I'll move on to Exhibit 51.
(Exhibit APOBP 51 marked for identification.)
BY MR. LAKES:
Q. So what you're going to be seeing here is this information is based on a groundbreaking study of emissions by Washington State University, by experts in this field. I just outlined the title, which is "Greenhouse Gas Emissions from Reservoir Water Surfaces: A New Global Synthesis" is the title of the report.
MR. LAKES: Please put on Exhibit 61 [sic]. And please excuse me. I

have to go back and forth on these things. I have bad eyes.

Q. Anyway, the gist of this report says that hydropower is usually touted as clean energy, but a new study has found man-made reservoirs are producing far more greenhouse gases than previously believed, with most of those emissions in the form of methane, a potent climate warming gas. It goes on to say, We weren't super-surprised at the magnitude of the emissions. But one thing we were surprised to see is the per area rate of methane emissions. They are 25 percent higher than previously thought.

This is Washington State University researcher Bridget Deemer, lead author of the study.

And they go on to say methane emissions contribute about 80 percent of the total global warming impact of the gases from reservoirs. The remaining emissions are carbon dioxide and nitrous oxide. Methane is 34 times more potent than carbon dioxide in gathering heat in the atmosphere, and

emissions have previously been difficult to measure. But new research is using tools such as bubble tracking sonar to measure methane bubbles.

MR. LAKES: And it goes on to the next page, Campbell, on 62 [sic].

BY MR. LAKES:

Q. Researchers from the Washington State University, along with colleagues from around the world, looked at the results of more than a hundred studies of emissions from 250 reservoirs around the world. The startling results are leading the calls for reservoir emissions to be included in calculations made by countries and organizations such as the Intergovernmental Panel on Climate Change when gauging greenhouse gas emissions.

So my question to you, Mr. Varney, is: Did Ms. Frayer use the amount of methane being produced off of the reservoirs as part of her calculations?

A. (Varney) She did while calculating the social cost of carbon, which she testified to during this proceeding.

Q. Can you explain that further? What do you --
A. (Varney) She made a deduction as she was making her calculations associated with the cost of carbon, the social cost of carbon and the economic benefits associated with those reductions and avoided costs and so on. So she did account for that.

And I would also just say that, again, in the information that's been provided in response to this, to some comments about this study, that generally speaking, methane emissions are lower in northern climates than they are in southern climates. So this is a worldwide study. And your decomposition associated with the reservoir in a tropical climate or a very warm climate tends to be much higher. And that's why some of the more northern states have not made a deduction because of the mixing zones and the oxygenation in the water supply in those reservoirs and the very low methane emissions associated with them. So there are some very low methane emissions or CO2 emissions associated with existing reservoirs that have

been in place for a long time. They tend to be higher with new construction and then quickly drop off during the first ten years or so is my understanding of the issue, and which has been submitted on the record, I believe.

Q. Okay. Do you know what calculations she used for the methane? Are you aware of the numbers, how they impacted the final carbon dioxide figure?

A. (Varney) Well, it didn't affect her estimates for the emission reductions in New England at all. It was under the calculation related to the social cost of carbon, so it remains at the 3.2 figure. The draft EIS, I believe before and after, I believe their consultants, which is a bit outdated because it was in 2015, was about 2.9.

Q. So the methane was basically buried in some social cost of carbon figure as opposed to being put into the --

A. That's where she --

(Court Reporter interrupts)

Q. -- in the actual CO2 estimate of 3.2 million

metric tons?

A. (Varney) If I could again further explain that the generation occurs in Canada, and it would be in their emission inventory, and that's where it's accounted for, not in New Hampshire's inventory, not in New England's inventory. There's actually a reduction in fossil fuel generation, which is the 3.2 million metric tons reduction that we're talking about for this project.

Q. Yup. Well, we all live in the same world, so, you know, parsing numbers from here to there, it's still being produced.

Many experts in the field, based on the information that hydropower is no cleaner than gas-fired power plants -- that's after studies of this particular, the field studies that were taken by the Washington State University.

Are you aware, Mr. Varney, that in addition to methane gas, reservoirs are polluted with methyl mercury, have decimated salmon populations, physically displaced and culturally eviscerated Pessamit Innu Indians?

A. (Varney) I disagree with that statement. But I am aware there is mercury associated with reservoirs and that there have been some studies, and usually those studies conclude that there need to be more studies.
Q. That's unfortunate, isn't it, when the truth is there and people don't recognize it. Would you agree --
A. (Varney) The scientists are the ones that are recommending more studies at the conclusion of their studies.
Q. Well, unfortunately, and you may agree with this as well, there's too many scientists that you can pay to come up with whatever you want to satisfy your own needs. Would you agree with that?
A. (Varney) I disagree strongly.
Q. Then I'm not sure --
A. (Varney) I think there are a lot of people with very high integrity in this world.
Q. I totally agree with you. And I know there's a lot of good people in the world. But we know that money talks. And you don't believe that.

A. (Varney) I do not believe it. I think that there may be some people in this world that are influenced. But by and large, we have many good scientists who do peer-reviewed work and are able to stand by that peer-reviewed work. We have many great scientists in this world, and we're lucky to have them.

Q. Okay. So you said you disagree with some of the other things I said. Do you disagree that the Pessamit Indian population has been physically displaced and culturally eviscerated?

