

STATE OF NEW HAMPSHIRE
SITE EVALUATION COMMITTEE

September 20, 2018 - 9:00 a.m.
49 Donovan Street
Concord, New Hampshire

DAY 5
Morning Session ONLY

{Electronically filed with SEC 10-02-18}

IN RE: SEC DOCKET NO. 2015-04
Application of Public
Service of New Hampshire
d/b/a Eversource
Energy for Certificate
of Site and Facility
(Adjudication Hearing)

PRESENT FOR SUBCOMMITTEE/SITE EVALUATION COMMITTEE:

Patricia Weathersby <i>(Presiding Officer)</i>	Public Member
David Shulock	Public Utilities Comm.
Dir. Elizabeth Muzzey	Div. of Hist. Resources
Charles Schmidt, Admin.	Dept. of Transportation
Dir. Christopher Way	Div. of Economic Dev.
Michael Fitzgerald	Dept. of Env. Services
Susan Duprey	Public Member

ALSO PRESENT FOR THE SEC:

Michael J. Iacopino, Esq. Counsel for SEC
(Brennan, Lenehan, Iacopino & Hickey)

Pamela G. Monroe, SEC Administrator

(No Appearances Taken)

COURT REPORTER: Cynthia Foster, LCR No. 14

I N D E X

WITNESS PANEL		PAGE NO.
<i>(Resumed)</i>	KURT NELSON	
	SARAH ALLEN	
	ANN PEMBROKE	
	DR. CRAIG SWANSON	
	BJORN BJORKMAN	
Cross-examination continued by Mr. Patch		3
Cross-Examination by Ms. Geiger		44
Cross-Examination by Ms. Ludtke		55

P R O C E E D I N G S**(Hearing resumed at 9:00 a.m.)**

PRESIDING OFFICER WEATHERSBY: Good morning, everyone. Welcome to Day 5 of the hearing for the Seacoast Reliability Project. We're going to be continuing with our Environmental Panel.

Attorney Patch, I think you're about to talk about bald eagles.

CROSS-EXAMINATION CONTINUED**BY MR. PATCH:**

Q Good morning.

A Good morning.

Q I'm going to refer to page 7 of the Supplemental Testimony that was filed in July of this year, Exhibit 145. And in that testimony, I think it runs from line 3 to 17, there's a discussion of the bald eagle nest located within 600 feet of where the submarine cable will be installed in Little Bay; is that correct?

A (Allen) That's correct.

Q Could you look at line 9 on that page? That essentially certifies that Eversource is still assessing potential construction-related impacts

1 to bald eagles, correct?

2 A (Allen) It does.

3 Q On page 7, back a couple of pages, there's a
4 similar, actually, I'm sorry. Yeah. On page 7,
5 lines 15 to 17, you said Eversource has begun
6 coordination with the appropriate state and
7 federal regulatory agencies, and that was,
8 again, the testimony was dated July 27th of this
9 year; is that correct?

10 A (Allen) That's correct.

11 Q I'm going to show you an exhibit that Durham and
12 UNH has introduced. It's TD-UNH 13. And what
13 it is is information that it's my understanding
14 was submitted to the Committee by a woman named
15 Jen Sanders in July of this year, and it
16 includes a number of photographs and information
17 about the bald eagles in Little Bay.

18 And on the first page right at the top, it
19 includes a statement that a pair of bald eagles
20 have been nesting for at least four years on
21 Little Bay. Do you see that?

22 A (Allen) I was aware of that, yes.

23 Q You were aware that they have been nesting for
24 four years?

1 A (Allen) That's correct.

2 Q And yet according to your testimony, you just
3 began coordination with appropriate agencies in
4 July of this year?

5 A (Allen) Just to clarify, we were not aware of
6 the nest until July of this year. But since
7 we've been aware of it, we were told by the
8 landowner that the birds have been there for
9 about four years.

10 Q As part of your review of this project, what
11 sort of review did you do to determine whether
12 or not there were any species like bald eagles,
13 threatened or species of special concern in that
14 area?

15 A (Allen) We do a couple of things. Our first
16 effort is basically a remote effort where we
17 contact the state and federal agencies that have
18 oversight of rare, threatened and endangered
19 species. We ask them for their records and any
20 locations that they're aware of.

21 Our second effort is site specific where we
22 walk the corridor and look for evidence of some
23 of the rare species that we have learned could
24 occur there.

1 Q So when a corridor is going to be under Little
2 Bay, you can't walk the corridor, obviously,
3 right? So what do you do in connection with
4 that?

5 A (Allen) Are you referring to the cable crossing
6 of Little Bay?

7 Q Yes.

8 A We did not walk it. We did, we have done boat
9 work out there looking at, obviously, you know,
10 we've looked at sediments and shellfish and
11 areas like that.

12 Q Since it appears that the eagles nest would be
13 fewer than a thousand feet away from the site of
14 construction in Little Bay, could this put the
15 work in violation of the federal law, the Bald
16 and Golden Eagle Protection Act?

17 A (Allen) That's not our opinion.

18 Q Well, does that law require that you get a
19 permit to do construction within a thousand
20 feet?

21 A (Allen) That law requires that you do not harass
22 or injure birds.

23 Q So there's no permit requirement associated with
24 that?

1 A (Allen) That's correct.

2 Q You're sure of that?

3 A (Allen) Yes.

4 Q On Thursday, a week ago today, we received more
5 supplemental discovery information from
6 Eversource. We've identified some of that as
7 TD-UNH 17, and I'm going to show you that
8 document.

9 And included in that document is a letter
10 that you sent on September 6th to New Hampshire
11 Fish & Game; is that correct?

12 A (Allen) Yes, it is.

13 Q And that letter talks about the use of concrete
14 mattresses near the shorelines and said that
15 they will constitute a permanent loss of
16 potential fielding habitat for sturgeon; is that
17 correct?

18 A (Allen) We do say that.

19 Q So if I understand correctly, the testimony and
20 the information that's been gone over so far,
21 the concrete mattresses could take away,
22 obviously it's an estimate at this point, but
23 could take away up to 8681 square feet of
24 potential feeding habitat for sturgeon; is that

1 fair?

2 A (Allen) That is fair.

3 Q And that document attached to the September
4 letter at page 2 it says that a helicopter may
5 be used to install pulling ropes associated with
6 the submarine cable. Is that correct?

7 A (Allen) That's associated with the overhead
8 construction.

9 Q Okay. How close will that be to the eagles
10 nest?

11 A (Allen) It will be, well, we're not committed to
12 doing it. It may or may not be used. If it was
13 used, it would probably be on the order of 7 or
14 800 feet.

15 Q Okay. And, again, that doesn't require a
16 federal permit in order to be that close to the
17 eagles nest with a helicopter?

18 A (Allen) Correct. And I should clarify. We are
19 getting a federal review of that through Fish &
20 Wildlife Service via the Corps of Engineers. We
21 are required to get a federal permit for the
22 Project through the 404 process.

23 Q So you are inquiring as to whether or not you
24 need a permit or you're going to get one?

1 A (Allen) We're coordinating with the appropriate
2 agencies. If they want some additional permit
3 conditions relative to the eagles, that would be
4 their opportunity to inform us of that.

5 Q Do you know how long it typically takes to get a
6 permit?

7 A (Allen) To get a Corps permit?

8 Q Yes.

9 A (Allen) It's running in parallel with this
10 process.

11 Q I want to shift gears, and I want to talk a
12 little bit about the August 31 letter that DES
13 sent to the Presiding Officer in this docket,
14 and I'm sure you're aware of that document.
15 It's Exhibit 183, correct?

16 A (Allen) Yes.

17 Q Is that correct? You're aware of that document?

18 A (Allen) Yes, I am.

19 Q Does Eversource plan to accept the latest DES
20 conditions or do you anticipate further
21 discussions with DES that could result in
22 additional changes?

23 A (Allen) There are, we, in general, we accept
24 everything in their letter. There are a few

1 more things we would like to clarify.

2 Q And what are those two things?

3 A (Allen) The one that comes to mind the most is
4 their last, if you can scroll down, let me find
5 it. It is on their second to last page, page 16
6 of 17. And it's the bottom of the page, WET-71
7 through 81.

8 Q I think you said there were two things. Two
9 things incorporated in WET-71 through 81 or
10 that's one and there's another one?

11 A To what?

12 Q I thought you said there were two things you
13 were still talking to DES about? Did I
14 misunderstand that?

15 MR. IACOPINO: She said a few things.

16 A (Allen) I said a few things, and this is what we
17 need for clarification as to what they are
18 looking for in their conditions. The other
19 issues will relate to submittal of the various
20 monitoring plans they're requesting.

21 Q And so there are 10 conditions here. So there's
22 10 conditions are still up for investigation
23 with DES; is that fair to say?

24 A (Allen) No, I don't think that's true. At least

1 not from my perspective.

2 Q Do you want to clarify that?

3 A (Allen) I'm sorry?

4 Q Do you want to clarify that? If it's not ten, I
5 mean, what you pointed us to is WET-71 through
6 81 which I count as ten different conditions.

7 A (Allen) I see. Okay. I wasn't sure where you
8 were.

9 Q Are those all up for discussion then with DES?

10 A (Allen) No. What we are looking for is I'm not
11 entirely clear on what they're intending by
12 their language in that condition. So I would
13 like to ask them for clarification as to what
14 that means.

15 Q And do you anticipate having more discussions
16 and correspondence with them?

17 A (Allen) We will probably have more discussions.
18 I can't answer the correspondence at this point.

19 Q And you plan to submit something to the
20 Committee at some point in time on that?

21 A (Allen) I think that would depend on what
22 happened with the discussions. It's very common
23 for an Applicant to have further questions of
24 DES conditions and to kind of work through the

1 intent of those conditions.

2 Q Beginning on page 6, and I have that up on the
3 screen here. It's WET 41. Actually, yes. Page
4 6 over to page 7. There's a discussion of
5 eelgrass survey. Do I have that correct?

6 A (Allen) You do.

7 Q Were you here on Tuesday when Mr. Andrew
8 testified about the cable line to Martha's
9 Vineyard and how HDD was used on the shoreline
10 to avoid disturbing the eelgrass?

11 A (Allen) I was.

12 Q On this one, WET 41, it's actually over on the
13 next page, I think, on page 7 under the heading
14 DES Response basically. It says the Applicant
15 will, quote, be submitting a revised plan for
16 NHDES review and approval. Did I read that
17 correctly?

18 A (Pembroke) That's correct.

19 Q When will that happen?

20 A (Pembroke) It will happen over the course of the
21 next few months.

22 Q So potentially some time after the Committee has
23 issued its decision.

24 A (Pembroke) Potentially.

1 Q And so that the parties to the docket couldn't
2 see it other than if it's a public record at
3 that point we could, but we'd have no
4 opportunity to be involved and comment on it.

5 A (Allen) That's correct.

6 Q What about on page 7, WET-42, Benthic Habitat
7 Monitoring. Same situation? Submitting a
8 revised plan for DES review and approval? And
9 timing is some time three or four months down
10 the road or later?

11 A (Allen) If you read the first few words of the
12 condition, it says at least 60 days prior to
13 start of construction.

14 Q So again, that comes after the Committee issues
15 its order?

16 A (Allen) Most likely.

17 Q And what about WET-43. I'm on page 8. Benthic
18 Infaunal Community Plan. Same situation?

19 A Yes.

20 Q And WET-44. Mixing Zone Plan. Same situation?

21 A (Allen) Yes.

22 Q And WET-45, Water Quality Monitoring and
23 Adaptive Management Plan. Same situation?

24 A (Allen) Yes, except that they asked for 90 days

1 prior to start of construction.

2 Q And WET-46, Shellfish Program Monitoring and
3 Reporting Requirements. Same situation?

4 A (Allen) Correct.

5 Q And WET-47, Mitigation. It says the Applicant
6 will submit a mitigation plan if directed by
7 NHDES, correct?

8 A (Allen) Correct.

9 Q So that could come, again, at some point further
10 down the road after the Committee issues an
11 order.

12 A (Pembroke) I'd like to point out that that
13 stipulation says if violations of surface water
14 quality standards occur that are associated with
15 the proposed activity. So essentially there's
16 no way that there would be a reason to submit
17 this prior to any decision.

18 Q Unless a test had to be done prior to a decision
19 being made, right?

20 A (Pembroke) A test? I don't understand.

21 Q Well, unless you, you know, the Committee had
22 done what DES originally said which was to hold
23 off on a decision until you had the results of
24 that, correct?

1 A (Pembroke) Are you talking about the trial jet
2 plow run?

3 Q Yes.

4 A (Pembroke) I'm not aware of what the Committee
5 originally said about that.

6 Q Not the Committee. DES in the February 28th
7 letter. Or actually, it might have been earlier
8 than that. But anyway, they said that earlier
9 in the proceeding.

10 A (Allen) I'm sorry. What did they say?

11 Q They essentially said that there should be a jet
12 plow trial run and the results of that should
13 come to the Committee before a decision is made.

14 MR. NEEDLEMAN: Objection. I don't believe
15 that's what the record says.

16 A (Pembroke) I think they said the rules need to
17 come to DES, and they wanted to make sure they
18 had adequate time to review the results. In
19 discussions that we've had with them, they
20 recognize that it was inappropriate to run the
21 test at a different time of year compared to
22 when the Project is going to happen and not to
23 mention the difficulties with getting the proper
24 equipment to the site in order to run the test

1 months in advance, and we have agreed to provide
2 the results of that test within virtually 48
3 hours of running the test so that they have
4 sufficient time to review the results.

5 Q Okay. I have a few questions about that, too.
6 But before I get to that, is it fair to say that
7 there are similar conditions in the February
8 28th quote, unquote, "Final Decision" issued by
9 DES, that's Exhibit 166, that were not changed
10 by the August 31st, 2018, letter? There are
11 some that still stand that were not discussed
12 between Eversource and DES, right?

13 A (Allen) That's correct. Yes.

14 Q And without running through all of them, is it
15 fair to say that a number of them, for example,
16 35 which says, "At least 60 days prior to the
17 start of construction, project specific BMP's
18 shall be developed in coordination with NHB and
19 NHFGD and submitted to DES for approval." So
20 there are a number of conditions included in the
21 February 28th letter that were not changed by
22 the August 31st letter that similarly required
23 submission of plans and review by DES after the
24 Committee issues its decision. Is that fair to

1 say?

2 A (Allen) Yes.

3 Q Now, during your discussions with DES over the
4 last six months, or perhaps longer, since the
5 issuance of the Final Decision in February, did
6 you ever discuss with them limits on the
7 authority that this Committee has to delegate to
8 a state agency?

9 A (Allen) No. We did not.

10 Q Never came up for discussion.

11 A (Allen) No.

12 Q Now, the plan for assessing shellfish tissue
13 which has yet to be developed, will that include
14 evaluating trace metal toxicity values that are
15 established for ecosystem biota? Did I say that
16 correctly?

17 A (Pembroke) Well, there are metals required in
18 the tissue analysis.

19 Q And is that for ecosystem biota? Is that what
20 you're testing for?

21 A (Pembroke) Well, oysters and blue muscles are
22 part of the ecosystem.

23 Q Are there human health criteria that you're
24 considering in connection with that?

1 A (Pembroke) Some of these parameters, it's my
2 understanding from the DES representative that
3 developed this condition, do relate to human
4 health concerns.

