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STATE OF MAINE

MAINE BOARD OF ENVIRONMENTAL PROTECTION
AND
DEPARTMENT OF ENVIRONMENTAL PROTECTION

IN THE MATTER OF
NORDIC AQUAFARMS, INC.

APPLICATIONS FOR ATLANTIC SALMON LAND-BASED
AQUACULTURE FACILITY

HEARING - DAY 2
WEDNESDAY, FEBRUARY 12, 2020

PRESIDING OFFICER: ROBERT DUCHESNE

Reported by Robin J. Dostie, a Notary Public and
court reporter in and for the State of Maine, on
February 12, 2020, at the University of Maine
Hutchinson Center, 80 Belmont Avenue, Belfast, Maine,
commencing at 8:00 a.m.

1 BOARD MEMBERS PRESENT:

2 MARK DRAPER

3 SUSAN LESSARD

4 JAMES PARKER

5 STEVEN PELLETIER

6 ROBERT SANFORD

7

8 DEP & STAFF PRESENT:

9 GERALD REID, COMMISSIONER, DEP

10 PEGGY BENSINGER, OFFICE OF THE MAINE ATTORNEY GENERAL

11 LAURA JENSEN, OFFICE OF THE MAINE ATTORNEY GENERAL

12 KEVIN MARTIN, OFFICE OF THE COMMISSIONER

13 BETH CALLAHAN, BUREAU OF LAND RESOURCES

14 DAWN HALLOWELL, BUREAU OF LAND RESOURCES

15 JOHN HOPECK, BUREAU OF WATER QUALITY

16 NICK LIVESAY, DIRECTOR, BUREAU OF LAND RESOURCES

17 ROB MOHLAR, BUREAU OF WATER QUALITY

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20 RUTH ANN BURKE, ADMINISTRATIVE ASSISTANT, BEP

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1 TRANSCRIPT OF PROCEEDINGS

2 MR. DUCHESNE: Thank you for your promptness
3 in sitting down. That saves us a good 15 seconds.

4 Good morning. I now call to order this
5 session of the public hearing on Nordic Aquafarms'
6 applications for Site Location of Development,
7 Natural Resources Protection Act, Air Emissions and
8 Waste Discharge permits.

9 My name is Robert Duchesne. I am a member
10 of the Board of Environmental Protection and I am the
11 Presiding Officer of the -- for today's hearing.
12 Members of the Board here today are at the moment
13 James Parker of Veazie, Steven Pelletier of Yarmouth,
14 Rob Sanford of Gorham and of course myself. Other
15 persons present are Peggy Bensinger, Assistant
16 Attorney General and Counsel to the Board, Cindy
17 Bertocci, the Board's Executive Analyst, Ruth Ann
18 Burke, the Board's Administrative Assistant, Jerry
19 Reid, the Commissioner of the Department and DEP
20 staff Nick Livesay I believe is not here today, but
21 Rob Mohlar is from DEP Water Quality, Dawn Hallowell
22 and is, I believe in the back or will be, John Hopeck
23 is here and Kevin Martin is here from the Department
24 and Gregg Wood is here.

25 This is day two of the hearing. Today we

1 will begin with two witnesses on wastewaters then
2 move to testimony from Nordic on wetlands. We're
3 doing this out of order as an accommodation for
4 people's schedules as I understand it and I
5 appreciate your forbearance, so we're going to start
6 with that as was on the schedule. And we plan to
7 break at approximately 12:30 for lunch.

8 If there are -- if there are any members of
9 the public here today that would like to ask a
10 question of witnesses that you believe was not
11 covered, you must submit your question to me in
12 writing. Paper is available at the side table. I
13 will review the question, make a determination as to
14 its relevance and ask the question as time permits.
15 The important piece of this is I need to receive your
16 question while the panel is still up here while --
17 during -- and I'll ask it at the time that the Board
18 or Department may be asking questions and so I would
19 ask you to put your writing -- your question in
20 writing, bring it up to Ruth Ann up here, she will
21 then submit it to me and I will probably look it over
22 and decide if we can accommodate the question due to
23 our -- whether it's redundant or pertinent and
24 whether we have sufficient time and those will be the
25 constraints, otherwise we'd just love to get all of

1 the questions in. If there are any members of the
2 public -- let's see, when you do so, I would ask you
3 just come up this way rather than block the doorways
4 as well.