A. (Varney) I'm simply saying that there are various degrees of mercury in the environment and that we've made a lot of progress in reducing mercury in our environment and the build-up of mercury in the food web. And so I would not use such extreme language.

Q. Well, you didn't answer my question about the Indians. We agree on the methyl mercury. But what about the Indians?

A. (Varney) There have -- obviously in some areas there have been impacts. But again, I

would say that as it relates, if you're speaking of Canada, they have a process, a NEPA process, and they review all of those issues as part of their siting process that they have within Canada.

Q. If the Indians are happy with their way of life as it is today, why do you think that René Simon came down, the Chief of the Pessamit Innu, to talk about the devastating effects of these dams on their population? Why did he come? I'm sure it's not for our scenery.

MR. WALKER: Objection.

Q. Why did he come?

CHAIRMAN HONIGBERG: There's an objection to that question.

What's the grounds for the objection?

MR. WALKER: Calls for speculation as to what the Indians thought.

CHAIRMAN HONIGBERG: It's not a bad objection, Mr. Lakes. Do you think -- what makes -- do we think Mr. Varney has any knowledge about that?

MR. LAKES: Well, all I can answer is he may. But I may not hear what I want to hear, so I will move on.

BY MR. LAKES:

Q. My last question will be with regard to Julia Frayer's mathematical estimates on everything, since everything's turned into a number it seems.

What type of mathematical formula do you put the type of devastation that's going on in Canada to justify this project?

A. (Varney) As I've indicated, this project is not causing devastation in Canada.

Q. Let's move on. And I think I'm to my last question.

Okay. Since all of you on the panel are professionals, Ph.D.s, doctors, et cetera, learned in your fields of expertise, I'd like you all to answer the following question with a "Yes" or "No": Isn't it true that the very best BMP, as far as wetlands are concerned, wildlife preservation, preservation of habitat, preservation of forest, that the least destructive path through New Hampshire

is to not build a project at all? Yes or no? I'd like everybody on the panel to answer that, please.

A. (Varney) I'll just start with the fact that you referred to this as a "BMP," and a BMP suggests something is happening, and you're suggesting the no-action alternative. We were not engaged in evaluating each of the alternatives, including the no-action alternative. And with that said, always when you do something in the environment, whether you build a house or you drive a car, there's environmental impacts associated with it.

Q. The rest of the people on the panel, "Yes" or "No."

A. (Carbonneau) I agree with Bob. If you need energy, there's going to be some kind of impact. If you don't build a project, this particular project, you won't have the impacts associated with this particular project, but you might get something else.

A. (Barnum) I would agree with what Lee just said. If you don't build a project, there will be no impact, but there might be

something else.
A. (Magee) I agree with both Lee and Bob. If you don't build a project, there'll be implications in other ways.
Q. Could you please speak up? I couldn't catch a word you said.
A. (Magee) I agree with the others. If you don't build the Project which we worked on and involved in evaluating, then certainly there'd be a reduction of environmental impacts or no environmental impacts, but there'd be other implications.
A. (Tinus) We're not here evaluating no project. We're evaluating a project, and that's what we're asking for the evaluation of. We presented a project. That's why we're here.

MR. LAKES: Thank you very much. I'm done with my cross-examination.

CHAIRMAN HONIGBERG: Mr. Cunningham.

CROSS-EXAMINATION

BY MR. CUNNINGHAM:
Q. My name's Art Cunningham. I'm an attorney, mostly retired. I represent Kevin Spencer

and Mark Legasse. Kevin and Mark are building a lodge in a campground in Stark, beautiful Stark. And this project is part of the overhead project, and the overhead lines will run right behind their lodge. But I'm here mainly today -- and I think I can be brief. When I cross-examined the construction panel, I had questions about blasting. And they advised that the environmental panel could follow-up on the blasting issues. So, Mr. Tinus, you're in the barrel.

A. (Tinus) Hopefully I can help.

Q. So I'm concerned about -- and I think by virtue of your earlier testimony, you discussed my questions or somebody's questions with the construction panel. And I think you already told us that blasting could result in nitrates in groundwater and in folks' drinking water wells.

A. (Tinus) That was one of the parameters that might be tested for.

Q. Yeah. Can you tell me about nitrates?

A. (Tinus) They're a substance that is part of

the mix for a blasting material, ammonium nitrate fertilizer, I believe. And so nitrates, if not properly combusted, can be liberated into water.

Q. And do you know what the health effects of nitrates are on the human body?

A. (Tinus) I think you want nitrate levels to be low. I'm not a human toxicologist, though.

Q. And do you know what the nitrate level or the water quality standard for nitrates is in New Hampshire?

A. (Tinus) I can't recall that exact number.

Q. Okay. And what exactly are the health effects, if you know?

A. (Tinus) I don't really know, sir.

Q. Do you know that nitrates cause "blue babies"?

A. (Tinus) I've heard of that.

Q. And do you know what "blue babies" are?

A. (Tinus) Other than the name suggests, it's a condition that somehow affects the metabolism, I presume.

Q. And the oxygen levels in a baby; does it not?

A. (Tinus) Yeah, I think so. I did read

something on it quite some time ago.
Q. So you and I can agree that infiltration of nitrates into groundwater is dangerous.
A. (Tinus) If there's nitrates getting into water from blasting, it could be dangerous.
Q. And you're the water quality expert. Can you explain to the panel and to all the intervenors that are worried about blasting how that works? How does nitrate from blasting get into groundwater?
MR. CUNNINGHAM: Sorry.
(Discussion off the record.)
BY MR. CUNNINGHAM:
Q. So how is it that nitrate gets into groundwater and into people's wells?
A. (Tinus) If material isn't properly combusted, then it can get into the water supply. In other words, if the charge doesn't go off correctly, if there's too much used, an incorrect dosage --
Q. And do you know how -- I heard you say in an earlier, a good cross-examination, that the larger the area makes a difference, the blasting area. It was a good question about

significant blasting down on I-93 in Windham. Are you familiar with that project?