5 Q And so did you have a discussion about, with DES
6 then about whether it should include human
7 health criteria?

8 A (Pembroke) DES developed the list based on FDA
9 standards for testing shellfish tissue and FDA
10 regulates human health standards or develops
11 human health standards.

12 Q So that will be part of the plan for assessing
13 the shellfish tissue, the plan that has not yet
14 been developed?

15 A (Pembroke) Yes.

16 Q On page 8 of the last paragraph on that page of
17 the August 31 letter, Exhibit 183, in regard to
18 a Mixing Zone, and condition WET-44, DES states
19 unless otherwise authorized by NHDES, that was
20 added to the condition, it says to allow for
21 situations such as the owner of an aquaculture
22 site being willing to have the mixing zone
23 overlap area where aquaculture product is in the
24 water. In such cases, DES would require written

1 evidence and would allow the mixing zone to
2 extend into the aquaculture site where product
3 is in the water. Did I read that correctly? I
4 might have left out a word or two.

5 A (Pembroke) That sounds right to me.

6 Q To your knowledge, is the Applicant negotiating
7 with any aquaculture site owner or operator to
8 allow the mixing zone to extend into an
9 aquaculture site that is anticipated to have
10 some kind of product? For example, oysters in
11 that area? Are they negotiating about that?

12 A (Pembroke) We have been in discussions with
13 several aquaculture license holders that are
14 closest to the project site, and discussed, I
15 don't think we asked the direct question can our
16 mixing zone pass through your site where you
17 have oysters in place, but the two closest
18 license holders are very interested in moving
19 their oysters farther north to prevent, well,
20 one is to improve the quality of his operation,
21 and the other understands when he received his
22 license New Hampshire Fish & Game told him he
23 would have to move his product away from our
24 Project while it was being constructed. And

1 we're also in discussion with Mr. Baker of Fat
2 Dog Oysters to look at means to ensure that his
3 product is not exposed to a sediment plume.

4 Q So it's your position that product that's
5 harvested from the mixing zone would be safe for
6 human consumption or not?

7 A (Pembroke) Yes. It is my position that that's
8 the case.

9 Q And on what do you base that?

10 A (Pembroke) Based on the fact that the character
11 of the sediments indicates very low levels of
12 contaminants, that the sediment plume disperses
13 quickly and is extremely ephemeral, no one area
14 of the bay will be exposed to a plume for longer
15 than a period of minutes to perhaps an hour
16 during any given passage of a jet plow. So that
17 really reduces the amount of time that any
18 organism would be exposed to the plume at all.

19 Q I want to shift gears for a minute and talk
20 about the jet plow trial run. As I understand
21 it, as a result of further discussions you've
22 had with DES, you've now reached agreement that
23 the trial run will be done 21 days prior to the
24 cable installation. That's on page 2 of Exhibit

1 183. Is that correct?

2 A (Allen) Yes, it is.

3 Q And if this Project is approved and the SEC
4 agrees with this condition, will Eversource be
5 required to provide DES a jet plow trial summary
6 report 14 days prior to the scheduled start of
7 submarine cage installation; is that right?

8 A (Allen) Yes.

9 A (Pembroke) Yes.

10 Q And where does it say what is required to be in
11 that report?

12 A (Pembroke) Well, it doesn't, I don't believe
13 that it specifies what is to be in that report,
14 but it's the intent to conduct water quality
15 monitoring that mimics the plan for the full
16 scale jet plow run so that DES can evaluate
17 whether the model was successful in predicting
18 the extent of the plume and that water quality
19 violations were not experienced.

20 A (Nelson) I'd like to add as part of the jet plow
21 trial condition the DES will require that we
22 submit a jet plow trial plan that would be
23 approved prior to the implementation of the
24 trial. So whatever monitoring parameters the

1 DES would be looking for, that would all have
2 been approved by DES prior to conducting the
3 trial.

4 Q And when would that plan be submitted?

5 A (Nelson) I believe as written the condition was
6 90 days prior to the implementation of the
7 trial.

8 Q So again, this Committee wouldn't get to review
9 it, the parties here wouldn't get to review it,
10 right?

11 A (Nelson) Presumably not. That particular
12 condition. I just would add though with respect
13 to the various other plans that have been cited
14 that have not been the purview of this docket,
15 we have provided several draft plans as part of
16 our Application including the Benthic Monitoring
17 Plan, the Water Quality Plan, those are
18 available in draft form.

19 Through our discussions with DES we've
20 gotten their feedback and are using that
21 information as we revised those plans.

22 Q And so that's for some of the conditions, I
23 guess is what you're saying?

24 A (Nelson) Correct.

1 Q Do you want to be more specific?

2 A (Nelson) Sure. We can be. If you look back at
3 the correspondence record that we've had with
4 DES, we cite the various plans that we have,
5 draft plans that we have provided. Those
6 included Benthic Habitat Monitoring Plan, the
7 Water Quality Monitoring Plan, the Mixing Zone
8 Plan. I believe there's a few others as well.
9 As I stated, those are all in draft form still
10 at this moment and so what we'll be working on
11 over the next several months is revisions to
12 those plans.

13 Q And so they're still up for discussion between
14 Eversource and DES, in other words?

15 A (Nelson) Correct.

16 Q It's unclear to me, and maybe you can help us
17 though, what criteria would DES use, assuming
18 the Project gets approved with this condition,
19 what criteria would they use in deciding whether
20 or not something should be changed as a result
21 of the jet plow run?

22 A (Pembroke) Well, their criterion is the
23 turbidity level, excess turbidity compared to
24 ambient conditions. That's the numerical

1 standard that they have.

2 Q Found in their rules?

3 A (Pembroke) Yes.

4 A (Allen) I'm sorry. Can you repeat that?

5 Q I'm asking about the criteria they would use to
6 decide whether or not something had to be
7 changed as a result of testing done associated
8 with the jet plowing trial run. And so I'm
9 asking whether or not, where do those criteria
10 exist?

11 A (Allen) They are the water quality standards.

12 Q And they are in the DES rules?

13 A (Allen) Correct.

14 Q Can you give us a site to that?

15 A (Allen) I think it is Water Quality 1700 is the,
16 are the water quality rules. I'd have to look
17 up a more specific citation for the criteria
18 that they list. I think there's 7 or 8 of them.

19 Q So in that August 31 letter, DES stated on page
20 9 under WET-45 that the Applicant will be
21 providing a Revised Water Quality Monitoring
22 Plan for DES review and approval. Correct?

23 A (Allen) Yes.

24 A (Pembroke) Yes.

1 Q And this would be a revised plan to what's
2 Exhibit 129, what was then the Revised
3 Environmental Monitoring Plan for Little Bay
4 that was dated September 15th of 2017. Is that
5 correct?

6 A (Allen) That sounds right.

7 Q It's a further revision to the revised plan from
8 September of '16.

9 A (Allen) That sounds right. I'd have to look up
10 exhibit numbers. I'm sorry.

11 Q Is it correct to assume that the Applicant
12 intends to apply the water quality portions of
13 any revised Water Quality Monitoring Plan for
14 Little Bay to both the jet plow trial run and
15 all post trial run cable installation
16 activities? Is it the same water quality
17 provisions that would be applied to both?

18 A (Allen) Correct.

19 Q And in terms of that jet plow trial run which I
20 think you said the other day will cover a
21 thousand feet in Little Bay, is it your opinion
22 that you'll be able to retain, review and
23 analyze all of the trial run data, compare it to
24 predicted model results, make meaningful changes

1 to the cable run procedure if necessary, and
2 prepare all of this and report to the DES in 7
3 days?

4 A (Allen) Yes.

5 Q Now, that revised plan from 2017, Exhibit 129,
6 called for real time monitoring of turbidity.
7 Do you recall that?

8 A (Allen) I do.

9 Q And does all the oxygen and salinity and
10 laboratory measure total suspended solids, total
11 time nitrogen, total and dissolved copper, total
12 and dissolved arsenic, and fecal coliform
13 bacteria, correct?

14 A (Allen) That sounds right.

15 Q In their letter dated February 28th, Exhibit
16 166, page 13, the DES calls for realtime
17 monitoring of turbidity, dissolved oxygen,
18 salinity and laboratory measurement of total
19 suspended solids, total nitrogen,
20 nitrate/nitrite nitrogen, total -- I'll spell
21 this. K J E L --

22 A (Pembroke) Kjeldahl.

23 Q -- Kjeldahl nitrogen, ammonia nitrogen, total
24 and dissolved copper, total and dissolved

1 arsenic and fecal coliform bacteria. Does that
2 sound correct?

3 A (Pembroke) Yes, it does.

4 Q Will that forthcoming plan, the one that's
5 referenced in the August 31 letter, will that
6 include other forms of nitrogen required by DES?
7 Or are they all among the ones that I listed?

8 A (Pembroke) We'll provide all of the nitrogen
9 species that are listed.

10 Q And that revised plan and the final
11 recommendation both call for water sample
12 collection from multiple fixed and mobile
13 stations in addition to sentry and aquaculture
14 stations from multiple depths and times.

15 Do you know how many water samples would be
16 associated with a thousand feet of activity for
17 the jet plow trial run? How many water samples
18 will you have to collect?

19 A (Pembroke) I haven't --

20 A (Allen) We haven't calculated that.

21 Q Is it 20, is it 40, is it 100?

22 A (Pembroke) I doubt it will be a hundred.

23 Q So it might be 80?

24 A (Pembroke) It will probably be several dozen.

1 Q And would it then be times 6 for the full cable
2 installation length? Six times whatever you do
3 for the jet plow trial run because it's 6 times
4 longer? So there would be 6 times more samples
5 you'd have to collect; is that right?

6 A (Allen) We've not yet done that calculation, but
7 I think your point is that there's very
8 intensive monitoring which is designed to make
9 sure that we're meeting our standards.

10 Q Well, part of my point is that there are a lot
11 of samples to be taken. There are a lot of
12 samples to be measured. And can you do that in
13 7 days, you know, for a jet plow trial run? For
14 example, what is the laboratory turnaround time
15 for total suspended solids, you know, if you
16 give them a sample, how long does it take for
17 them to test for that?

18 A (Pembroke) In past projects that I've worked on
19 we've been able to obtain 24-hour turnaround
20 time on similar parameters.

21 Q And what about the one I couldn't pronounce, the
22 Kjeldahl nitrogen? Isn't that longer? Takes
23 longer for that one?

24 A (Bjorkman) Kjeldahl nitrogen will take, it's

1 more complex analysis than the other things you
2 mentioned. However, it can be turned around in
3 a couple days by a laboratory that is motivated
4 to do so.

5 Q And so, obviously, you'll have a lot of samples
6 to give to whatever lab or labs would be
7 involved in doing that testing. But you're sure
8 that you can take the samples, you can run the
9 jet plow trial run, take the samples after
10 that's done, take the samples to the lab, get
11 the results and then put together the report and
12 provide it to DES all within 7 days, right?
13 That's what you said.

14 A (Allen) Yes.

15 Q How will that laboratory data inform operational
16 decision making?

17 A (Allen) The results will be used to assess
18 whether or not we've met the criteria that we
19 are going to be held to.

20 Q Which we don't know for sure yet what those are,
21 right?

22 A (Allen) I think you can get a very good sense
23 from the monitoring plans we've submitted
24 already.

1 Q But they're still under discussion, I think you
2 already said?

3 A (Allen) They are still under discussion. Yes.

4 A (Pembroke) The plans are under discussion, but
5 the water quality criteria are in the rules, as
6 you pointed out. So exceedance of the turbidity
7 value is an exceedance. It's a numerical value
8 that's in the rules.

9 Q I want to shift to the mixing zone. Item 44 on
10 the February 28th Final Decision, Appendix 166,
11 I think it was modified to some degree by the
12 August 31 letter, Exhibit 183.

13 Now, the rules that I think you referred to
14 before there's a Env-Wq 1707.02, and there's a
15 paragraph C which says that a mixing zone shall
16 not be approved unless it, quote, does not
17 result, does not result in the accommodation of
18 pollutants and the sediments of biota, end
19 quote.

20 MR. IACOPINO: Can you give us the citation
21 again?

22 MR. PATCH: Actually, I think I have a copy
23 here. I could put it up on the ELMO if that
24 would be helpful. It's Env-Wq 1707.02.

1 Criteria for Approval of Mixing Zones.

2 BY MR. PATCH:

3 Q And it says in paragraph C does not result in
4 the accumulation of pollutants in the sediments
5 or biota. Is that what it says?

6 A (Allen) That's correct.

7 Q And so without bioaccumulation testing or
8 estimation using uptake factors for aquatic life
9 including filter feeding bivalves, how has the
10 Applicant demonstrated that it's met or will
11 meet this criteria?

12 A (Pembroke) Well, I believe that the sediment
13 plume modeling demonstrates pretty clearly that
14 the density of the plume by the time it would
15 reach any of these sensitive resources that
16 you're referring to is so low that they won't
17 accumulate sediments, and Mr. Bjorkman conducted
18 some analysis on the potential for toxicity from
19 any of the contaminants, the metals in the
20 sediments. So perhaps he'd like to comment on
21 that.

22 A (Bjorkman) Yeah, I can explain a little bit on
23 the concept that you're referring to. And as
24 we've been hearing here, there is a variety of,

1 I mean, that the model does predict certain
2 release of contaminants. In my, in the report
3 we provided, the Sediment Quality Report,
4 Ecological Risk Analysis in there, as well as in
5 the Supplemental Report we evaluated that thing.
6 And because that fact of the sediment in today
7 does not actually contain elevated
8 concentrations of anything, there isn't all that
9 much beyond what is naturally present in the
10 sediments to be released to the water column and
11 to be transported to any place else. And
12 second, the modeling we did demonstrated that
13 what is there would not under reasonably
14 anticipated circumstances cause any adverse
15 effects. Therefore, given that the transitory
16 nature of the plume, it would not result in a
17 bioaccumulation situation which requires a
18 long-term exposure.

19 A (Pembroke) I mean, I'dd like to really emphasize
20 the fact that what we're talking about is kind
21 of a moving source. The jet plow is moving
22 across the bay, the tides are moving, so the
23 duration of any exposure of any resource to the
24 plume, as I said before, is very short. And in

1 order for bioaccumulation to occur, an organism
2 has to have a duration of exposure.

3 Q I'd ask you to look at paragraph g of this same
4 rule. It says that mixing zone shall not be
5 approved unless it does not result in the
6 mortality of any plants, animals, humans, or
7 aquatic life within the mixing zone.

8 Did I read that correctly?

9 A (Allen) You did.

10 Q In Exhibit 105, which is the Supplemental
11 Ecological Risk Evaluation for Little Bay
12 Sediments, did you perform an assessment of
13 water quality impacts following the U.S. Army
14 Corps Regional Implementation Manual Tier 2 Step
15 1 Evaluation for Compliance with Water Quality
16 Criteria?

17 A (Bjorkman) Yes. I believe we did.

18 Q I think that's referenced on page 7 of that
19 Exhibit 105. And did the mass balance model
20 used in this evaluation calculate a potential
21 water quality violation from the plume generated
22 from jet plowing and/or hand jetting?

23 A (Bjorkman) Yes. We acknowledged that copper due
24 to its extremely low water quality standard

1 could in the worst case scenario implicit in the
2 development of the regional limitation manual
3 model could result in a violation of the
4 standards you're referring to. However, that
5 is, therefore, in the conditions the DES has
6 imposed, the monitoring that this situation will
7 not arise was fully included.