5 At this time, I ask that all persons
6 testifying who have not already been sworn in, stand
7 and raise their right hand. Do you affirm that the
8 testimony you are about to give is the whole truth
9 and nothing but the truth?

10 (Witnesses affirm)

11 MR. DUCHESNE: Thank you. Are there any
12 questions before we begin? I will say that our
13 proceedings are online. The website link is
14 maine.gov/dep/bep.html and at the bottom of that page
15 you'll find a link which will get you to the website
16 for on-air audio. I realize anybody who is listening
17 online and doesn't have that link can't get there,
18 but if you have a friend at home, go ahead and call
19 them.

20 And with that, I believe we can commence.
21 Yes, and we begin with UNE's opening statement.

22 DR. CARRIE BYRON: Good morning, Presiding
23 Officer Duchesne, members of the Board, it's my
24 pleasure to be here with you today.

25 I'm an Assistant Professor of the Marine

1 Program at the University of New England.

2 MR. DUCHESNE: And for our listening
3 audience, your name too, please.

4 AUDIENCE MEMBER: My name is Carrie Byron.
5 Thank you.

6 MR. DUCHESNE: Okay.

7 DR. CARRIE BYRON: And I want to thank you
8 for hearing my testimony on a schedule that allows me
9 to honor my teaching obligations at UNE thank you.

10 I also hold an adjunct position at the
11 University of Maine. I was trained in Marine
12 Sciences and Coastal Resource Management as a
13 National Science Foundation Coastal Institute Fellow
14 at the University of Rhode Island where I received my
15 Ph.D. in Environmental Science in 2010. For that
16 work, I was awarded the Science, Technology,
17 Engineering and Mathematics, or STEM award, for most
18 outstanding university-wide STEM graduate degree of
19 that year. As an undergraduate student, I majored in
20 Zoology, Conservation Biology and Environmental
21 Science.

22 As a faculty member at UNE, my teaching and
23 research includes the areas of Marine Ecology, Marine
24 Biology, Sustainable Aquaculture and Coastal Resource
25 Management. My research focuses on sustainable

1 aquaculture and its multi-disciplinary ecological and
2 technological interactions. I also focus on
3 productivity of aquaculture in Maine and its
4 ecological impacts. I have received multiple grants
5 for my research and participated and have recently
6 completed five year, \$20 million National Science
7 Foundation aquaculture grant to the University of
8 Maine conducted in partnership with the University of
9 New England. This award funded my studies on
10 carrying capacity of coastal marine aquaculture.

11 MR. DUCHESNE: Great. Thank you. And
12 unless there is any questions on that, we can proceed
13 right to your summary.

14 DR. CARRIE BYRON: Okay.

15 MR. DUCHESNE: Thank you.

16 DR. CARRIE BYRON: The written testimony
17 that I have submitted summarizes my professional
18 scientific opinions, which are based on the best
19 available science to date on aquaculture and
20 environmental issues arising from the proposals
21 before you from Nordic Aquafarms.

22 As is common in my profession, my submitted
23 written testimony was prepared in consultation with
24 faculty peers and mentors at my institution, UNE. I
25 will summarize my written testimony which covers four

1 major points. The first being recirculating
2 aquaculture systems for salmon aquaculture, water
3 use, discharge and, finally, escapees. In my expert
4 opinion, the production system proposed by Nordic is
5 best in class utilizing state-of-the-art technology
6 to minimize environmental impact and produce
7 sustainable proteins for human consumption.