A. (Tinus) Yes, as mentioned by someone testifying earlier.

Q. And can you explain to the panel and to the other intervenors how the size of the Project matters?

A. (Tinus) Well, presumably larger quantities of rock would require a large amount of blasting.

Q. Well, explain to me how the blasting takes place. How does the blasting emulsion or the ANFO, ammonium nitrate, get into the water in the first place?

A. (Tinus) I don't exactly know. I've seen it in the field. They drill holes where the material is put in with the fuel oil and it's ignited by charges. But that's my extent of understanding.

Q. So I understand blasting. They drill holes at whatever depth is necessary, and then they pump the ANFO or other blasting emulsion into the hole.

A. (Tinus) Yes, that's what I understand.

Q. So what difference would it make what the size of the blast area would be if they're pumping ANFO or blasting emulsion into a drill hole for blasting.?

A. (Tinus) Well, part of the planning for such an event is an understanding about the nature and characteristics of the rock, where the water table is, where the water is flowing, and then, you know, making the correct determination to use the right dosage of blasting material so that you don't have the issues that you're talking about. And as we mentioned before, and I know the construction panel mentioned, part of the planning effort will include adherence to the DES guidance on this matter.

Q. And let's -- I've got an exhibit. I'm going to show it to you.

This is a DES exhibit that was prepared as a result of the issues that arose in Windham. Can everybody see it? And this exhibit is going to be Dummer Stark No. 60. That's not been marked previously.

(Exhibit DNA 60 marked for

identification.)

Q. Could we just take a look at that, Mr. Tinus. Look at No. 1, contamination of groundwater resulting from release of regulated or unregulated substance due to groundwater. And look down to the subparagraphs, incomplete combustion with blasting bore holes. Do you agree with that statement?

A. (Tinus) Yes.

Q. The injection of substances used for blasting into blasting bore holes that intersect a fracture network resulting in the release of substance beyond the influence of a blasting area. I think that's a good question to ask you.

How does that work in groundwater? How would that blasting material infiltrate groundwater through fractures in rock?

A. (Tinus) Well, I mean, I think as it's stated in here, it could flow along with the water through the rock.

Q. And is there a range that that water can flow in a groundwater aquifer?

A. (Tinus) Yeah, and it varies from site to

site. And that kind of background information needs to be taken into consideration.

Q. And do we have that background information in this docket?

A. (Tinus) Groundwater flow rates?

Q. Yes.

A. (Tinus) To my knowledge, no, not in the docket. The contractors are typically responsible for obtaining this information to help them size the appropriate blast.

Q. Has anybody in the Project, to this date of record in this docket, done any groundwater aquifer analysis that would help this Committee make this decision?

A. (Tinus) No, it's not something that was asked for by DES, nor is it typically done. Again, I think the construction panel testified that the amount of blasting is not expected to be significant. The example that was illustrated earlier, my understanding was a much bigger, larger -- you know, they were taking down a hillside, a giant bedrock area several hundreds or thousands of feet long.

That's a very substantial cut. We're not having anything like that with this project.

Q. But we don't know that for sure, do we, because they haven't done a geophysical examination, for example, of the overhead route.

A. (Tinus) But even in those locations there's expected to be very little blasting. I believe Ken Bowes testified to that.

Q. But my point is we don't know that yet, do we? For example, in Dummer, Stark and Northumberland, there's going to be 320 foundations for monopoles. And I asked them specifically which of those 320 Dummer, Northumberland, Stark foundation holes will require blasting, and they couldn't answer it.

A. (Tinus) They should be able to have an answer to that once they get the geotechnical borings done out there. But they haven't done those yet along the right-of-way.

Q. As of this date we don't know the answer to that question, do we?

A. (Tinus) We do not know the answer to that

question right now, no.
Q. I note in Brandon Kurtman's(?) evaluation of blasting practices, he suggests that municipalities enact blasting ordinances to protect against dangers of blasting and contaminating groundwater aquifers. What official entity is going to do that kind of regulatory oversight in the context of this project since no municipalities are permitted to be involved?
A. (Tinus) I don't have an answer for that. I don't know. I will say, though, that the concepts presented in this document have already been agreed to by the client. So any of the pre-blast survey, the planning, a lot of the elements that we've included in this document are going to be considered in how they go about the work.
Q. Okay. I think we've already agreed that no pre- blast survey has been done of the groundwater aquifers in blast areas.
A. (Tinus) That's true. But that will happen. In terms of understanding the characteristics of the nature of what's going on under the

ground, they have to have that information in order to make an intelligent decision on how much of a charge to use.