8 Q Which water quality criterion did copper exceed?
9 Was it chronic or acute?

10 A (Bjorkman) The model is based on acute exposure
11 to be consistent with the mortality statement in
12 subpart G there.

13 Q So the definition of acute toxicity is that it
14 includes mortality of aquatic life, correct?

15 A (Bjorkman) Not necessarily. Acute mortality is
16 that, pardon me. Acute effects, acute toxicity
17 is the result of an effect that has expressed
18 itself over a short time scale.

19 Q At what concentration of total suspended solids
20 could this acute water quality violation occur?

21 A (Bjorkman) I don't have my model results in
22 front of me right now. I have them in my pile
23 of papers here. But I believe the calculation
24 came out to somewhere on the order of 400 and

1 something milligrams per kilogram total
2 suspended solids could result, and again, I
3 emphasize the fact that this assumes that every
4 single molecule of copper in the sediment is
5 transferred directly to the water column. In
6 that case, it could exceed, and that meets the
7 criterion demanded by the Corps of Engineers for
8 this kind of test.

9 Q Okay. Would 430, you said, 430 milligrams,
10 would that sound right?

11 A (Bjorkman) Possibly. I don't remember the exact
12 number.

13 Q Subject to check. And according to the sediment
14 dispersion model, is it possible that the plumes
15 generated from jet plowing and/or hand jetting
16 will produce total suspended solid
17 concentrations of 430 milligrams or more?

18 A (Bjorkman) My understanding of the model output
19 that was used for the ecological risk evaluation
20 was that certain portions for short periods of
21 time would exceed that level, yes.

22 Q And over what period of time would the
23 potentially acute toxic conditions occur within
24 the mixing zone?

1 A (Bjorkman) I will defer to Dr. Swanson here
2 about some of the details of his model, but my
3 understanding and what I used in the model
4 identified any location or any area that would
5 exceed for more than one hour which is highly
6 conservative.

7 Q Did you want to add anything?

8 A (Swanson) Yes. I have information on the
9 summary of the total acreage as enclosed by the
10 excess suspended sediment threshold
11 concentration contours and the total area at,
12 well, I have 200 and 500 and the maximum area
13 goes up to about .8 acres and that's at four
14 hours, and then at 500 it's always less than
15 half an acre.

16 Q That supplemental ecological risk evaluation,
17 Exhibit 105, asserts that a hundred percent
18 partitioning of copper to the water column is
19 quote, unquote, "highly unrealistic." And
20 suggests that a .02 percent dissolution is more
21 realistic. Does that sound familiar?

22 A (Bjorkman) Yes.

23 Q Would you agree that in order to resolve what is
24 really a pretty large discrepancy in

1 assumptions, a hundred percent versus .02
2 percent, that elutriate chemical analyses or
3 elutriate toxicity testing would provide a more
4 realistic assessment of potential water column
5 impacts?

6 A (Bjorkman) Under the Corps of Engineers rules
7 for offshore disposal of dredge waste that would
8 be the next step in the process to determine an
9 actual dissolution coefficient, if you will,
10 based on an elutriate test. In the present
11 case, we are not dealing with an offshore
12 disposal situation, and we believe that the DES
13 has considered this issue, and in view of the
14 fact that this hypothetical problem could exist,
15 they impose the requirement that we monitor
16 total and dissolved copper during the process
17 that should address that very low probability.

18 Q Are the concentrations of copper in Little Bay
19 sediments consistent with quote, "background
20 level natural concentrations," end quote?

21 A (Bjorkman) Based on my review of the data that I
22 have available, yes.

23 Q And can you give us a citation for the data?

24 A (Bjorkman) Just one moment.

1 A (Pembroke) Well, other data that we looked at
2 for sediment characterization were conducted
3 under the USEPA program, National Coastal
4 Condition Assessment. So that's where we're
5 saying that we're consistent, that the
6 concentrations in the sediments that we're
7 looking at are consistent with those numbers.

8 A (Bjorkman) That's the quotation I was looking
9 for.

10 Q Okay, but I guess I'd like a more specific
11 citation if you can provide one.

12 A (Bjorkman) Yes. We should provide NCC -- is
13 that the name of it? NCCA.

14 Q I don't need it now, but if you can provide it
15 for the record that would be helpful.

16 A (Pembroke) Okay.

17 Q Is it likely that the sediments that are likely
18 to be mobilized to the water column by jet
19 plowing and hand jetting which are assumed to be
20 as deep as two feet according to the latest
21 assumptions, is it likely that the sediments are
22 in equilibrium with the overlying water?

23 A (Bjorkman) That depends on the specifics of the
24 situation. Certainly most of the surficial

1 sediments will be in some sort of flux with the
2 underlying water. The amount of flux will
3 depend on the weather conditions, waves, winds,
4 what have you, but there is always a flux
5 happening, and certainly the more, the closer to
6 the surface you are, the more continuous that
7 exchange in equilibration is.

8 Q We talked the other day a little bit about the
9 sediment loss rate which is discussed in page 53
10 of the revised model report, Exhibit 104. Do
11 you think it would be possible that the sediment
12 loss rate will exceed 25 percent given that
13 previous studies referenced in that report have
14 shown loss rates as high as 35 percent? Is it
15 possible that they could exceed 25 percent?

16 A (Swanson) The literature and the anecdotal
17 information that we've seen and heard from some
18 of the other witnesses here is that the 25
19 percent is very conservative, and the value at
20 35, I believe, I believe was done via model, but
21 it wasn't actually observed. I may not be
22 totally clear on that. But the measure at 25
23 percent is viewed as conservative with the
24 modeling and what has been seen.

1 Q But that revised modeling report states, doesn't
2 it, that fine grain sediment, this is page 56,
3 is likely to be resuspended on subsequent tides
4 and dispersed from the areas initially affected
5 by deposition. Is that fair to say?

6 A (Swanson) Yes, for very short periods, yes.

7 Q So in your opinion is it unrealistic to
8 anticipate that a combination of variables such
9 as a 35 percent loss rate and sediment
10 resuspension during subsequent tidal cycles will
11 occur simultaneously during the proposed jet
12 plowing activities?

13 A (Swanson) It's very unlikely.

14 Q Not impossible.

15 A (Swanson) Nothing is impossible.

16 Q If you agree that these combined variables may
17 be reasonably expected to occur simultaneously
18 or maybe not reasonably, might use a different
19 word, why were they only modeled as isolated
20 variables in the revised modeling?

21 MR. NEEDLEMAN: Objection. The witness
22 just said that this was very unlikely.

23 Q Okay. But my question is why weren't they, and
24 you can explain why you think, I'll restate the

1 question. Why were they only modeled as
2 isolated variables in the revised model?

3 A (Swanson) That has been the practice of the
4 particle modeling, the cable burial modeling in
5 a number of the Projects that I've seen. Very
6 often there is no sensitivity to looking at
7 these different variables. Sometimes there are
8 some individual ones, but I've never seen one
9 that combined the different parameters into what
10 would be called, quote, unquote, "worst case."
11 It's not done. And as I say, most of the time
12 there's not any ones done at all. And we work
13 with a large number of environmental consultants
14 who have hired us to look at the problem, and
15 very often they agree that there shouldn't be a
16 sensitivity done at all. Other times they do
17 single sensitivities, but this work has been by
18 far a lot more sensitivity analyses than any of
19 the other projects we've ever needed to perform.

20 Q So did I hear you correctly that you don't
21 typically model for a worst case scenario; is
22 that what I heard you say?

23 A (Swanson) If you're designing a worst case as
24 the worst case of the individual parameters, no,

1 because that becomes so unlikely that from a
2 statistical perspective that it's not done.

3 Q What I think I was asking about the combination
4 of a couple of different variables. So you
5 don't model for those kind of combinations
6 typically?

7 A Typically, in order to make or generate an
8 understanding of how the model is working, you
9 would do a sensitivity analysis on the
10 individual properties.

11 Q According to what we heard earlier this week,
12 the concrete mattresses that are proposed to be
13 used in this Project are nine inches thick; is
14 that correct?

15 A (Pembroke) Yes.

16 Q In the Normandeau September 2017 report, the
17 revised Little Bay Impact Assessment Report,
18 it's Exhibit 125, page 2, it says the Project is
19 evaluating the feasibility of using thinner
20 mattresses. Do you recall that?

21 A (Allen) Yes.

22 Q Was that done?

23 A (Allen) We looked at that feasibility. The
24 engineers told us that was inadequate protection

1 primarily due to ice.

2 Q Is there anything in writing, is there anything
3 that's been submitted to the Committee that
4 follows up on that statement in Exhibit 125?

5 A (Allen) Not that the Environmental Panel has
6 handled. I'm not sure about the engineers.

7 Q To the best of your knowledge, the Construction
8 Panel might have handled or anyone else?

9 A (Allen) I'm afraid you'd have to ask the
10 Construction Panel. I can't answer that.

11 Q Seems like that would be very useful
12 information, you know, because I don't know what
13 the impacts would be of a thinner mattress, but
14 clearly there would be some impacts of having a
15 thinner concrete mattress.

16 MR. NEEDLEMAN: Objection. This is
17 testimony.

18 MR. PATCH: What was the objection? I
19 didn't catch that?

20 PRESIDING OFFICER WEATHERSBY: He said you
21 were testifying.

22 MR. PATCH: Well, I was trying to turn it
23 into a question. Maybe I hadn't gotten there
24 and I apologize for that.

1 BY MR. PATCH:

2 Q But don't you think that would be valuable
3 information for this Committee to have if in
4 fact the impacts of a thinner mattress would be
5 different?

6 A (Allen) If it does not provide adequate
7 protection for the cables, it wasn't available
8 for us to evaluate.

9 Q I think you've stated that wasn't in your
10 purview. It's the Construction Panel. I don't
11 remember anyone on the Construction Panel saying
12 that. I don't see anything in the record about
13 that. That's my point. So would you agree that
14 that's important information for the Committee
15 to have?

16 A (Allen) I don't think I'm going to answer that.

17 Q Okay. I'm almost done. Could I have a minute
18 to talk to my client? That's all the questions
19 I have. Thank you. I appreciate your time.

20 A (Pembroke) Thank you.

21 PRESIDING OFFICER WEATHERSBY: Thank you.
22 The next questioner will be Attorney Geiger.

23 **CROSS-EXAMINATION**

24 **BY ATTORNEY GEIGER:**

1 Q Good morning. While we're waiting for this
2 document to come up on the screen, I'm Susan
3 Geiger, and I represent the Town of Newington.

4 A (Pembroke) Good morning.

5 A (Allen) Good morning.

6 Q I believe you, Ms. Allen, earlier in response to
7 questions from Attorney Patch referenced or
8 speaking about an August 31st, 2018, letter from
9 the Department of Environmental Services,
10 correct? Do you recall those questions?

11 A (Allen) Yes.

12 Q I believe you indicated, and correct me if I'm
13 wrong, that Eversource was going to continue its
14 conversations with DES about conditions to the
15 Wetlands Permit numbers 71 through 81. Do you
16 remember that?

17 A (Allen) I'm looking for some clarification on
18 that.

19 Q What type of, could you please explain what type
20 of clarification you need from DES on those
21 conditions?

22 A (Allen) I'm not quite certain as to what their
23 reference back to WET-67 and WET-68 does for
24 addressing the issue of 71 through 81.

1 Q And what is the issue that Eversource has with
2 condition 71 to 81?

3 A (Allen) 71 to 81 is looking at mitigation
4 requirements that are more appropriate to go to
5 the respective towns. Eversource for mitigation
6 is essentially paying into the Aquatic Resource
7 Mitigation Fund for an in lieu of fee payment.
8 The towns, meaning specifically meaning Durham
9 and Newington, have asked that that mitigation
10 go to specific projects within their town. The
11 DES agreed to consider those, and we provided
12 information on those. One for Newington is
13 that, is a conservation easement close to the
14 Project. The other one is a living shoreline
15 project in the Town of Durham. For those
16 projects, Eversource will contribute a portion
17 of the funds necessary to complete those
18 projects. The projects themselves will be
19 completed by the respective towns. So
20 Eversource should not be held to a lot of the
21 specifics that will come from the Aquatic
22 Resource Mitigation Fund for completing those
23 projects.

24 Q And with respect to those ten conditions that

1 are referenced in this letter, is Eversource
2 asking that those conditions be deleted from the
3 permit?

4 A (Allen) I think it would be appropriate. If
5 they want to reference it differently, I'd be
6 fine with that. Right now the response simply
7 refers back to 67 and 68 which I don't think
8 quite addresses that issue.

9 Q So I'm turning now to what's been marked as the
10 Applicant's Exhibit 166, and I believe these are
11 those conditions, 71 through 81, that Eversource
12 is seeking to delete or eliminate from the
13 Wetlands Permit. I just want to make sure I
14 understand what your position is. These
15 conditions as you indicated, I believe, deal
16 with a conservation easement; is that correct?

17 A (Allen) For the Town of Newington. Correct.

18 Q Correct. What is it exactly about these
19 conditions that you find objectionable?

20 A (Allen) I don't find the conditions
21 objectionable at all. I think they're
22 appropriate for the conservation easement. I
23 don't think it's appropriate that they be on
24 Eversource's permit condition to address these

1 because they're basically outside of
2 Eversource's control. Once Eversource has paid
3 into the Aquatic Resource Mitigation Fund, and
4 presumably those projects will be approved by
5 DES to distribute the funds, at that point the
6 responsibility for completing the project falls
7 to the town.

8 Q So let me know if I understand you correctly.
9 My understanding of what you just said is that
10 Eversource does not find these particular
11 conditions to be objectionable. It's just that
12 you don't want them in the Wetlands Permit. Is
13 that correct?

14 A (Allen) To be associated with this Project.

15 Q Okay. Understood.

16 A (Allen) Correct.

17 Q Thank you. Now, turning to the subject of the
18 bald eagles in Little Bay or Great Bay area.
19 Did your surveys or studies regarding avian
20 species in and around that area relative to this
21 Project review any reveal any indication that
22 there were either bald eagles nesting or
23 wintering in that area?

24 A (Allen) We did not. We did not identify that

1 nest.

2 Q And over what period of time did you conduct
3 those surveys or studies?

4 A (Allen) We did it in a couple of ways. Our
5 biologists are out on, were out on the Project,
6 for, you know, in and out for the period of a
7 couple of years doing wetland delineations and
8 wildlife surveys so they are trained to be
9 looking for those things for, you know, things
10 such as eagles being disturbed by our
11 activities, and we just did not detect it.

12 Q And was the, what was the first time or when did
13 you initially learn about the existence of bald
14 eagles in this area?

15 A (Allen) That particular nest, we became aware of
16 it when the property owner told us about it in
17 July of this year.

18 Q Did you become aware of any other bald eagles in
19 that area other than that nest?

20 A (Allen) Well, we know that there are bald eagles
21 in the area. We did not know of the nest.

22 Q When did you know that there were bald eagles in
23 the area?

24 A (Allen) Well, we see bald eagles on the bay.

1 There's another nest actually over on the
2 eastern side of the bay.

3 Q Okay. I'm confused because my understanding was
4 that when you surveyed this area, in connection
5 with your studies for this Project, those
6 surveys and studies did not reveal the existence
7 of bald eagles in that area; is that correct?

8 A (Allen) We were looking for bald eagle nests.
9 Bald eagles, ospreys, many raptors were observed
10 in the course of, you know, especially of a long
11 linear Project like this.