8 So my first point, recirculating aquaculture
9 systems. In terms of environmental impacts there are
10 no better alternatives to salmon aquaculture
11 production than land-based recirculating aquaculture
12 systems. Other less sustainable options include
13 moving into the ocean or less efficient land-based
14 systems. I will acknowledge that ocean-based net pen
15 technologies have advanced significantly over the
16 past two decades, but ocean conditions are changing
17 rapidly with accelerated warming and pollution. In
18 addition, to build an ocean-based system that could
19 produce equivalent scale production as that proposed
20 by Nordic would result in user conflicts with Maine's
21 existing industries in aquatic coastal zones. There
22 is currently no preventing regimes for offshore
23 aquaculture in Federal waters.

24 Another option is to examine other
25 land-based systems. To be clear, these other types

1 of land-based systems are quite different than what
2 Nordic has proposed and are quite impactful to the
3 environment. An example is the U.S. production of
4 rainbow trout, another salmonid species of about 50
5 million pounds per year, 75 percent of which is
6 Idaho. Idaho trout are grown in flow-through
7 concrete troughs with no recirculation. Wastewaters
8 are discharged directly to the Snake River and the
9 amount of water used in nitrogen discharge per pound
10 of fish produced in this system are significantly
11 higher than water use in discharge estimates provided
12 by Nordic for their proposed recirculating
13 aquaculture system.

14 Recirculating aquaculture systems meet the
15 highest environmental and social standards in the
16 world today. No other alternative salmonid
17 production systems can make this claim.

18 Recirculating aquaculture systems is certified as a
19 best practice by multiple seafood certification
20 bodies, including global GAPs, good aquaculture --
21 agricultural practice, the Aquaculture Stewardship
22 Council, Monterey Seafood Watch Program and the
23 Global Aquaculture Alliance.

24 My second point is on water use. There is
25 no 100 percent recirculating aquaculture system at

1 large scale. All recirculating aquaculture systems
2 must exchange a small percentage of the rearing
3 waters for optimum system's performance and for
4 optimal fish health. The amount of water exchanged
5 is usually 2 to 5 percent of the volume of the system
6 and is dependent upon capital investments made in the
7 most modern wastewater treatment technologies and the
8 permitting structures of the jurisdiction in which
9 the systems are located.

10 Nordic plans to discharge 7.7 million
11 gallons of water per day, and that might seem like a
12 lot of water, however, in comparison to other permits
13 for land-based salmon aquaculture systems it is best
14 in class. You need to consider the amount of water
15 used per pound of salmonid production or production
16 efficiencies. For comparison, the proposed permit of
17 Nordic Aquafarms would use 39 gallons of water per
18 pound of fish produced. This is at least an order of
19 magnitude lower than that permitted for RAS by other
20 U.S. states -- by another U.S. -- another U.S. state
21 and two orders of magnitude lower than what is
22 already permitted and existing at a RAS site in
23 Maine.

24 From an oceanographic perspective, it is
25 estimated that Penobscot Bay exchanges 2.6 trillion

1 gallons a day. The planned water use of 7.7 million
2 gallons per day when compared to the bay's daily
3 exchange rate is like that of a single drop of water
4 in a 5 gallon bucket. At these proposed levels of
5 discharge there are no anticipated impacts on
6 bay-wide temperatures or salinities.

7 My third point on discharges. I first want
8 to establish that aquaculture effluence are not
9 concentrated waste in the same sense as sewage plant
10 waste. Aquaculture effluence have much lower
11 concentrations of total solids and nutrients due to
12 the high degree of filtration and treatment that
13 occurs, however, these effluence can still present
14 environmental concerns when coming from older
15 technologies such as flow-through troughs. After 40
16 years of research and development in recirculating
17 aquaculture systems there have been significant
18 advances in feeds and wastewater treatment systems
19 that alleviate large scale impacts. At very
20 significant capital and operating costs, Nordic plans
21 to implement the latest advances in feed technology
22 and waste treatment technologies.

23 Regarding feed, Nordic is at the forefront
24 of sourcing the most sustainable feeds available in
25 the world. Nordic plans to explore economically

1 viable alternatives to using fish oils and fish meals
2 in their salmon feed to produce -- to improve its
3 fish in, fish out ratios.