Q. And when will we know that information so we can assure all the folks that are going to be subject to blasting?

A. (Tinus) I don't know when the geotechnical borings are up for -- I don't know. But not until we get a certificate for site and facility --

Q. So we won't know that until --

(Court Reporter interjects)

A. (Tinus) I believe it's after we get a certificate or if we get a certificate of site and facility.

Q. So the risk of blasting will only be known if and when those geotechnical borings are done after the certificate of site and facility?

A. (Tinus) I think so. And, you know, DES has indicated that, you know, for example, following this plan, that we've addressed their concerns over this issue.

Q. And after pre-blast surveys are done?

A. (Tinus) I don't understand the question.

What after pre-blast?
Q. Well, I'm talking about analysis of aquifers, groundwater aquifers.
A. (Tinus) You know, the contractors have a lot of planning to do yet on all of these -- this is one plan that will be required. There's a lot of them. But that's just being undertaken this summer and fall, in terms of how these are going to lay out specifically and the timing of them. They're all due 90 days prior to construction. So that I can tell you is a requirement out of the permit letter.
A. (Carbonneau) And if I could point out that this Northern Pass Project has to comply with the 401 Water Quality Certificate. And my understanding is these guidelines probably are for municipalities to use in the event that there isn't state oversight of the blasting work that's being done. In this case, there is going to be all kinds of state oversight of the work. And all of the Best Management Practices that have been proposed and associated with actual blasting have to

be complied with, as well as all of the water-quality standards that are associated with the DES approvals which cover a lot of these issues.

Q. Well, that's your general answer to everything; is it not?

Just a few more questions. Both of you work for Normandeau, or three of you do?

A. (Carbonneau) Four of us do.

A. (Varney) Four.

Q. Four of you work for Normandeau. Can I ask you a couple questions about your relationship with Eversource? How long has that relationship been in place?

A. (Carbonneau) You mean how long has Eversource been a client?

Q. Yes.

A. (Carbonneau) For quite some time in different capacities. Our company has worked for Public Service Company on a variety of projects for some of their fisheries work on the Merrimack River. We've done several transmission-related projects for them in the past. They're one of many of our

private-sector clients. And we have a whole array of different client types. Energy is just one sector.

Q. I'm particularly interested in Eversource. How many projects have you done for Eversource?

A. (Carbonneau) Oh, I wouldn't know.

A. (Varney) I honestly don't know.

Q. And it extends back quite some years; does it not?

A. (Varney) Yes, and many other competitors of Eversource and many government agencies as well.

Q. And would you be good enough to tell me what your rate, your hourly rate is? I assume you're on an hourly rate. Could you tell me what your hourly rate is on the Northern Pass Project?

A. (Varney) I don't recall. It's my normal rate. There's no elevated rate.

Q. And could you tell us what that rate is?

A. (Varney) I can't recall.

Q. Anybody else on the Normandeau Group, from the Normandeau Group?

A. (Varney) It changes every year with a rate sheet, so we generally wouldn't know.
Q. Did Normandeau work on the EIS for the Department of Energy?
A. (Varney) Yes, for a brief time. And we then, due to some concerns about potential conflict of interest associated with our role in working on the permitting side, we stepped aside and Eversource hired another company to -- or recommended another company, I should say. It was DOE that selected them in that role.
Q. Is it fair to say that the Department of Energy asked you to step aside because of your close relationship with Eversource?
A. (Varney) We stepped aside voluntarily.
Q. At their suggestion or yours?
A. (Varney) It was a consensus opinion. We had no interest in raising that issue when it was a perception and so we stepped aside voluntarily.

MR. CUNNINGHAM: Thank you, Mr. Chairman, that's all the questions I have.

CHAIRMAN HONIGBERG: Ms. Lee,

are you in a position to go?

Off the record.

(Discussion off the record)

CHAIRMAN HONIGBERG: All right. We're ready to go. Ms. Lee, now you may start.

MS. LEE: Thanks.

CROSS-EXAMINATION

BY MS. LEE:

Q. My name is Mary Lee. I live in Northfield. And I have shown the map, the tax map for the town of Northfield, for my property. And I did show this to the construction panel, but this has to do with the wetlands. This Lot 7405 right here is my lot. And the line will go through one corner here. And I have an odd lot because it's built in the zoned construction area of Northfield. It's also a part of a Groundwater Protection District. This long dashed line right here is part of a groundwater protection area. The note says, "Conservation zone begins 500 feet west and 500 feet west of Oak Hill Road." The name of this road here -- this is a dirt road where I live off of. Oak Hill Road is paved. When

you come on Oak Hill Road and you get onto the dirt road, Fiddler's Choice, this is all dirt. Right now, this morning, as I came here after the hard rain last night, it's all rutted. In order to get to my property, you go up the dirt road and then you go up in this right-of-way, which is my shared access, deeded right-of-way which will be used for construction access to build the 345 kilovolt line and it's going to go through this property. But if I walk the two tenths of a mile to get to my property here, it's only wide enough for my commuting vehicle, a small compact SUV. This is a Class V road. It's maintained by the town. If you go beyond a certain point, it turns into Class V and it's not really maintained by the road at all -- by the town at all.

The second note here says, "Groundwater Protection District extends from limits shown to the Merrimack River." So the plan is for the line to go through part of the property, including going down to the Merrimack River. And I live on the line between Boscawen and

Canterbury and Franklin, so it's all conservation. And it's very, very remote. But I just wanted your panel to be aware that this line is planned to be expanded and have construction pads built and also be accessed by the construction crew, as I learned, using my driveway.