12 Q Okay.

13 A (Allen) What we're looking for are nests that
14 would be potentially disturbed by the Project.

15 Q Okay. Thank you for that clarification. I did
16 not understand your testimony earlier. So when
17 you conducted surveys and studies in connection
18 with this Project, you were just looking for
19 bald eagle nests; is that correct?

20 A (Allen) Correct.

21 Q Okay. Thank you. Turning to the issue of the
22 concrete mattresses that you just answered some
23 questions about in response to questions from
24 Attorney Patch. Did you study at all or speak

1 at all with the construction team in this
2 Project regarding the use of split pipe instead
3 of concrete mattresses for the cable coverings
4 coming out of the bay?

5 A (Allen) I'm aware of the split pipe discussion,
6 yes.

7 Q Okay. In your opinion, would the use of split
8 pipe over those cables be more or less impactful
9 than using concrete mattresses from an
10 environmental perspective?

11 A (Allen) From a environmental perspective,
12 they'll be less impactful, yes.

13 Q Now, with respect to oyster beds in Little Bay,
14 are you familiar with the existence of those?

15 A (Allen) Very much so.

16 Q Okay. What happens to those oyster beds if they
17 are covered by a layer of silt? Is that
18 detrimental?

19 A (Pembroke) Depending on the thickness of the
20 silt, it can cause mortality.

21 Q It can. How big does that layer need to be in
22 order to cause mortality?

23 A (Pembroke) Probably on the order of half an
24 inch.

1 Q Half an inch only. Are you aware of the attempt
2 of the, the attempt on the part of some groups
3 in the Little Bay area to reestablish or
4 establish oyster beds in Little Bay using oyster
5 shells from restaurants in the area? Are you
6 aware of that?

7 A (Pembroke) Yes. I am. Most of that work is in
8 Great Bay, I believe.

9 Q Okay. Do you know why these groups are doing
10 that?

11 A (Pembroke) Because the natural oyster
12 populations have declined dramatically over the
13 years, and oysters, among other filter feeding
14 organisms, do provide an ecological service of
15 clearing, basically clearing the water.

16 Q And, Ms. Pembroke, could you define a little bit
17 more for me or clarify for me what you mean by
18 dramatically decline?

19 A (Pembroke) Well, you know I think the state of
20 our estuaries reports that PREP produces
21 probably can define it better, but in the aerial
22 coverage and the absolute number of oysters in
23 the Great Bay system overall which includes
24 Piscataqua River and the tributaries to Great

1 Bay, boy, I don't, I don't have numbers at the
2 top of my head, but it's been identified as an
3 issue for the estuary. So perhaps my use of the
4 word "dramatic" was an overstatement or perhaps
5 an understatement.

6 Q So is this species, these oysters, are they in
7 peril in your opinion in terms of the fact that
8 their numbers are declining as a species?

9 A (Pembroke) As a species?

10 Q In this area.

11 A (Pembroke) I hadn't really thought about that.
12 I would say -- hmm. They have declined, steps
13 have been taken to try to reverse that trend.

14 Q Fair enough. Thank you for your testimony.

15 PRESIDING OFFICER WEATHERSBY: Okay. Up
16 next is the Conservation Law Foundation. But I
17 think given that the amount of expected time for
18 that and not wanting to interrupt the flow,
19 we'll probably take a ten-minute break now and
20 come back at 10:20 and Ms. Ludtke will be up.
21 Thank you.

22 MR. IACOPINO: Just before everybody walks
23 away, a couple of issues have been raised by
24 various representatives in the proceeding.

1 With respect to recross-examination, it is
2 generally frowned upon. We had a request for it
3 yesterday, but I wanted to make sure that you
4 understood that even though it's generally
5 frowned upon, you do have the right to ask for
6 it, and we don't want anybody to be thinking
7 that there's some kind of rule that you cannot
8 ask.

9 Similarly, there was a statement made by
10 the Chair the other day about one of the, I
11 believe Mr. Ratigan's requests for recross. In
12 that case there was a statement about he'll have
13 the opportunity to address it with his witnesses
14 with respect to direct examination.

15 If you intend to try to put in any
16 information that's beyond the Prefiled
17 Testimony, you're required to first inform the
18 Chair of that and explain on the record why it
19 is necessary to do that, and the Chair will make
20 that determination on a case-by-case basis based
21 upon argument presented.

22 I don't know if anybody anticipated putting
23 in additional testimony on direct, but if that
24 is your plan, you are to make a request first

1 from the Chair. Thank you.

2 (Recess taken 10:10 - 10:23 a.m.)

3 PRESIDING OFFICER WEATHERSBY: Ms. Ludtke,
4 you can proceed.

5 **CROSS-EXAMINATION**

6 **BY MS. LUDTKE:**

7 Q Good morning. My name is Leslie Ludtke, and I
8 am representing the Conservation Law Foundation
9 in my capacity as a member of the Foundation.

10 A Good morning.

11 Q What I'd like to start with is just briefly
12 asking a few questions about the value of Little
13 Bay and Great Bay as a natural resource, and I
14 understand some of the other attorneys have
15 raised these same issues, but I think it's a
16 very important issue and at the risk of boring
17 people, I do think that I would like to confirm
18 a few points with you.

19 On the ELMO I've put on a document prepared
20 by the PREP, and I know there's been reference
21 to that. Are you familiar with that?

22 A (Pembroke) I'm familiar with various versions of
23 the State of New Hampshire's Estuaries Reports.

24 Q Let me read you a couple of statements made in

1 that, and I want to find out whether you agree
2 with those statements.

3 PRESIDING OFFICER WEATHERSBY: Ms. Ludtke,
4 is this an exhibit, and if so, what's the
5 number?

6 MS. LUDTKE: It's not an exhibit. It's
7 just a document, and if the Committee would like
8 to take administrative notice of it, I think it
9 would be an appropriate thing to take
10 administrative notice of. I'm not offering it
11 as an exhibit.

12 BY MS. LUDTKE:

13 Q On page 3 of that document, it states estuaries
14 are extraordinarily productive and diverse
15 environments because of a unique set of
16 conditions that create usually nutrient rich
17 protective waters. Many biologists consider
18 estuaries among the most productive environments
19 on earth.

20 Do you agree with that statement?

21 A (Pembroke) I have no reason to disagree.

22 Q And the Panel as a whole agrees with it?

23 A (Bjorkman) As a general statement, it's
24 perfectly true.

1 Q Page 4. Great Bay has been recognized as an
2 estuarine system of national significance. And
3 I believe that Attorney Patch asked about that.
4 Are you familiar with that?

5 A (Pembroke) Yes, we are.

6 Q Now, on page 28, this report that I have on the
7 ELMO states that efforts have been made to
8 restore eelgrass in Little Bay.

9 Are you aware of any efforts made to
10 restore eelgrass in Little Bay?

11 A (Pembroke) I can't speak to specific efforts,
12 but my understanding is there have been various
13 attempts in different parts of the Great Bay
14 system to plant eelgrass, to reestablish beds,
15 and certainly the efforts to reduce nutrients
16 flowing into the bay have that as one of their
17 goals, to help increase the amount of eelgrass
18 in the system.

19 Q So generally you are familiar with efforts that
20 have been made.

21 A (Pembroke) Yes, in general.

22 Q And I think you went to my next question, and
23 that is does eelgrass serve an important
24 function in an estuarine environment?

1 A (Pembroke) It serves several functions.

2 Q And what does it do?

3 A (Pembroke) Well, it helps stabilize sediments.

4 It removes nutrients from the system. It

5 provides food for various organisms. It

6 provides structure for other organisms.

7 Q So it is a resource worthy of protection.

8 A (Pembroke) Certainly.

9 Q Now, I want to show you another document,
10 similar to the first one. Are you familiar with
11 that document?

12 A (Pembroke) I have seen that document. I haven't
13 read it recently.

14 Q And that document was created as a result of
15 work done by a legislatively appointed
16 commission. Are you aware of that?

17 A (Pembroke) No.

18 Q Well, it says Final Report of the Commission to
19 Study the Causes and Effects, and it cites a
20 chapter law. That would be a reasonable
21 assumption.

22 A (Pembroke) Okay.

23 Q And in the report it lists some of the problems
24 in an estuary that result from siltation, and

1 that's on page 24 of the report, and if you'd
2 like I can show it to you, but let me just read
3 them to you and see if you agree with these
4 problems that may result from siltation in an
5 estuary.

6 It can decrease shellfish and eelgrass due
7 in part to increased suspended solids.

8 Do you agree with that?

9 A (Pembroke) It can. I do not believe that our
10 Project has that potential.

11 Q Well, I'm asking you generally. I'll ask you
12 about your Project as we go on.

13 A (Pembroke) All right.

14 Q I'm asking you right now questions about what
15 the impact of siltation would be generally in
16 the estuary.

17 MR. NEEDLEMAN: Objection. What's the
18 relevance of these general impacts if they don't
19 tie in any way to the Project?

20 MS. LUDTKE: I think it's important for the
21 Committee to understand and evaluate the impact
22 of siltation, and I think the Committee would
23 like to have a better understanding of problems
24 caused by siltation to evaluate the Project. I

1 mean, they say there isn't a siltation problem.
2 Conservation Law Foundation actually disagrees
3 with that.

4 PRESIDING OFFICER WEATHERSBY: Objection is
5 overruled. You may proceed.

6 BY MS. LUDTKE:

7 Q Now, moving on in the list of problems.

8 Navigation problems from the accumulation
9 of siltation.

10 Are you aware that that can occur?

11 A (Pembroke) That can occur.

12 Q And unhealthy impacts on the gills of resident
13 or transient fish?

14 A (Pembroke) That can occur.

15 Q And the potential for sediments to act as
16 transport agents for nutrients and contaminants?

17 A (Pembroke) That can occur as well.

18 Q Now, in going through the testimony, I noticed
19 that there was a recognition in the testimony
20 offered by Ms. Allen that Little Bay does
21 contain exemplary natural communities of
22 organisms; is that fair?

23 A (Allen) There are actual exemplary communities.
24 Yes.

1 Q And those communities could be impacted by
2 siltation?

3 A (Allen) They could, yes.

4 Q So I think in conclusion on the natural resource
5 value, the Panel would agree that both Great Bay
6 and Little Bay are extremely valuable natural
7 resources deserving of protection.

8 A (Allen) We recognize that, yes.

9 Q Okay. And let me turn now to the testimony of
10 the Fat Dog Shellfish, and in that testimony,
11 the owner of Fat Dog Shellfish expressed
12 concerns about the impact of sediment
13 accumulation, and let me read to you what he
14 said.

15 He said it is possible/likely that the
16 significant amounts of suspended sediments
17 resulting from both the jet plow and diver
18 dredging will result in diminished quality of
19 our oysters due to grit accumulation.

20 Is that a reasonable concern in your
21 opinion?

22 A (Pembroke) Well, as an operator of a commercial
23 endeavor, I can certainly understand why he's
24 concerned that that could happen. Based on

1 analyses that we've done for this Project, I
2 think it is a highly unlikely situation to
3 occur.

4 Q But it could occur.

5 A (Pembroke) It could occur.

6 Q And he is concerned, again, about suspended
7 sediments and, obviously, resuspended sediments
8 resulting from the operations; is that correct?

9 A (Pembroke) Yes. I've read his testimony, and I
10 recall that he had those concerns.

11 A (Swanson) In terms of my modeling though, what
12 we did is looked at the suspended sediment
13 concentrations and how long they last, and the
14 duration of those at any particular point are
15 very, very short; on the order of sometimes
16 minutes and not more than an hour. So it's an
17 ephemeral issue from the perspective of the
18 Project.

19 Q Well, I'm not going to argue with you at this
20 point, but there's also an ability for the
21 sediments to become resuspended as well.

22 A (Swanson) Yes, and there you actually come up
23 with issues of minutes where a specific location
24 may see a resuspension and then a quick settling

1 down.

2 Q So his location might see them possibly?

3 A (Swanson) I believe it is almost entirely
4 outside of the areas, but I can't be specific on
5 that.

6 Q Now, another concern he raised is that juvenile
7 bottom planted oysters are susceptible to being
8 silted in as a result of increased sediment
9 disposition, and I think Attorney Geiger asked
10 about that as well. And that is a reasonable
11 concern?

12 A (Pembroke) In general, it would be, it is a
13 reasonable concern. Given the location of his
14 activities, and our understanding of where he is
15 doing most of his work, he operates three
16 license areas and the area that he has most of
17 his product on is one of the more distant sites
18 from our Project site. So I do not believe that
19 that is a likely situation to occur.

20 Q It's possible.

21 A (Pembroke) It's possible. But not likely.

22 Q And this would be based on modeling?

23 A (Pembroke) It's based on modeling.

24 Q And, again, of course, you haven't done the jet

1 plow run and the actual empirical work.

2 A (Pembroke) That's quite true, but even though
3 I'm not a physical oceanographer, I have a
4 pretty good understanding of how tide, the tides
5 change, the tidal currents change in an estuary
6 like this, and it's a constantly changing
7 dynamic. So the likelihood of any one area
8 getting affected by a Project that is also
9 moving is next to minuscule.

10 Q Have you made an attempt -- I went through the
11 document and I couldn't find anything, and I
12 wonder if there has been an attempt made to
13 quantify the total sediment load that will
14 result from the operations of removing the
15 existing cable, jet plowing, hand jetting,
16 trenching, barge excavation work that you will
17 have to do to install the cables. Have you
18 quantified the sediment that will be disturbed
19 or released either by weight or volume?

20 A (Allen) I can address that at a high level.
21 Some of those items that you listed we have not
22 done modeling for because the expectation is
23 that they will generate such little suspended
24 solids that it would not be feasible to model.

1 There's just not enough material there to model.
2 Others such as the jet plow and hand jetting, we
3 have done those calculations and those are in
4 the report.

5 Q Okay. So based on your answer, I'm assuming
6 you're testifying you haven't quantified the
7 total sediment load resulting from either the
8 removal of the existing cable or the barge
9 excavation because you didn't mention those.

10 A (Allen) The barge excavation?

11 Q Well, there's been statements made in the report
12 that the anchoring of the barge and also the use
13 of a barge for trenching in terms of the hand
14 jetting, beginning of the hand jetting portion
15 would produce sediments or disturb sediments.

16 A (Allen) Just to clarify, the trenching will be
17 performed from land. It will not be performed
18 from a barge.

19 Q Okay. And that would be part of it as well then
20 in disturbing the sediments from the trenching
21 operation?

22 A (Allen) That will be done in the dry. We will
23 not be doing that so it can enter into
24 suspension in the water.

1 Q But is that subject to tidal flow?

2 A (Allen) It would be subject to tidal flow. In
3 these locations it will be enclosed by either
4 silt fence or silt curtain, depending on the
5 contractors.

6 Q On the removal of existing cable, has there been
7 any attempt to quantify by weight or volume?

8 A (Allen) No. In discussions with DES they agree
9 that it was not necessary to model that based on
10 what we know about the cable to date.

11 Q Are there any documents related to those
12 discussions?

13 A (Allen) We've released the meeting minutes that
14 we've had for DES meetings in the course of the
15 summer, and I think in their conditions, the
16 cable removal plan is one of the plans that
17 they've accepted.

18 Q But the cable removal plan will clearly disturb
19 sediments, correct?

20 A (Allen) The cable removal will have some minor
21 sediment disturbance, yes. The existing cables
22 are predominantly on the the surface. There's
23 some very shallow burial as well.

24 Q I was going to get to this later, but there's

1 also a detrenching operation that is performed
2 after the removal, isn't there?

3 A (Allen) The pre-laid grapnel run?

4 Q Yes.

5 A I think is the term that you're looking for.
6 And that is also very shallow. Effort to clear
7 the route of any large pieces of debris on the
8 surface such as anchors or lines to allow the
9 route, to allow the jet plow to pass through.

10 Q Well, it's one meter.

11 A (Allen) That's the length of the blade. My
12 understanding is that the blade does not go the
13 full meter.

14 Q How deep would the blade go?

15 A (Allen) You have to ask the Construction Panel
16 that question. I'm sorry.

17 Q Well, I'm going to get into that in more detail
18 later.

19 So you have quantified the sediment
20 resulting from the hand jetting and the jet
21 plowing, that's your testimony?

22 A (Allen) That's correct.

23 Q What is the volume of that settlement either by
24 weight or by cubic feet?

1 A (Swanson) We have not added up the entire route
2 because that is not germane to the calculations
3 we're doing. What we're doing is how much
4 material is injected on a rate basis. So it's
5 so many cubic meters per second. And if you
6 want to get the total volume, I can certainly do
7 the calculation based on the duration of the
8 jetting activity.

9 Q All right. So what is the volume, and you said
10 it's been second or minute or what?

11 A (Swanson) It's cubic meters per second.

12 Q Cubic meters per second. And that would be the
13 disturbed sediment?

14 A (Swanson) Yes. Well, that would be the
15 fluidized sediment. What happens is the jet
16 plow injects water into the sediments and
17 fluidizes it, and then some percentage of that
18 fluidized sediment is mobilized, and that's
19 known as the loss rate. So some percentage of
20 the fluidized sediment which would be the volume
21 of the cross-sectional areas times distance
22 would then enter into the water column.

23 Q So the volume would be whatever the numbers were
24 tested as in your report, 25 percent, 10

1 percent, 35 percent; I think those were the
2 values on the simulation run?

3 A (Johnson) That is correct. Yes.

4 Q So you take that and multiply it by the time
5 period which would be what, 13 hours?

6 A (Swanson) Actually, it's closer to 7 hours for
7 the typical estimated --

8 Q And then you multiply by 3?

9 A (Allen) Oh, for three cables.

10 Q Yes.

11 A (Swanson) That's correct. Yes. Of course, all
12 this is occurring at different times and
13 different locations.

14 Q I understand. And then for the hand jetting,
15 you take the portion that is subject to the hand
16 jetting and what's the loss ratio? I think it's
17 over 50 percent on some of the hand jetting
18 areas.

19 A (Swanson) It is 50, but most of the hand jetting
20 includes silt curtains which are designed to
21 hold the material that's in the water column and
22 not let it move freely. There is a portion of
23 the eastern side where the silt curtains can't
24 be used, and then that is open. Most of the

1 hand jetting is protected by silt curtains.

2 Q Well, actually, most of the hand jetting, I
3 think the number's 57.5 percent on the eastern
4 portion is done without silt curtains, correct?

5 A (Swanson) I can't -- remember the details?

6 A (Allen) I think that number is really reversed.
7 My recollection is that about two thirds of it
8 is within the silt curtain, and one-third is on
9 the western end.

10 Q We can get into that later, but my recollection
11 is on the eastern portion it's about 57.5
12 percent, but then it becomes less than 50
13 percent when the western portion is added where
14 no part is done without silt curtains. That's
15 my understanding.

16 A (Allen) I would disagree with that number.

17 Q I might be wrong.

18 PRESIDING OFFICER WEATHERSBY: Off the
19 record.

20 (Discussion off the record)

21 BY MS. LUDTKE:

22 Q Do you have any idea based on, you said you
23 hadn't done the calculations, but you could do
24 the calculations. Do you have any ballpark

1 estimate of the volume by either weight or
2 square footage of the sediments that would be
3 released into Little Bay by your cable
4 installation?

5 A (Swanson) It's a simple calculation. I can't do
6 it immediately, but I can certainly provide it
7 to you later today.

8 Q That would be good. Thank you. I'd appreciate
9 that.

10 A (Allen) If I can insert myself here, I have done
11 a back of the envelope calculation using Craig's
12 dimensions, and the total volume is about, it's
13 just over 1000 cubic yards.

14 Q Total. For your whole operation.

15 A (Allen) For the three cable routes.

16 A (Bjorkman) And if I may insert myself here, too,
17 this calculation was done by the Intervenors
18 from Durham where they were using that for
19 estimation of nitrogen loading, potential
20 nitrogen loading, and they calculated this
21 number, too, and we have independently kind of
22 come up with very similar numbers. Back of the
23 envelope.

24 Q Well, that's fine. I'm just interested in what

1 the number is because I actually couldn't find a
2 number in your materials that were provided.

3 A (Bjorkman) You could find it in the Intervenors,
4 some Intervenors' documents.

5 Q Pardon?

6 A (Bjorkman) You can find it in some of the
7 Intervenors' documents from Durham.

8 Q I don't have those marked as exhibits, I don't
9 think. I don't know. Do you have an Exhibit
10 number where I could look?

11 A (Bjorkman) No.

12 Q And again, the number that you're going to come
13 up with does not include the removal of the
14 existing cable, and does not include any barge
15 anchoring sediment or anything like that?

16 A (Swanson) It includes the jet plowing and the
17 diver hand jetting.

18 Q The hand jetting only.

19 Now, your testimony is that the impacts
20 from the jet plowing are very short lived, short
21 duration, and I'm interested in currents and
22 tides, and I'm wondering, is it favorable, does
23 a water body that has significant current or
24 significant tide, is that better for the use of

1 the jet plow? Do you say well, we ought to use
2 the jet plow here because it will be short
3 duration and the sediment will be distributed
4 around the water body very quickly with the
5 current and the tides?

6 A (Swanson) In general, it's good to have a
7 mechanism to move and dilute the sediment plume.
8 So if you have higher currents, you're going to
9 be diluting things faster. This is, say,
10 opposed to something like a lake. If you're
11 doing jet plowing in a lake, then the sediments
12 are not going to be diluted as much.

13 Q So from an environmental perspective, let's just
14 for the sake of argument hold the environment
15 constant, essentially constant, would jet plow
16 be less environmentally impacting in a tidal
17 current area or in an area of water body without
18 tides occurring?

19 A (Swanson) It would depend on the resulting
20 sediment plume. If you, depending on the
21 concentration, the total suspended solids is a
22 water quality standard so if that standard is
23 reached, then it doesn't matter where you are.
24 Or what sort of water body you're looking at.

1 So if the jet plowing was generating ten or 100
2 times as much material, in a tidal situation
3 it's going to move it further, and it's going to
4 have some buildup. But the fact of the amount
5 of material that's estimated to come off from
6 this one is very relatively small in terms of
7 both the area that is affected by the plume as
8 well as the duration of that plume because it's
9 a moving, a moving source.

10 Q And the loss ratio, if you want to call it that,
11 for the material that comes up as a result of
12 the plume is a function of the type of sediment;
13 is that correct?

14 A (Swanson) Yes. I'm sorry. I should probably be
15 a little bit clearer on that. It's, what we're
16 doing is looking at a mass basis for the
17 sediment. So the sediment, it usually has
18 different sizes of sands and vines, and then
19 we're looking at a gross percentage of that
20 material that would then be mobilized up into
21 the water column. The type of the sediment
22 becomes more critical as the material then is
23 moving with the currents and settling back down.
24 Obviously, larger particles like sand will come

1 down immediately, and the finer particles will
2 travel somewhat further. So if you have all
3 clay, it's going to move further because it's
4 taking longer to settle. If you have more sand,
5 it just falls right back down. So there's an
6 issue of once the material gets into the water.

7 Q And then going back, I'm still not clear, what
8 would cause the different percentages of
9 mobilization? Would that be a function of the
10 characteristics of the sediments?

11 A (Swanson) It's more the characteristics of the
12 jet plowing operation.

13 Q The speed and the velocity?

14 A (Swanson) Yes, and the pressure that's using to
15 fluidize those sediments.

16 Q Can you think of a type of water body where jet
17 plowing would not be an appropriate method for
18 putting a cable in?

19 A (Swanson) Not off the top of my head. It's a
20 technology that's been proven in a number of
21 different areas, and it's much better than the
22 open trench approach that used to be used.

23 Q But more impacting environmentally than a
24 horizontal directional drill to the water body.

1 A (Pembroke) If you're looking only at the impacts
2 to Little Bay, we would agree that jet plowing
3 has more impacts than horizontal directional
4 drill, assuming you don't have the catastrophic
5 event which, again, may happen, may not happen,
6 of frackout. We do believe that there are a lot
7 of other considerations that need to be taken
8 into account when you're looking at horizontal
9 directional drill in this particular case.

10 Q Now, I asked Mr. Andrew, and I don't know if you
11 were here, a question about whether he believed
12 that there was a risk in basing his cost
13 projections on the use of jet plowing before the
14 environmental impacts from jet plowing were
15 known, and he deferred to the Environmental
16 Panel. So I'm going to ask you the same
17 question.

18 Do you think there's any risk involved in
19 basing a cost figure on jet plowing before doing
20 the environmental studies to determine the
21 environmental impact? Or is the technology so
22 nonimpacting that it can be used in any marine
23 environment? You may have already answered this
24 question.

1 A (Allen) I think the purpose of this hearing is
2 to or this exercise for permitting is to
3 evaluate those impacts. At the time the Project
4 was originally conceived, jet plowing was
5 considered to be the preferred technology, I
6 think would be the best way to state it. Simply
7 because it's commonly used for this type of
8 installation. So had we gone forward and found
9 that a different technology was less impactful
10 and met the other criteria for construction and
11 schedule and feasibility, then that would have
12 been considered as well.

13 Q Well, again, I'm jumping ahead a little bit on
14 my questions, but in looking at the jet plow
15 report, I can pull the jet plow report for you.
16 And the jet plow report --

17 A (Allen) Can you tell me which report you're
18 referring to?

19 Q It's Exhibit 133. And I'm looking at the
20 Executive Summary of the jet plow report. And
21 it talks about why jet plowing was chosen after
22 careful consideration, and it gives four
23 reasons. And let me go through these reasons.

24 First of all, it says jet plowing serves

1 the Project's reliability objectives. Because
2 it allows for the installation of the cable.
3 That's what I'm assuming. And I don't think
4 that distinguishes jet plowing from horizontal
5 directional drilling because horizontal
6 directional drill would also meet the
7 reliability objectives, don't you think?

8 MR. NEEDLEMAN: Objection to the extent
9 that we're getting into issues with this Panel
10 beyond the scope of their testimony. They're
11 here to speak to the environmental impacts of
12 jet plow versus HDD, and that was pretty
13 explicit in their July 1st testimony, and this
14 doesn't sound like that's within that area.

15 MS. LUDTKE: I think Ms. Allen just
16 testified that it was the preferred method. I'm
17 trying to understand why it is the preferred
18 method, and the report that was prepared, it
19 does deal with the environmental issues and
20 comparing them lists these four reasons, and I
21 think it's important to understand what their
22 views of these four reasons are?

23 PRESIDING OFFICER WEATHERSBY: Objection is
24 overruled. You may continue.

1 MR. IACOPINO: Can you first give the Panel
2 the page number that you're referring to in the
3 exhibit so they know what you're referencing?

4 MS. LUDTKE: Sure. I'm on the Executive
5 Summary, just page 1, and I'm on the third
6 paragraph, first line or second sentence of the
7 third paragraph.

8 A (Allen) I would like to just clarify something.
9 I think we might be talking past each other.
10 When you were asking about the preferred route,
11 I thought you were talking about the initial
12 design when we first went into this Project
13 overall. And at that point, jet plowing was
14 considered the preferred technology.

15 Q Thank you for that clarification. I was
16 actually referring to Mr. Andrew's statement,
17 and you may not have been there for that, where
18 he indicated that his projected cost of the 2010
19 ISO proceeding was based on using the jet plow.

20 A (Allen) I cannot speak to that.

21 Q Well, we'll deal with those issues later on
22 then.

23 Now, going back to the question I posed
24 before, whether you felt there was a risk of

1 basing the cost figure on jet plowing before the
2 environmental impact was determined or whether
3 it's your general belief that the technology is
4 so nonimpacting that it can be used in any
5 marine environment, do you have an opinion
6 regarding that? Is jet plow always on the table
7 regardless of the marine environment?

8 A (Pembroke) In my experience, I've seen jet plow
9 applied in a number of different marine
10 conditions.

11 A (Swanson) In fact, we, I'm aware of some work
12 that has been done off the coast of Connecticut
13 on the jet plow activity to Long Island, and the
14 route actually went through some oyster lease
15 areas, and it was testified to by the Counsel
16 for the Public's expert that the route went
17 through a growing area and had no impact at all
18 to the oysters in that area.

19 Q So as I understand, your answer is that it's
20 your opinion that the technology of jet plowing
21 or the method of jet plowing is so
22 environmentally nonimpacting that it can be used
23 in any marine environment.

24 A (Allen) I think it should always be -- it is a

1 frequent consideration. It's not always
2 selected. I'm sure there are other reasons for
3 selecting other technologies because we know
4 that they're out there.

5 Q Now, before the 2017 request from or maybe it's,
6 I'm sorry, 2018 request from NHDES, were you
7 ever asked to conduct work to specifically
8 evaluate or consider the environmental impacts
9 of other methods than jet plow for installing a
10 cable?

11 A (Allen) Yes. We looked at several of the
12 methods at a very high level.

13 Q What other methods did you look at before the
14 New Hampshire DES asked you to look at
15 horizontal directional drill?

16 A (Allen) We have a section in, I believe it's our
17 original Application that looks at some
18 alternatives. One of them was literally
19 constructing it overhead across the bay. And
20 the other was direct lay which means laying it
21 directly on the surface without burial.

22 Q And that would not have been feasible because of
23 the need for cover?

24 A (Allen) Correct.

1 Q And what did you do in terms of your
2 environmental investigation of the different
3 methods? Presumably on an overhead you wouldn't
4 have had to do anything.

5 A (Allen) That was pretty clear. Correct.

6 Q And with respect to laying it on the surface,
7 you wouldn't have really had to do anything
8 because that was probably taken off the table
9 rather quickly.

10 A (Allen) That's correct.

11 Q So my question is did you conduct any
12 environmental work before the 2018 request from
13 DES to evaluate any other methods of
14 installation other than jet plow?

15 A (Allen) The environmental technicians on this
16 Project have been engaged all the way through,
17 starting, you know, back in, I think, 2013 is
18 when Normandeau came on. So we have been privy
19 to discussions for all of the Project
20 development. I'm not exactly sure if that's
21 answering your question.

22 Q Well, you know, in looking at some of your
23 testimony, the word is used "support." That
24 your work is done for the purpose of developing

1 supporting marine resource information that
2 would allow the use of the jet plow. So I think
3 what I'm trying to get at is really it's been
4 always referred to as the preferred method, and
5 I'm trying to understand when it became the
6 preferred method and what information was out
7 there when it did become the preferred method
8 because what I'm seeing in the documents is that
9 it was a preferred method from the start.

10 A (Allen) We also, well, I'm trying to think. I
11 would have to go back and look at my notes to
12 understand that fully. HDD has been a topic of
13 discussion periodically on and off through this
14 Project, and for reasons I think that are
15 articulated in the 2018 report have been
16 rejected.