CHAIRMAN HONIGBERG: Miss Lee, what do you want to know from the panel?

BY MS. LEE:

Q. And here's my question: Who on this environmental panel has a direct experience with environmental monitoring in New Hampshire? I know that the construction panel, someone mentioned there's a lot of construction going on all the time by Eversource --

CHAIRMAN HONIGBERG: Okay. Stop. Stop. Okay. Your question was who on the panel has environmental monitoring experience.

MS. LEE: Yes.

CHAIRMAN HONIGBERG: Why don't we have them answer that question.

MS. LEE: Thank you.

A. (Carbonneau) There are several people at Normandeau that have done environmental monitoring of right-of-way projects for Eversource.

CHAIRMAN HONIGBERG: Ms. Carbonneau, is there anyone on the panel who has that experience?

WITNESS TINUS: I do.

WITNESS CARBONNEAU: I have a little, and Jake also has some.

CHAIRMAN HONIGBERG: All right. So, Mr. Tinus and Ms. Carbonneau both.

BY MS. LEE:

Q. So you have some experience with the environmental monitoring. And can you give an instance of how an environmental monitor was actually called in and avoidance and/or mitigation resulted? Can you give me a concrete example of what would happen with an environmental monitoring of working in wetlands or conservation areas or in Groundwater Protection Districts?

A. (Carbonneau) Well, most of the work takes

place before the construction to plan appropriately so that avoiding and minimizing impacts takes place before they even get to the construction process. Once construction starts, the environmental monitor is responsible to make sure that wetland matting is put down in the proper place, that erosion and sedimentation controls either are shown -- put in as shown on the plans, or if there is an alternative that is a better technique than was planned is used. They are responsible for verifying that and getting sign-off that that is okay. If there's any modifications that need to be made in the field, the environmental monitor is responsible for documenting those. And if necessary, if they involve a change in impact area, they need to document that and keep track of all of the impacts, the work that's done; take photographs if there are, for example, rare snakes or turtles that are in the right-of-way. The monitor will go ahead of the equipment and make sure that there are none in the path of the equipment that's

moving through the right-of-way that would be crushed and relocate those if necessary and document all of that. The monitors are part of the tailgate meeting that's held each day prior to construction so that they can alert the construction group to any environmental issues they need to be aware of for that day. Does that answer your question?

Q. Well, I'm interested in the mitigation and avoidance part, an exact instance where you actually have an environmental monitor, say, call you. I don't know who they're calling to say halt, stop, come look at this, we didn't expect this. I'd like to know some instances where you are familiar with someone who's used an environmental monitor, called one in for projects in New Hampshire.

A. (Carbonneau) You mean have we been called to a construction site that needed a monitor to take a look at something?

Q. Right. Yes, and then how has it resulted in any mitigation or avoidance?

A. (Carbonneau) I have worked on several projects for Eversource where the monitor was

not present when they were going somewhere and they found a turtle, for example, that they needed to have identified, or where they needed to have an alternative route to get to a particular location because the terrain was not as they expected based on the field plans, and they requested an alternative route be available for them to use. In that case, an actual permit amendment had to be requested from New Hampshire DES. So they needed to stop work there and wait for DES approval to relocate to a different place. You have to quantify the new impact area. If it's larger than the other way that you were going to go and requires additional impact, then you have to pay an additional fee. And in the cases I've been involved in, it did not result in an increase in mitigation requirement, but it did result in an additional fee for the review of that change by New Hampshire DES.

Q. So you actually have used mitigation. You just gave an example of mitigation.

A. (Carbonneau) Well, this was more of an

avoidance and minimization issue where we had come up with the least impacting route. When the contractors actually got out there, they said this isn't going to work. We actually have to go this way and the impacts are going to be greater.

Q. So that's more avoidance.

A. (Carbonneau) It's avoidance in reverse.

Q. Okay. Thank you. What about mitigation? I'm interested in concrete examples of an environmental monitor being called in to mitigate a project.

A. (Carbonneau) Typically the mitigation -- if you're talking about mitigation of wetland impacts, that's something that has already occurred during the permitting process of the Project. So I haven't had the experience where I've needed to come up with additional mitigation after the construction project began.

A. (Tinus) I can give an example.

Q. All right.

A. (Tinus) On the Groton Wind Farm, after a certain stretch of the tower arrays or wind

turbine arrays were constructed, it was found that there was some material that got -- had gone down a slope, some rock; so they overfilled the wetland. They had to remove that material and actually restore it in order to, you know, satisfy the concerns of the groundwater monitor.

I just want to add something about the presence of the environmental monitor. They're on the site frequently. Typically one day per week there's going to be several monitors from the Company. The construction firm will have their own monitors looking at the work. They'll also have to go out after rain events, as required by the state and the federal agencies. So let's say after a half-inch rain, they'll have to be out there, or if there's a big storm predicted, they'll want to take a look at all the erosion control measures and things along the Project route to make sure they're in good working condition and that they're going to operate like they should. So there's a lot of presence on the site, if you will, from the

environmental standpoint.

Q. Okay. Thank you. I want to show you a different map. The previous map was the Northfield tax map.

This is the construction panel map. This shows the same area, Fiddler's Choice Road. It's all sandy. I believe it's marked on your USACE maps, the Corps of Engineer -- Army and Engineer maps, as "Riverine Quality Soil." So it's very, very sandy. There is a proposal to build on my driveway access, the so-called "apron." This red solid line is all new. It's using access to get to what is the dashed red line, which on this map is described as "existing access route." And then it'll go through this, what I call "the dunes." It's all sand. And this actually is from here, Fiddler's Choice Road, all the way through, is two tenths of a mile and then you reach my house. You're going to go through all this access.

This is also new construction. And you can see that halfway through this walk or drive you have a lot of wetlands. This green

area is all wetlands-delineated. And on the key, all this is wetlands. It's either delineated with the dashed light blue line as intermittent. I believe it's intermittent -- it's hard to see the color between the ephemeral and intermittent on the key. This aerial photo, you see it's highly forest cover. And this is a construction pad. And I was told by construction that this is going to be possibly not entirely used because they designate a certain area they may not use depending what they find. And as I understand it, there's two of these going on near my property. Here's the corner. There's another pad right here near the corner. And that's where my house is, right here. They're going to cut a line here that's about 30 feet, plus or minus, without a real survey by the engineer from Eversource. And it's about 30 feet from a well that's located about here, right over the edge of the right-of-way. And the other thing over here that's not shown on this map is that I have a granite boundary marker

here. It was knocked down during tree trim-cut. So I have contacted Eversource. They're going to make sure there is a highly marked way of making sure no one knocks it down again.

And my question is: There is a key here delineating the wetlands, and it says -- the green, the little green dot means wetlands. Green with yellow dots, which I don't see on this map, not very clear, has wetlands.

What does it mean -- is there a difference when you submit this permit application if you review -- if you have a wetlands that you have on the map versus USACE, or U.S. Army Corps of Engineers-reviewed wetlands? What's the difference in the mapping? Because I was told this map still holds, even though the date on this map is from it says 2/19/2016. When I spoke to the --

CHAIRMAN HONIGBERG: Wait, wait wait, wait. So the question is what maps should you be looking at?

MS. LEE: Yes.

CHAIRMAN HONIGBERG: All right. Let's get an answer to that question.

BY MS. LEE:

Q. Yes. Is this the most current map available? Because --

CHAIRMAN HONIGBERG: Wait, wait. Stop. Stop talking. Let them answer. The question is for them, not for you.

MS. LEE: All right. Thanks.

A. (Carbonneau) I believe this is a current map for this location.

BY MS. LEE:

Q. It is a current map?

CHAIRMAN HONIGBERG: Ms. Lee, I think you also seem to want to ask about the difference between wetlands and USACE wetlands; right?

MS. LEE: Right.

CHAIRMAN HONIGBERG: All right. Why don't we get an answer to that question, okay.

MS. LEE: Okay. Thank you.

A. (Carbonneau) After we delineated wetlands, the U.S. Army Corps of Engineers came out in

the field with us, and they spot-checked our delineations. We invited them to places in particular where the delineation was challenging or we had a question about it and we wanted their input. And we also looked at a whole variety of wetlands from one end of the state to the other so they could get a sense of the Project. Those particular wetlands are identified with the little yellow dots. They had asked us specifically if we could show that on the plan so they would remember which ones they had already seen. But they -- all the delineations were done the same way. So there's no difference in the quality of the delineation or anything like that.

Q. Okay. Because I met a woman who was surveying for wetlands at the end of my driveway recently, and she referred to an expansion of a wetland. And I was -- I did ask that question at a previous hearing. And as I understand it, it is not an expansion. So that I don't have a true map of the actual wetlands. But I was told that it was an

expansion of the mapping. So I'm wondering if we as landowners have the actual most recent map. Because I learned at the construction panel for the engineering that there is a map that's not available to landowners and it's being worked on, on your laptops. I believe it's called OneTouch. Is that something you use that we don't have access to? Because I'm waiting for a map that's supposedly made available sometime by June 30th from somebody at Burns & McDonnell, from the engineers --

A. (Carbonneau) Okay.

Q. -- to show landowners a current map because --

CHAIRMAN HONIGBERG: Okay. I think Ms. Carbonneau has some information for you, so why don't we let Ms. Carbonneau try and answer some of the questions in there.

A. (Carbonneau) I'm aware that there are some modifications being made to some locations on the Project route that will involve some changes to the plan set. I don't -- I can't say if there's any other specific changes to

this plan set that incorporates your property. But I do know that the engineers are working to update the plan set.

WITNESS CARBONNEAU: Jake, do you have anything to add to that?

WITNESS TINUS: No, just what you stated, Lee.

A. (Carbonneau) Okay.

BY MS. LEE:

Q. So are we still expecting updated maps to be available to property owners by the end of June?

A. (Carbonneau) I'm guessing they will be made public and part of the record. I don't know that there is a plan to actually deliver them to property owners.

And I can tell you I don't believe there's any changes to the natural resource information on the plan. If there are changes that the engineers are making, it could be to structures or work pads. But I'm not familiar with any on this plan.