17 Q And you say it's been the topic of discussion,
18 but no environmental analysis was done before it
19 was requested by DES in February of 2018?

20 A (Allen) Environmental analysis. I'm not exactly
21 certain. We've not produced a report specific
22 to HDD prior to that document.

23 Q Now, what I wanted to do was to turn
24 specifically, and I think it's Ms. Pembroke's

1 testimony, and I'll call your attention -- do
2 you have a copy of your testimony in front of
3 you?

4 A (Pembroke) I do.

5 Q And I have it marked as I think it's Exhibit 16.

6 A (Pembroke) Yes.

7 Q And I'm on page 2 of that testimony.

8 A (Pembroke) Okay.

9 Q And starting with your answer to the question
10 about the purpose of your testimony, you say it
11 is to support the marine resource information
12 described in PSNH's Application for a
13 Certificate of Site and Facility. Do you see
14 that?

15 A (Pembroke) I do.

16 Q So what you really are doing on the
17 environmental work is looking for information or
18 confirming that the environmental work that
19 you've done supports the decision to use the jet
20 plow for crossing?

21 A (Pembroke) I'd say that the environmental work
22 that I did supports the Application, and it
23 informed the decision of Eversource to go
24 forward with the concept of jet plowing.

1 Q And jet plowing is part of its Application.

2 A (Pembroke) That's correct.

3 Q And that's a major part in terms of the
4 environmental impact.

5 A (Pembroke) Well, the Project encompasses a lot
6 more than the crossing of Little Bay. So it's a
7 part of the environmental impact.

8 Q No. I understand that. But the crossing of
9 Little Bay is a major part of the Application.
10 Major piece. Would you agree with that?

11 A (Pembroke) Sure. It's the part that I'm
12 familiar with.

13 Q Going down further in your answer there, you say
14 it describes the Applicant's efforts to reduce
15 impacts to marine resources. Do you see that?

16 A (Pembroke) Could you tell me what line that's
17 on? Oh, I see it on line 19.

18 Q 19, the end of the paragraph.

19 A (Pembroke) Yes. I see that.

20 Q And then later on in your testimony, an example
21 you give, let's turn to page 7, and it's right
22 at the top of that page, and one example you
23 give of efforts to reduce the impact is siting
24 the cable crossing in a previously identified

1 cable area will limit the impacts to a
2 previously disturbed area. See that?

3 A (Pembroke) I do.

4 Q All right. So the last time that a cable was
5 installed in that area was about, what, 50 years
6 ago?

7 A (Pembroke) I don't know the history.

8 Q Well, let me just say 50 just as an estimate.
9 Is that area still disturbed 50 years later?

10 A (Pembroke) I would doubt that.

11 Q And according to the testimony that you have
12 given that the disturbed areas with jet plowing
13 which presumably would be more disturbed than
14 laying the cable right on top of the bottom will
15 fully recover in a year.

16 A (Pembroke) I believe that's what I say in the
17 reports.

18 Q So that area at this point that was last used 50
19 or so years ago is probably not a disturbed area
20 now.

21 A (Pembroke) I guess I would have to agree with
22 that.

23 Q And I want to ask you, how does that area, in
24 your opinion, you said that's an effort that has

1 been made to reduce the impact. How does the
2 use of that area that was the previous cable
3 area make siting the new cable there less
4 environmentally impacting?

5 A (Pembroke) Well, it does reduce restrictions on
6 the area. And again, I'm getting into an area
7 that Mr. Dodeman can probably speak to better,
8 but once a cable is laid in an area that's
9 considered navigable waters, National Oceanic
10 and Atmospheric Administration in producing
11 their navigation charts will designate an area
12 as cable area and place restrictions on how it
13 can be used. In fact, New Hampshire Fish & Game
14 has designated it as a closed area for shellfish
15 harvesting. So restrictions get placed on those
16 areas and by remaining in that corridor, and we
17 avoid having similar restrictions placed other
18 places in the bay.

19 Q Well, I'm looking really, I guess, from an
20 environmental perspective at this issue, and I
21 got the impression from reading your answer that
22 because it was in a previously disturbed area,
23 that locating the cable there would minimize or
24 reduce the environmental impact, but it actually

1 wouldn't reduce the environmental impact, would
2 it?

3 A (Pembroke) I guess I would have to agree with
4 you.

5 Q And in fact, it might increase the environmental
6 impact because to locate the cable in that area
7 would require the removal of the existing cable
8 from that area, which would itself have an
9 environmental impact.

10 A (Pembroke) Extremely minor. You asked the
11 question earlier about release of sediments
12 during removal of cable, and that would be the
13 potential environmental impact of the cable
14 removal.

15 Q Well, the removal of the cable is one process
16 that requires a barge, correct?

17 A (Pembroke) Yes.

18 Q It requires anchoring the barge.

19 A (Pembroke) Yes.

20 Q That's going to stir up sediments. And it
21 requires perhaps divers, the cable may break,
22 and the cable is probably embedded in the floor
23 because it's been there for many, many years.
24 So there are sediments related to the removal of

1 the cable, correct?

2 A (Pembroke) I don't dispute that.

3 Q And there's a detrenching operation, and let me
4 show you a picture of the detrenching device. I
5 have it in here. There's a detrenching grapnel
6 that's used. It's a quite a large metal device.
7 Are you familiar with it?

8 A (Pembroke) I know of it.

9 Q And it's run through the entire length of the
10 cable area to remove any debris or any other
11 impediments that might exist in that area before
12 the actual installation. Isn't that what it's
13 used for?

14 A (Pembroke) Yes, it is.

15 Q And I thought I had a picture of it which I
16 would like to show you that. I can't locate it
17 right now. Oh, wait a minute. Here it is.
18 There it is right there. So that device gets
19 run through after the cable is removed?

20 A (Pembroke) Yes.

21 Q And that piece on the end that's one meter long
22 basically gets run through at some, some depth.
23 Do you know how deep it is?

24 A (Pembroke) Well, they're looking for material at

1 the surface. So although that section of the
2 device which is the hook that is coming off the
3 top of the picture going to the left side of the
4 picture, I believe, is three feet long.

5 Q One meter long.

6 A (Pembroke) One meter.

7 Q And do you know the depth because I think Ms.
8 Allen testified it wouldn't be a full meter, it
9 would be less. And I couldn't find in your
10 report the depth that it would be run through in
11 a detrenching operation. I assume it was one
12 meter because the blade was one meter.

13 A (Pembroke) Well, it's somewhere between a few
14 inches and one meter, and the Construction Panel
15 could provide more information on that.

16 Q All right.

17 A (Pembroke) It's a narrow blade as you can see.
18 So the width of that passage is extremely
19 narrow.

20 Q So in terms of locating it at the previously
21 disturbed area and, again, you sited that as an
22 effort made to reduce the impact to aquatic and
23 marine resources, that's a rather poor example
24 of a reduction, do you agree?

1 A (Pembroke) It's not a great reduction.

2 Q And going back, and I think I already know the
3 answer to this question, but there's been no
4 calculation made of the sediment load either by
5 weight or volume that will result from the
6 removal of the cable.

7 A (Pembroke) That's correct.

8 Q Now, eelgrass has become an issue in this, and
9 you were asked questions about it initially. I
10 want to understand your decision to use the jet
11 plow, and in looking at your testimony on pages
12 8 and 9, and this is your conclusion, you say
13 that basically a jet plow is short duration and
14 small footprint and the primary technology to be
15 used minimizes potential effects to marine
16 resources.

17 And I asked you before, is this true in any
18 water body, and I think the answer is yes. And
19 what I'd like to find out is in what
20 circumstances would you have expressed an
21 environmental concern about using the jet plow?
22 So if you found that there were a significant
23 amount of eelgrass in Little Bay, would you have
24 said well, maybe we shouldn't use jet plow in

1 this instance? Would that have changed your
2 decision?

3 A (Pembroke) It could have.

4 Q It could have or it would have?

5 A (Pembroke) Well, I would have looked very
6 carefully and probably consulted with others
7 about the effects of what we expected the
8 sediment load from the, you know, the sediment
9 plume to be if it intersected the eelgrass or
10 when it intersected the eelgrass, and I'd also
11 consider whether the route would have to pass
12 through an eelgrass bed, and in that case I
13 would specifically say we don't want to do that.

14 Q Okay. So passing through eelgrass, and are you
15 talking about a significant amount of eelgrass
16 or small amount of eelgrass, any eelgrass? Or
17 can you give me an idea about the amount? You
18 know, a half an acre, quarter of an acre of
19 eelgrass? You say passing through that.

20 A (Pembroke) Well, in fact, there is no eelgrass
21 in the area now. There hasn't been eelgrass in
22 the area at all since 2012. And the research
23 that has been conducted by folks at UNH have
24 indicated that even when it occurred in 2012 it

1 was a result of an unusual circumstance and they
2 didn't expect the eelgrass to survive and in
3 fact it didn't.

4 We fully intend to continue to review the
5 possibility of eelgrass being in the Project
6 area. We will look at it just before
7 construction is ready to start. And as one of
8 the conditions states from DES, we will look at
9 it and if we find it then, we will immediately
10 discuss with DES how to handle that.

11 Q Well, let me go back to my original question
12 because what I'm really looking for is what
13 factors, what environmental factors are,
14 environmental impacts would have affected, even
15 changed your decision to use the jet plow
16 methodology, and one I asked you about was
17 eelgrass, and what I'm trying to understand is
18 that you said that could. And what I'm trying
19 to understand is in what circumstances would it
20 affect your decision to use the jet plow
21 hypothetically.

22 A (Pembroke) So under what circumstances would the
23 presence of eelgrass or are you talking, are you
24 asking me is there anything out there that would

1 have convinced me to say we can't do jet plow.

2 Q I was asking you not anything. I was asking you
3 specifically about eelgrass.

4 A Yes.

5 Q And then I'm going to go and ask you about other
6 things as well. So let's keep our attention on
7 eelgrass for now.

8 A (Pembroke) Right.

9 Q I think your answer was it could. And what I am
10 trying to understand is when would it and what
11 type of circumstances would the presence of
12 eelgrass affect your decision to use a jet plow.
13 If eelgrass were located a hundred yards away
14 from the jet plow route, would that be an impact
15 that you would be concerned about or would it
16 have to be closer? If it ran through an
17 eelgrass bed, how large would that eelgrass bed
18 have to be? That's what I'm trying to
19 understand.

20 A (Pembroke) Well, it's very difficult for me to
21 answer that question because we didn't encounter
22 either of those hypothetical situations that
23 you've presented. If there was eelgrass, an
24 eelgrass bed right along the path of the route,

1 that would certainly cause me to talk to the
2 client about making changes in the approach.

3 I have worked quite frequently with
4 Dr. Swanson on sediment plume modeling and I
5 have a high degree of confidence in the
6 predictive modeling that he's capable of doing,
7 and I know that excessive sediment plumes and
8 deposition in eelgrass beds are not good
9 situations. So if his model were predicting the
10 potential for affecting an eelgrass bed, that's
11 another situation where I would bring it up to
12 the client and say we need to reconsider how
13 we're doing this.

14 Q I think you anticipated my next question, and
15 that would be the type of silt that you would
16 encounter in the jet plow, and there was some
17 work done to characterize the type of silt in
18 Little Bay. I think Normandeau took some
19 samples and then the RGS, RGS?

20 A (Pembroke) RPS.

21 Q Did some further analysis of those samples. How
22 critical is the sediment type in making the
23 decision to use a jet plow? For example, if you
24 had found very fine sediment throughout Little

1 Bay, would that have affected your decision to
2 use a jet plow?

3 A (Pembroke) That's partially an engineering
4 question in terms of environmental issues. The
5 finer the particles, the farther they'll travel.
6 So it's a question of distance and concentration
7 in the plume. So yes, it could have an effect
8 on my recommendation.

9 A (Swanson) From a modeling perspective, what you
10 need to know is if it's going to exceed some
11 threshold or exceed a threshold in a specific
12 area, then you would based on the sediment
13 distribution, sediment grain size distribution,
14 then you would want to feed that back to the
15 Project and say well, if you slowed the forward
16 process down, the advance rate, that would
17 release less sediment into the water column and,
18 therefore, lower the resulting concentration or
19 lower the deposition. So it's sort of an
20 iterative process if the modeling begins to show
21 that there might be an issue.

22 Q So you'd still use jet plow. You'd just run it
23 a little slower?

24 A (Swanson) Well, you would use the model to

1 estimate what is the operating envelope that
2 still makes sense for the construction activity.

3 Q Would there ever be an operating envelope that
4 counseled against the use of jet plowing
5 entirely based on silt characteristics or
6 sediment characteristics?

7 A (Swanson) Not to my knowledge, no.

8 Q So regardless of the type of sediment there,
9 it's your testimony that jet plow would be an
10 appropriate method.

11 A (Swanson) For this Project, definitely, yes.

12 Q I'm talking hypothetically.

13 A (Swanson) Hypothetical? Again, we get into
14 whether things are possible or unlikely, and
15 there may be situations where you would not use
16 a jet plow, but I can't think of any off the top
17 of my head of any sort of reasonable actual
18 situation. You can adjust the aspects of the
19 jet plowing process for whatever, for most of
20 whatever types of sediments you have.

21 Q So the sediment characterization in your opinion
22 is more relevant for determining how the jet
23 plow should be operated versus whether the cable
24 should be laid using the jet plow or horizontal

1 directional drilling?

2 A (Swanson) Yes, and that's in fact why the trial
3 is going to occur. That's going to allow the
4 operators to refine their processes to make sure
5 that it stays within the parameters that we're
6 looking at.

7 Q Now, as I understand your testimony, if the jet
8 plow were operated more slowly, less sediment
9 would be produced, you'd expect a reduction from
10 the numbers of 25, 35 percent?

11 A (Swanson) You could, yes. As long as the
12 material still could be fluidized so you had a
13 high enough pressure to be able to bury the
14 cable. That's sort of the tradeoff that you
15 have.

16 Q Wouldn't you want to maximize the amount of
17 sediments that could, that were disturbed by
18 figuring out what the best velocity would be for
19 the jet plow in terms of accomplishing laying
20 the cable and at the same time reducing the
21 sediment load to the minimum amount possible?
22 Wouldn't that be a goal?

23 A (Swanson) In my experience, that's a response to
24 a goal. We receive information from the

1 construction people telling us, well, the
2 operating envelope of this jet plow is such, and
3 then we can run a different advance rates,
4 different loss rates to see what sort of result
5 the one would get under those types of
6 operations.

7 Q And if you use a slower advance rate, obviously
8 the duration is longer, correct?

9 A (Swanson) That is correct. Yes.

10 Q And the impact on the tides and the current is
11 longer.

12 A (Swanson) Right. But, again, if this is a
13 moving source, as it were, of material. So
14 although it's moving, it's not a continuous
15 operation relative to a specific spot because
16 the plow is moving across the Bay. I don't know
17 if I'm explaining it.

18 Q So right now you haven't really figured out what
19 the best approach would be to minimize the
20 disruption of sediments?

21 A (Pembroke) That's the construction people that
22 really need to address that. They understand
23 how their equipment works, they know all the
24 tweaks and modifications they can make as

1 they're moving along, and they do understand the
2 concern about the release of sediments into the
3 water column.