Q. All right. Thank you. Sticking to my questions, Dr. Barnum, I think you informed

us last week that most of the Canada lynx were found in Maine?
A. (Barnum) Yes. New England. That's true.
Q. Are they reported in New Hampshire?
A. (Barnum) Yes, there are reports in New Hampshire from mainly Pittsburg, but also other towns from the White Mountains north.
Q. From the White Mountains north?
A. (Barnum) Yes.
Q. You have a couple escapees. A friend of mine recently sent me a picture of one in his yard in the Lakes Region.
A. (Barnum) Canada lynx and the bobcat look very similar. You can tell the difference if you look for specific field marks. But photos and, you know, a quick glimpse of the two animals can be difficult to tell them apart. It's common for folks to think that a bobcat could be a lynx. The verified reports are all from north of the White Mountains.
Q. And if you have a Canada lynx or bobcat, is it precious? Is it protected?
A. (Barnum) The bobcat currently is protected in the state. There's no season on it. It's

far more common than a lynx, but it's still a protected species. However, it is not listed as threatened or endangered. There's simply no season on this animal. In most other states, certainly all the surrounding New England states, there's a trapping season for bobcat. The pelt is worth something.

Q. I see. Thank you.

If you find -- let's say you found a Canada lynx on your property and you are building this construction and you don't have -- do you call in a monitor? Do you actually report this and the work stops if you have a protected animal?

A. (Barnum) Yes, if you observe a protected animal on your property, you would want to alert the environmental monitor in the case of this project. If there was no project and you simply observed such an animal, you'd want to contact Fish & Game about that.

Q. So we would call Fish & Game, not the environmental monitor to halt work?

A. (Barnum) For the Project, you'd contact the environmental monitor. If there were no

project, if you were simply a landowner who observed such an animal, you'd want to report it to Fish & Game.

Q. All right. Thank you.

And do you think it's possible there are areas that are habitats for wildlife that are not identified by the Northern Pass environmental panel?

A. (Barnum) I feel like the observations of wildlife habitat that we did for the Project, both in the field and through desktop analysis, was very thorough and that we've identified the important locations for protected species.

Q. And do you agree that a designated cut area -- and what I mean by "cut area" is it's proposed on this map that there's going to be a new cut once they bring the 115 line over. There's a new area that's cut that's all trees. And I know that's a habitat. Do you agree that a designated cut area for a proposed relocated 115-kilovolt line could be a habitat for wildlife?

A. (Barnum) Pretty much any vegetated area

within the state is habitat for some kind of wildlife, and even some areas that aren't vegetated. A sand pit has habitat value for other species. So if there's land, there's going to be wildlife.

Q. Excuse me?

A. If there's land out there, there's going to be some amount of wildlife on it.

Q. Yes, that's so true.

My next question has to do with the habitats for wildlife, birds, wetlands. Do you agree that some driveway and access roads are also the habitat in the site for our wildlife? I mean in the road.

A. (Barnum) Certainly there are species of invertebrate which are dependent on bare ground. And invertebrates are classified as wildlife.

Q. All right. And I know that you don't map it as such, and neither does the engineering map for wildlife. But I can tell you that in this habitat, the actual roadway, the road, Fiddler's Choice, as well as my driveway, is a habitat.

A. (Barnum) Yeah, I would agree with that.
Q. It's very, very remote. So once construction starts or any kind of motor noise or anything that's unusual for construction, such as bringing in your cranes for clearing or any of the brontosaurus vehicles, that's going to drive away the wildlife, the birds and the wetlands-associated animals, I know.

I'd like to ask, is there a BMP or Best Management Practice to re-evaluate and then to adjust the plan designed for avoidance and mitigation due to all that you've heard from landowners thus far up to this date? Is there any plans to actually change the design or adjust the design?
A. (Carbonneau) Well, we have an obligation to continue to work to minimize impacts. It's one of the permit conditions that New Hampshire DES has given us. If new information from a landowner about a rare, threatened or endangered species is brought to us, then absolutely we will continue to make modifications to try to minimize such impacts. But we have done a fairly thorough

job so far in identifying those kinds of things. And we have been working for quite some time now with Fish & Game and the Natural Heritage Bureau and New Hampshire DES to make design adjustments as we can. But if there are opportunities to do some more in the future, then we will continue to do that.

Q. Thank you.

Does the environmental panel coordinate to adjust, always working with the consultation of landowners when you do those tailgate meetings when the construction happens and they have the daily tailgate meetings and you're hopefully meeting with the landowners? Is the adjustment made to what your work is with the input from landowners, or is that too late?

A. (Carbonneau) I have not necessarily seen a landowner attend a tailgate meeting, although we do encounter landowners during construction. I believe that the Company, Eversource, for example, on past projects, does reach out to landowners before the construction and tries to provide them with a

schedule of when the activities are likely to occur on their property, as well as giving them some contact information, so if they have concerns or they would like to speak with someone involved in the activity, they will have a contact to do that. If there are concerns that are known ahead of time, that's always preferable because you don't want to necessarily have to stop work to have a conversation once all of the equipment is on the site. So the preference is to work things out ahead of time, and I believe that Eversource typically does that.

Q. Thank you.

Can someone describe -- I saw a couple maps go up earlier today with the mapping of wetlands. But it's really hard to tell. Can someone describe, someone on the panel, what does a wet -- vernal pool water, when it's pooled up, look like? Because on the blow-up it was just a dark spot. What does the water look like?

A. (Carbonneau) Well, it depends on what time of year you see that vernal pool. They

typically have standing water in them during the spring. They oftentimes will dry up later in the summer. Say, August, September they may have no water in them at all. Some have vegetation growing in them, some do not. But they are generally fairly shallow. They're typically not connected to a stream, per se, so they generally do not have fish in them, because the fish would typically eat the eggs or the tadpoles of the species that depend on vernal pools. Does that answer your question?