4 Q But is it just construction? I mean, isn't the
5 environmental involved as well? I mean, you
6 conducted sediment characteristic,
7 characterization. You conducted modeling of the
8 plume. You looked at type of sediment, you
9 looked at what environmental resources those
10 sediments would impact. I mean, you looked at
11 all that. And it seems to me that it's just not
12 a construction issue, it's a construction and an
13 environmental issue in terms of minimizing the
14 sediment load, minimizing the sediment impact
15 and effect in Little Bay. And it would seem to
16 me to be appropriate for you to be involved in
17 that minimization process. Do you agree or not?

18 A (Swanson) That's not quite the way we look at
19 it. What we're trying to do is designing it to
20 a threshold, what does the water quality
21 standard say in terms of a suspended sediment
22 concentration, for instance. That presumably
23 the water quality standards is protective. So
24 from the modeling perspective, not from the

1 biological perspective, we're looking to make
2 sure that we can assure that the concentrations
3 that we're predicting would stay within the
4 mixing zone or the water quality standards.
5 That's the endpoint for the modeling part.

6 Q But right now, right this minute, you don't know
7 based on the work that you have conducted
8 whether you will meet the water quality
9 standards or not.

10 A (Swanson) That's not true. I've made
11 predictions. I've had experience where there
12 have been monitoring programs conducted. And in
13 fact, a relatively large monitoring program
14 occurred in Hudson Bay, Hudson River Estuary,
15 and the comparison to the predictions in the
16 actual concentrations and extent that was seen,
17 the modeling was conservative in that regard.
18 So we were overpredicting the potential issues,
19 and in fact, the actual results from the
20 activity was less. So I have experience in
21 seeing the extent of what happens from an actual
22 application versus the --

23 Q I am not suggesting you don't have experience.
24 I'm suggesting that right now your knowledge is

1 based upon models and predictions.

2 A (Swanson) I would argue with that. My knowledge
3 is not just based on models and predictions.
4 Certainly I do modeling. But the whole essence
5 of doing a good model is to then do comparison
6 or sensitivity, do a calibration of that model
7 if you have calibration factors to do, and so
8 it's a process that when one makes a prediction
9 using a model you have a sense based on your
10 knowledge whether that's a reasonable estimate
11 from the model.

12 Q Well, I mean, I think you have a high level of
13 confidence that the results will be consistent
14 with the model, but you don't know they will be.

15 PRESIDING OFFICER WEATHERSBY: Ms. Ludtke
16 you're slipping into testimony in your opinion.
17 If you could be sure to ask a question.

18 MS. LUDTKE: Thank you, I will.

19 BY MS. LUDTKE:

20 Q What I'm trying to untangle here is the
21 difference between having empirical actual
22 evidence versus having predictions that you
23 obviously have a high level of conversation in
24 based on modeling, and right now you have

1 predictions that you have a high level of
2 confidence in based on your model. You don't
3 actually know.

4 A (Swanson) That's the purpose of the trial run.

5 Q That is my point. Yes. Precisely. That's the
6 purpose of the trial run, correct?

7 A (Swanson) Correct.

8 Q And the trial run which will determine whether
9 your model predicts correctly is not going to
10 happen until the SEC makes its decision and this
11 proceeding is over.

12 A (Swanson) That's correct. And therefore, it's
13 based on the knowledge of the experts that are
14 assisting in the Project.

15 Q Thank you. Now, Ms. Pembroke, going back to
16 your testimony you referred to four
17 site-specific studies. Do you see that on page
18 2? And it starts on line 25.

19 A (Pembroke) Yes.

20 Q And that was a vibracore for collecting core
21 samples, a towed video survey, a benthic infauna
22 survey and you engaged RPS ASA to conduct
23 modeling to characterize the dispersion of
24 sediments?

1 A Yes.

2 Q Those would be the four studies you're referring
3 to?

4 A (Pembroke) Well, we also did the visual survey
5 for shellfish.

6 Q Oh, visual survey. Yes. Okay.

7 A (Pembroke) Yes, so.

8 Q And is a visual survey different than the towed
9 video survey to look for eelgrass?

10 A (Pembroke) Yes. Under the advice of New
11 Hampshire Fish & Game they recommended that we
12 do a survey of shellfish on the western tidal
13 area from a boat and using a view tube because
14 the sediments are quite soft and not really
15 walkable, and it was intended to get a sense of
16 what species of shellfish were in that area.

17 Q And is that, I must have missed it, but I don't
18 see that survey discussed in your testimony. Is
19 it?

20 A (Pembroke) Well, maybe I --

21 Q Oh, I see. A visual survey of the western tidal
22 flat starting on line 14.

23 A (Pembroke) Oh, okay. Yes.

24 Q And that was conducted by canoe?

1 A (Pembroke) Yes, it was.

2 Q Okay. RPS was engaged to characterize the
3 dispersion of sediments primarily; is that
4 correct?

5 A (Pembroke) Yes.

6 Q Now, when RPS conducted the modeling to
7 characterize the dispersion of sediments, did it
8 also develop a model to characterize the
9 dispersion of bentonite in the event of a large
10 inadvertent return from a horizontal directional
11 drilling process?

12 A (Pembroke) No.

13 Q That work has not been done?

14 A (Pembroke) That work has not been done.

15 Q Now, I asked you previously about eelgrass, and
16 it seems that we all agree that eelgrass is an
17 important natural resource.

18 A (Pembroke) Yes. We agree.

19 Q And what I want to find out from you is in your
20 conclusion on your testimony you find that the
21 jet plowing would not have either a direct or an
22 indirect impact on eelgrass beds, and you say on
23 page 8 the closest eelgrass beds to the Project
24 are located in Great Bay beyond the farthest

1 reach of the suspended sediment plume predicted
2 by the model so there will be no indirect
3 impacts to these beds. Do you see that?

4 A (Pembroke) Yes, I do.

5 Q And what I'm interested in is the Environmental
6 Panel testimony on page 3 and Exhibit 133 which
7 is the document that compares jet plowing to
8 horizontal directional drilling identifies
9 potential damage to eelgrass beds, and it says
10 basically if there is a large inadvertent return
11 in which excessive amounts of bentonite are
12 released into the water column and are carried
13 by tides, it can adversely affect eelgrass, and
14 then it goes on among other things, and then the
15 Environmental Panel testimony also discusses a
16 bentonite plume reaching and settling on
17 eelgrass. So my question is, according to other
18 testimony in the Environmental Panel
19 presentation, bentonite is identified as rapidly
20 sinking to the bottom.

21 So I'm trying to understand how a bentonite
22 plume would reach the eelgrass when your
23 dispersion model on finer sediments would be
24 unable to reach those same beds.

1 A (Pembroke) Well, this would have been a question
2 better asked of the Construction Panel. Mr.
3 Strater explained to us that some inadvertent
4 returns are readily detectable by the driller
5 and some are not, and sometimes they can last a
6 long time. He indicated that it's impossible
7 for him to predict the size or duration or even
8 the likelihood of an inadvertent return.

9 So we just extrapolated from that that
10 there are resources in the estuarine system that
11 would be negatively affected by such a return.

12 Q Well, let me ask you this. Let's just go to the
13 bottom line here. Is it your opinion that a
14 horizontal directional drill has the potential
15 to impact eelgrass beds but a jet plow method
16 does not. Was that your opinion?

17 A (Pembroke) The specific jet plow situation we
18 looked at in great detail, and I feel strongly
19 that it has next to zero likelihood of having an
20 effect on eelgrass. The horizontal directional
21 drill we looked at at a higher level because we
22 weren't able to quantify inadvertent return.
23 I'm sorry. I usually use the term "frackout" so
24 I slip up on that. We have to throw it out

1 there as a possibility. We're not saying it's a
2 probability. We're saying it's a possibility.

3 Q Well, the question I have is that if it's not
4 possible based upon your modeling of the
5 dispersion which I assume involves tides and
6 currents --

7 A (Pembroke) Yes.

8 Q -- and a lighter particle which would be fine
9 sand or fine silt or fine particle that would be
10 in suspension or resuspension over a period of
11 days, I just don't understand the mechanism by
12 which the same tides and current would be able
13 to carry a heavier particle that would normally
14 settle to the bottom quickly to a place where
15 those tides and currents couldn't reach with a
16 fine particle.

17 A (Pembroke) Well, again, I'm going to have to get
18 a little bit into the construction aspect of
19 this to give you an answer to this. But because
20 of the depth considerations in the bay, the jet
21 plow can only start on a certain tide. It has
22 to start at high slack tide, and so the tidal
23 current will be taking any sediment plume away
24 from the area that eelgrass exists. We have no

1 idea when a frackout could occur, and as it says
2 in the report, the HDD process could take as
3 long as two years. So it will be operating on
4 every single tide, every spring tide, every neap
5 tide, ebb tide, flood tide during that time
6 frame. So if it happens on a flood tide, it can
7 take the material into Great Bay where the
8 eelgrass resources exist.

9 Again, we said it's a possibility. We
10 didn't say it was a probability.

11 Q Aren't there two tide cycles a day?

12 A (Pembroke) Yes.

13 Q Two low tides, two high tides?

14 A (Pembroke) Yes.

15 Q And I understood from looking at the report that
16 resuspension could continue for three days or
17 more.

18 A (Swanson) It could, but it's very intermittent.
19 If you look closely at the graphic that I have
20 in the report, there are periods when the tides
21 are either max flood or max ebb mode where some
22 of the material could be resuspended, and that
23 resuspension typically is on of the order of
24 minutes and then it settles back out. But it

1 can be picked up again on the subsequent tide.
2 And if you look at the time series, the
3 variation over time, you'll see that every once
4 in a while during those periods when you have a
5 maximum flood and maximum ebb, some of the
6 stations that we looked at would have a very
7 short resuspension.

8 Q So there would be more flows during the period
9 of time that these materials were in
10 resuspension that might take these same
11 particles over into Great Bay.

12 A (Swanson) Not after three days.

13 Q Well, there are two tidal flows a day so that's
14 six tidal periods.

15 A (Swanson) Right. We ran the model for a week,
16 and we saw no resuspension after three days.

17 Q But in that three-day period of resuspension,
18 there might be tides that would take these
19 particles into Great Bay. Correct or not?

20 A (Swanson) Theoretically, yes.

21 Q Thank you. Now, what I want to do now is turn
22 to the jet plow report which is marked as
23 Exhibit 133.

24 MR. IACOPINO: This is the comparison

1 report?

2 MS. LUDTKE: Yes. It is.

3 BY MS. LUDTKE:

4 Q Are you familiar with that report? Were you
5 involved with that report at all?

6 A (Pembroke) I had some involvement.

7 Q Anyone else?

8 A (Allen) The three of us, Ms. Pembroke,
9 Mr. Nelson and I.

10 Q Did you actively assist in the preparation of
11 that report?

12 A (Allen) Yes.

13 Q And you understand that the report was prepared
14 at the request of New Hampshire DES and the
15 Committee; is that correct?

16 A (Allen) That's correct.

17 Q And in its request for the report, I believe
18 that was February 28th, 2018, New Hampshire DES
19 outlined the issues that would be addressed in
20 that report.

21 A (Allen) That's correct.

22 Q And you apparently must have looked at those
23 issues in your work on the report to address
24 them, correct?

1 A (Allen) Yes.

2 Q And let me focus your attention on page 2, I
3 believe it's Exhibit 166, and in looking at the
4 bottom paragraph there, and I'll read the
5 sentence to you that I'm interested in.

6 Sentence states if cost is the reason given
7 for determining an alternative is not feasible,
8 detailed cost estimates should be provided from
9 at least two companies experienced with jet
10 plowing and two companies experienced with HDD.

11 See that?

12 A (Allen) I'm still catching up to you. Tell me
13 where you are again?

14 Q I'm at if cost is the reason given for
15 determining an alternative is not feasible.
16 It's the bottom of the second to last paragraph.

17 A (Allen) Gotcha. Thank you.

18 Q It doesn't have a line on it unfortunately.

19 A (Allen) Yes.

20 Q Do you see that?

21 A (Allen) Yes.

22 Q And do you know whether any companies were
23 consulted to obtain a cost for jet plowing and a
24 cost for horizontal directional drilling?

1 A (Allen) That would have been much better for the
2 Construction Panel. We are aware that costs
3 were developed, but I can't give you the
4 specifics on how they were developed.

5 Q And the outline requests a detailed cost
6 comparison. To the best of your knowledge, does
7 the report contain such a detailed cost
8 comparison of the relative costs of jet plowing
9 and horizontal directional drilling?

10 A (Allen) It does not. I was privy to some of
11 that discussion, and the primary reason is that
12 cost was not the dominant factor for rejection
13 of HDD.

14 Q Cost was not the major factor.

15 A (Allen) Correct. It was definitely evaluated
16 and the analysis is provided in this report, but
17 it was not the dominant factor.

18 Q All right. So let's go through the factors
19 because the Executive Summary to the report on
20 the horizontal directional drill, and I started
21 to ask you about this before, lists four factors
22 that I think inform the decision. And what I'd
23 like to do is go through each of those four
24 factors with you, and the first factor is --

1 MS. DUPREY: Number and page, please?

2 Q It's Exhibit 133, and it's the first page of the
3 Executive Summary. Third paragraph, first
4 sentence.

5 And it says the jet plow was proposed
6 because it meets the Project's reliability
7 objectives. Now, what is meant by reliability
8 objectives? Is it referring to the reliability
9 project of installing a cable?

10 MR. NEEDLEMAN: Objection. Madam Chair, in
11 this Panel's July 1st, 2018, testimony on page
12 1, lines 19 and 20, it talks specifically about
13 the purpose of the testimony, and they say this
14 testimony focuses on the environmental aspects
15 of that issue which refers to jet plow.

16 Mr. Strater was the HDD expert on the
17 Construction Panel. I don't believe CLF asked
18 him a single question, and this is exactly the
19 sort of thing that should have been addressed to
20 him.

21 MS. LUDTKE: Ms. Allen just testified that
22 cost was not a major factor in choosing to use
23 the jet plow, and she apparently has knowledge
24 about that and testified to that effect, and

1 what I am trying to do is follow up on that
2 answer to understand what the major factor was
3 in making the selection of the jet plow, and I
4 think that's an important issue for the
5 Environmental Panel.

6 PRESIDING OFFICER WEATHERSBY: Objection is
7 overruled. To the extent she can answer it.

8 MS. LUDTKE: Thank you.

9 Q What does the phrase "reliability objectives"
10 mean to you?

11 A (Allen) I am not going to address that simply
12 because that was not part of what I was
13 covering.

14 Q And going to the next reason given, it's the
15 most technically feasible option. Is it your
16 understanding that both horizontal directional
17 drilling methods were determined to be
18 technically feasible?

19 A (Allen) I believe they were both technically
20 feasible but very challenging is the term I
21 believe they used.

22 Q And so when the term "most" is used, that, in
23 your view, what does it refer to?

24 A (Allen) It's referring to the jet plow use

1 meaning that the risk of installation is lowest.

2 Q And going to the third criteria, it says its
3 environmental impacts are primarily temporary in
4 nature, and would you agree that the
5 environmental impacts from either of the
6 horizontal drilling methods are primarily
7 temporary in nature and significantly less than
8 the environmental impacts from the jet plow?
9 And I will condition that question on absent
10 inadvertent return.

11 A (Allen) I actually wouldn't agree with it. I
12 would agree that impacts to Little Bay are less
13 with an HDD or a full HDD. Impacts to the
14 terrestrial portion of it are actually greater
15 with HDD.