Q. What's the quality of the water in it, and how large is the area in order for it to be qualified on the maps as a vernal pool?

A. (Carbonneau) There is no size requirement. So, some of the vernal pools are really small, and some of them are very productive even if they are small. But we do not distinguish size of the vernal pool. There are some considerations. If it's a very shallow vernal pool in a wheel rut, that's probably not going to be a very productive vernal pool. It may dry up too soon. The

water is usually fairly warm and warms up pretty quickly in the spring if it's not under tree canopy, which most of the ones that are in the existing right-of-way don't have tree canopy. But they're very shallow, so they are typically not cold. They're warm, which aids in the development of eggs to tadpoles to metamorphs.

Q. And how long does it last? From spring to --

A. (Carbonneau) It varies. It varies. Typically they will dry out in the late summer or fall, but not always. It depends. It could be a wet year and they may not dry out at all. Some dry out every few years. Some are fairly permanently flooded, and yet they do not have fish and they may still function as vernal pools. So it depends very much on the vernal pool. But the key is that they have water standing in them at least during the breeding period. So, ideally from March through July that's ideal.

Q. I see. I know that one of the designated construction parking areas for the trim crew, when they came through, left a -- well, it

was in the fall. But there was a big pool. And I went to check the Caterpillar tracks that were left behind in my driveway and up the parking area, so-called, that was cleared to about 12 inches of shrub. And there was a pool of water there, but it wasn't really clean-looking. And it was where the vehicles had parked. So I was wondering why does it look like that? It's kind of slimy, oily, rusty-colored. And I thought it couldn't have been a deposit from one of the machines. I hope. And I was wondering if vernal pools look like that.

A. (Carbonneau) It depends on the vernal pool. Sometimes the clarity of the water is poor. They can sometimes have sediment. Kind of depends on what the substrate material is. Sometimes there is a sheen on them, and in some cases that's natural. If they have a lot of tannins in the water, they can be quite darkly colored. But it varies. It varies from pool to pool and location to location.

Q. So if a vehicle parked in that same area and

there's standing water, that would be a vernal pool; right?

A. (Carbonneau) To be a vernal pool under New Hampshire or federal regulations, it has to meet certain criteria. And that usually involves visiting it during a breeding season, which is the spring, and identifying whether it has one or more of the obligate species which is --

Q. And what is an "obligate species"?

A. It's one that is dependent upon vernal pools for part of its reproductive cycle. Wood frogs, spotted salamanders, Jefferson salamanders. Could also have fairy shrimp. And then there are secondary indicators which could include certain aquatic insects. So it has to meet either -- have the primary or a few secondary indicators, as well as a few other characteristics in order to be considered a vernal pool. So, not every puddle of water would qualify.

Q. All right. Thank you.

If the work for this project is permitted -- the engineer walked my property

and found that the well is within 30 feet, plus or minus, without a real proper survey, within the work pad or work construction and the line that's relocated. And is there going to be a before and after test of water from people's wells if it's that near? If it's really 30 feet, plus or minus, is the Project going to test my well water before and after, as you do take photos of before and after so you can remediate the damage?

A. (Carbonneau) Well, I might have Jake chime in on this. I don't know if testing will take place unless there's blasting proposed in that portion of the right-of-way.

WITNESS CARBONNEAU: Jake, do you know?

WITNESS TINUS: Yeah, just like you stated, Lee, I don't think that we've intended to test every well along the way unless there's a blasting event that's needed near there to put the foundations in.

Q. So it's only if there's granite or some rock?

A. (Tinus) Right.

Q. Would you test because that's considered a

disturbance?
A. (Tinus) Correct. Yeah. And so if that location was within 500 feet of that blasting. So any of the wells within 500 feet. So, sounds like yours would be included.
Q. If you were blasting.
A. (Tinus) Yeah, if we were blasting.
Q. And we would be notified if you found any rocks to blast.
A. (Tinus) Yeah.
Q. You must be all thankful. I'm done.
CHAIRMAN HONIGBERG: All right. Thank you, Ms. Lee.
I think that's all we're going to do today. When we resume on Friday, we still have the Ashland -- I'm sorry -- the Deerfield Abutters and the Ashland-Deerfield Non-abutters, I think, the Pemi River Group and the Grafton County Commissioners and Mr. Thompson. Did I miss anybody who still needs to go? And then the Committee. And we'll see how we do.
On Thursday, we'll be here for

the second scheduled Public Comment Session, and we'll keep our fingers crossed that that one goes as smoothly as the one did last week. And with that we will adjourn for the day. Thank you.

(Whereupon the hearing was adjourned at 5:10 p.m.)

C E R T I F I C A T E

I, Susan J. Robidas, a Licensed Shorthand Court Reporter and Notary Public of the State of New Hampshire, do hereby certify that the foregoing is a true and accurate transcript of my stenographic notes of these proceedings taken at the place and on the date hereinbefore set forth, to the best of my skill and ability under the conditions present at the time.

I further certify that I am neither attorney or counsel for, nor related to or employed by any of the parties to the action; and further, that I am not a relative or employee of any attorney or counsel employed in this case, nor am I financially interested in this action.

_____

Susan J. Robidas, LCR/RPR
Licensed Shorthand Court Reporter
Registered Professional Reporter
N.H. LCR No. 44 (RSA 310-A:173)

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