16 Q Thank you. I should have conditioned it on that
17 because my focus is on Little Bay. And the
18 fourth reason given was it was the least cost
19 option. See that?

20 A (Allen) That's correct.

21 Q And so cost is listed here as a factor in making
22 the decision to use the jet plow.

23 A (Allen) Yes, it is.

24 Q And despite cost being listed as a factor in the

1 decision to use a jet plow, a detailed cost
2 analysis was not provided to the Committee.

3 A (Allen) Again, my understanding is the reason it
4 was not provided is because it's not the
5 dominant reason for the rejection of HDD.

6 Q So what was the dominant reason?

7 A (Allen) I think it's the four factors that are
8 listed here.

9 Q So the dominant reason was what? I mean,
10 dominant usually means single so if you have to
11 identify a dominant reason, what would be the
12 reason for selecting jet plow over HDD if cost
13 is not that reason?

14 A (Allen) I think it's a compilation of all four.
15 When you put together the risk of the design,
16 the impacts, which are the two things that I'm
17 most familiar with, and then these other issues
18 of reliability which I think is getting into
19 technical challenge of construction, and the
20 increased cost.

21 Q Is it possible in your view to rank those?

22 A (Allen) I would not go there. Thank you.

23 Q Now, the report also states in the following
24 paragraph that a horizontal directional drill

1 is, and I'm quoting, intrusive and has
2 widespread --

3 MS. DUPREY: Page and paragraph, please.

4 MS. LUDTKE: It's immediately following
5 that, well, it's two paragraphs down actually.
6 It's the 1, 2, fifth paragraph down.

7 BY MS. LUDTKE:

8 Q It says that HDD is intrusive and has widespread
9 impacts to residents and businesses in Durham
10 and Newington. See that?

11 A (Allen) Yes.

12 Q Do you know whether anyone --

13 MS. DUPREY: I'm sorry. Don't see it.
14 What page are we on?

15 MS. LUDTKE: It's the Executive Summary,
16 and it's my thumb is right -- it's actually page
17 E 1. If you're on page 1 you're missing it
18 because it's Executive Summary 1. That could be
19 the confusion. Because the Executive Summary is
20 numbered.

21 MR. FITZGERALD: PDF page 7.

22 BY MS. LUDTKE?

23 Q Do you know whether Eversource has spoken to
24 residents and businesses in Durham and Newington

1 that would be impacted by the Project to find
2 out their views on horizontal directional drill
3 and the impact of that on them?

4 MR. NEEDLEMAN: Objection. Beyond the
5 scope of this Panel's testimony.

6 MS. LUDTKE: They said they were involved
7 in the preparation, and I suspect that was one
8 reason why they said it was technically
9 problematic, and that is listed as a reason in
10 their report, and if they don't know they can
11 say they don't know. I'm asking do they know or
12 do they not know.

13 PRESIDING OFFICER WEATHERSBY: Objection
14 overruled. If they can answer it, they can
15 answer it.

16 A (Nelson) I can speak to that, yeah. My
17 understanding is we did some level of outreach
18 to both the towns of Newington and Durham and
19 residents that would be immediately affected by
20 the hypothetical HDD alternative.

21 Q Can you be more specific and identify what
22 specific outreach you did?

23 A (Nelson) I can't be too specific. I know we
24 have a siting and construction services team

1 that led up, that led that effort. That
2 information about the outreach that was done can
3 be provided.

4 Q Did you find that there was widespread concern
5 and objection to the impacts resulting from a
6 horizontal directional drill?

7 A (Nelson) Can't speak to that. I believe from a
8 general sense that it was acknowledged that it
9 would be considerable construction impacts under
10 some scenarios, particularly in the Gundalow
11 landing area in particular.

12 Q Did the residents and businesses object to those
13 impacts?

14 A (Nelson) I don't have direct knowledge of
15 responses from any direct abutters.

16 Q So you don't know whether there has actually
17 been an objection to the impacts resulting from
18 a horizontal directional drill.

19 A (Nelson) I do not.

20 Q Now, turning to page 5 of the report. On the
21 top line and it's Section 2.1.5, Impacts. And
22 it says impacts from jet plowing are typically
23 temporary and relatively minor. And what I am
24 interested in is in what instances would the

1 impacts be atypical and not temporary and minor.

2 A (Pembroke) Well, I think, yeah, I guess I see
3 this is a hypothetical question. If there were
4 highly contaminated sediments that could elevate
5 the impacts to less than mean or if it was
6 necessary to jet plow through an eelgrass bed,
7 that certainly wouldn't be a temporary impact.
8 But those aren't conditions that exist in this
9 Project area.

10 Q And the report lists basically four areas of
11 concern, five areas of concern. Do you see them
12 listed on page 5? Water quality, sediment
13 quality, mobile organisms, sessile organisms and
14 wetlands. Do you see those areas listed?

15 A Yes.

16 Q And if you turn to the horizontal directional
17 drill, and the impacts on 2.2.5, and again it's
18 page 8, and the same language is used there.
19 Environmental impacts from horizontal
20 directional drill are typically temporary and
21 minor, and then it lists the same five areas,
22 correct?

23 A (Allen) Yes.

24 Q And in fact, I think this may have been cut and

1 pasted from your discussion of the jet plow
2 because if you look down in the middle of the
3 paragraph, you'll see a sentence that says large
4 particles such as sand settle out of suspension
5 rapidly and generally close to the jet plow
6 site. Do you see that?

7 A (Allen) I do.

8 Q So basically, when you start discussing the
9 environmental impacts from horizontal
10 directional drill, I think what you've done is
11 just basically cut and pasted what you had from
12 the jet plow.

13 A (Allen) That's actually not unreasonable. So --

14 Q So I think doing that creates the impression
15 that the impacts, the environmental impacts from
16 horizontal directional drilling and jet plowing
17 are similar. Is that your opinion? That there
18 are similar impacts?

19 A (Allen) If you go further through this document
20 you'll see that there are some specific
21 references to impacts from jet plow versus
22 impacts from HDD.

23 Q No, I have read the document.

24 A (Allen) Okay.

1 Q And I know what the document says. But my
2 question is when you first start talking about
3 the impacts, the language looks virtually
4 identical to the language used to talk about jet
5 plowing, and in fact, even includes a reference
6 to jet plowing. And at least for me, it creates
7 the impression that the impacts are similar, and
8 I am asking was that your intent to create that
9 impression, that the impacts between horizontal
10 drilling and jet plowing are similar?

11 A (Pembroke) The two processes can have similar
12 types of impacts. There are certain studies
13 that would need to be done in order to determine
14 whether horizontal directional drill is actually
15 completely feasible including geotechnical
16 boring so that has the potential for suspending
17 sediments.

18 If you're looking at a shoreline partial
19 HDD that just extends from one shoreline to an
20 exit hole in the middle of the bay, you
21 certainly have the possibility of suspending
22 sediments.

23 Q Let me ask you about the suspension of the
24 sediments because I think what you're referring

1 to is the geotechnical borings that would have
2 to be done for HDD and the sediments released
3 from those borings?

4 A (Pembroke) Right.

5 Q And I think that there were two areas of
6 sediment impact cited on HDD, and I'm on page
7 28. And you talk about 7 geotechnical borings
8 to characterize bedrock and then you're also
9 talking about, and I'm talking about full HDD in
10 this instance. We'll just stick with full HDD
11 for now.

12 A (Pembroke) Okay.

13 Q And you're talking about the barge anchoring,
14 environmental impacts, sediment disturbance
15 related to spuds used to hold the barge
16 stationary. Do you see that?

17 A (Allen) Yes.

18 Q That's the first paragraph on sediment and water
19 quality in Section 3.2.12, page 28.

20 So the question I have on this is when
21 you're looking at the environmental impacts of
22 HDD, and you're listing water quality impact,
23 the wetland impact, the sessile organism impact,
24 all the other impacts that applied to jet

1 plowing, and not quantifying the impact, why
2 haven't, in terms of making the comparison, why
3 didn't you include the impact from cable
4 removal? Wouldn't the impact from cable removal
5 for the jet plow be at least as much of a
6 sediment disturbance as the 7 geotechnical
7 borings?

8 A (Allen) We actually do cite that in our Table 1
9 for looking at preliminary work.

10 Q Where are you?

11 A (Allen) Table 1, I think it's at the end of
12 the --

13 A (Pembroke) The foldout table.

14 A (Allen) It's at the end of the report. Page 36.

15 Q So it's cited in the table but not discussed in
16 the report.

17 A (Allen) There are two sections in this report.
18 One is looking at kind of general jet plow,
19 general HDD impacts which is what we've been
20 talking about to date. And then we get into a
21 section that is specific to this site which is
22 when we start referencing that table, and I'm
23 looking now to see if we specifically cite cable
24 removal.

1 Q Let me go back to the question I asked you
2 initially, and that is wouldn't the sediment
3 disturbance from the removal of the cable which
4 I understand would not have to be removed with
5 HDD, is that correct?

6 A (Pembroke) That's correct.

7 A (Allen) That's for the full HDD. It would need
8 to be removed for the partial shorelanding HDD.

9 Q I was referring to the full HDD.

10 A (Allen) Okay.

11 Q And trying to get a comparison of the
12 environmental impacts.

13 A (Allen) Okay.

14 Q And quantifying the sediment disturbance from
15 the removal of the cable and the use of the
16 grapnel to pretrench on that cable. Wouldn't
17 the sediment disturbance from that be greater
18 than the sediment disturbance from 7
19 geotechnical borings and spuds on a barge?

20 A (Allen) Possibly.

21 Q Possibly or yes?

22 A (Allen) I would have to think through those two
23 specific things, but I think your point is that
24 they're both minor, and I think I can agree with

1 that.

2 Q Well, I'm trying to get a sense about the
3 environmental impacts, and I think that's one of
4 the purposes of the report, to look at the
5 environmental impacts from HDD versus jet
6 plowing, and the issue that the report raises is
7 all the environmental impacts related to jet
8 plowing are not discussed, but every possible
9 environmental impact including the impact of
10 possibility of an inadvertent return are laid
11 out in detail for HDD.

12 A (Allen) I would not agree with that assessment.

13 Q Why?

14 A (Allen) Because I think we have done a fair
15 comparison of the primary impacts to both. That
16 was the goal of this report.

17 Q So the primary impact that you're citing for HDD
18 would not be as substantial as the impact that
19 you didn't cite for jet plowing because it was
20 too minor to be included.

21 A (Allen) Which are you referring to? The cable
22 removal?

23 Q Yes.

24 A (Allen) Well, we do refer to it. It's in our

1 table.

2 Q I understand it's in the table, but I'm looking
3 in the substance of the report. Is it in the
4 substance of the report?

5 A (Allen) I'm sorry. I would have to review it to
6 get back to you. If it was left out, that was
7 probably an omission on our part.

8 Q Now, I have a quote from the Environmental
9 Panel. Unfortunately, I don't have a page cite,
10 but the testimony of the Environmental Panel
11 concluded that horizontal directional drilling
12 would, quote, "theoretically eliminate impacts
13 to water quality and ecology in Little Bay."

14 Do you agree with that?

15 A (Allen) The HDD alone, yes.

16 Q Now, on the inadvertent return that was being
17 discussed, it appears in looking at the
18 discussion of the inadvertent return in the
19 report that a distinction is made between an
20 inadvertent return and a large inadvertent
21 return, and the impact from an inadvertent
22 return versus the impact from a large
23 inadvertent return.

24 My question is how do you quantify an

1 inadvertent return versus a large inadvertent
2 return?

3 A (Allen) I think we need a definition of what you
4 mean by inadvertent return versus large. Are
5 you --

6 Q Well, I can get you some cites on that if you
7 give me a second and I'll --

8 A (Allen) Please do.

9 Q Okay. If you look at your testimony on Exhibit
10 135 on the Environmental Panel, and it's page 4
11 of your testimony. I'll see if I can turn to it
12 without knocking this book off the shelf.

13 I'm at the bottom of the page on page 4
14 and, I think it's Exhibit 135, page 4, line 25.
15 And I'll read the part I'm interested in as it
16 says basically similar to impacts from the
17 proposed jet plow operation, HDD impacts to
18 Little Bay are expected to be relatively minor
19 and temporary with recovery expected by the next
20 growing season. It says the exception would be
21 a large IR. I assume that refers to an
22 inadvertent return. In which large amounts of
23 bentonite and are released due to the water
24 column and are carried by tides to potentially

1 affect -- et cetera. Do you see that?

2 A (Allen) Yes.

3 Q And that was a term that you used. Large IR.
4 So what I'm trying to understand is what is a
5 large IR versus a normal IR. Not a large IR.

6 A (Allen) I may ask others to help me out here,
7 but I think that was intended to be a relative
8 term where a large IR is one that is either
9 discovered late after it's, a lot of the
10 material has escaped or when it is discovered is
11 difficult to control so a large volume of
12 bentonite is released to the environment.

13 Q What's a large volume in terms of cubic feet or
14 weight?

15 A (Allen) I could not define that. That, again,
16 would be a better question for the Construction
17 Panel.

18 Q And there was a statement, I don't have it
19 cited, that IRs occur relatively frequently, and
20 the issue I'm interested in is how frequently do
21 they occur?

22 A (Allen) Again, that, the Construction Panel has
23 a very good answer for that, and I'm not going
24 to paraphrase that.

1 Q These statement were in your testimony. And if
2 you give me a minute, maybe not your testimony,
3 but the environmental testimony, that large,
4 that IRs occur with some level of frequency, and
5 I'm trying to understand how frequent IRs are
6 versus large IRs. And as I say, if I have a few
7 minutes I can go and find the citations for you.

8 Well, it may have actually been in the jet
9 plow report. Let me look there.

10 PRESIDING OFFICER WEATHERSBY: Ms. Ludtke,
11 I'm just wondering for planning purposes about
12 how much longer you think you may have. This
13 might be a good time for a break to allow you to
14 find that.

15 MS. LUDTKE: Probably a half an hour.

16 PRESIDING OFFICER WEATHERSBY: Okay. If
17 you think it's really a half an hour, we'll keep
18 going.

19 MS. LUDTKE: It might be longer. I don't
20 know. I mean, I wouldn't mind a break. I can
21 get the cite on this and pull stuff together. I
22 jumped around a little.

23 PRESIDING OFFICER WEATHERSBY: Why don't we
24 break for lunch now. You can get a few minutes

1 to, well, more than a few minutes, an hour, and
2 then we'll resume.

3 MS. LUDTKE: Okay.

4 PRESIDING OFFICER WEATHERSBY: We'll come
5 back in an hour. Thank you.

6 MR. IACOPINO: We'll return at 1:15.

7 (Lunch recess taken at 12:15
8 p.m. and concludes the **Day 5**
9 **Morning Session**. The hearing
10 continues under separate cover
11 in the transcript noted as **Day**
12 **5 Afternoon Session ONLY**.)
13
14
15
16
17
18
19
20
21
22
23
24

C E R T I F I C A T E

I, Cynthia Foster, Registered Professional Reporter and Licensed Court Reporter, duly authorized to practice Shorthand Court Reporting in the State of New Hampshire, hereby certify that the foregoing pages are a true and accurate transcription of my stenographic notes of the hearing for use in the matter indicated on the title sheet, as to which a transcript was duly ordered;

I further certify that I am neither attorney nor counsel for, nor related to or employed by any of the parties to the action in which this transcript was produced, 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.

Dated at West Lebanon, New Hampshire, this 23rd day of September, 2018.

Cynthia Foster, LCR