4 Regarding waste treatment systems, Nordic
5 will have one of the world's most sophisticated
6 aquaculture waste treatment systems that will employ
7 state-of-the-art microfiltration screening of such
8 small size that even bacteria will be removed.
9 Nordic will have nitrification units similar to all
10 other recirculating systems in the world today.
11 Nitrification is the process of converting ammonia, a
12 biologically unusable form of nitrogen to nitrate
13 which can be easily taken up by plants, other
14 plankton and other organisms. Nordic then goes
15 beyond their standard technology, Nordic will also
16 use a denitrification system. Denitrification is the
17 process of converting that nitrate into nitrogen gas,
18 a harmless discharge to the atmosphere. These two
19 systems together will remove 85 percent of the total
20 nitrogen, which would exceed any wastewater treatment
21 system of its size in the State of Maine. For
22 perspective, according to a 2011 study done by
23 scientists at USGS, United States Geological Service,
24 and the EPA, Environmental Protection Agency, that
25 examine nutrient sources and transport mechanisms in

1 Penobscot Bay. They found 17.7 percent from
2 developments, 11.6 percent from agriculture run-off
3 and 4.3 percent from point source discharges. Nordic
4 would add only 0.75 percent, that's less than 1
5 percent, to the point source discharge figure.

6 And finally, my fourth point on escapees.
7 This is really a non-issue. Escapement from
8 land-based salmonid farms is of no environmental
9 concern. Nordic has 12 barriers in place between the
10 fish grow-out facility and the environment and does
11 not intend to use boats to transfer fish making
12 escapement next to impossible. That concludes my
13 oral testimony. Thank you.

14 MR. DUCHESNE: Thank you. I believe we can
15 move right to cross-examination.

16 MS. HOWE: Good morning. Emily Howe from
17 Drummond Woodsum some for Nordic Aquafarms.

18 MR. DUCHESNE: Try again.

19 MS. HOWE: Emily Howe, Drummond Woodsum for
20 Nordic Aquafarms.

21 MR. DUCHESNE: Can everybody in back hear
22 all right? No. If you could pull it a little
23 closer. That should work.

24 MS. HOWE: Good now?

25 MR. DUCHESNE: Yes, thank you.

1 MS. HOWE: Okay. Emily Howe, Drummond
2 Woodsum for Nordic Aquafarms. Dr. Byron, will
3 Nordic's discharge impact the temperature of the bay?

4 DR. CARRIE BYRON: No. Nordic's discharge
5 will not impact the temperature of the bay. As I
6 said, Nordic intends on discharging 7.7 million
7 gallons per day compared to an exchange rate of the
8 bay of 2.6 trillion gallons a day. That's the
9 equivalent of one drop of water in a 5 gallon bucket.
10 So regardless of the temperature differential between
11 that one drop of water and that 5 gallon bucket a
12 single drop will not impact the temperature of that
13 total volume.

14 MS. HOWE: And will Nordic's discharge
15 change the salinity of the bay?

16 DR. CARRIE BYRON: No. Nordic's discharge
17 will not change the salinity of the bay for the same
18 reasons I just explained regarding temperature.

19 MS. HOWE: Okay. Are you familiar with the
20 denitrification system Nordic plans to use?

21 DR. CARRIE BYRON: Yes, I am familiar with
22 the denitrification system Nordic plans to use. It
23 goes above and beyond any industry standards or
24 regulatory expectations and it is considered to be a
25 best in class practice.

1 MS. HOWE: So it's not standard in the
2 industry.

3 DR. CARRIE BYRON: No, it's not. It's
4 exceptional.

5 MS. HOWE: Are there better alternatives to
6 large scale land-based aquaculture projects like
7 this?

8 DR. CARRIE BYRON: No, there are no better
9 alternatives to land-based salmon aquaculture. The
10 state-of-the-art system that Nordic has designed is
11 best in class and goes beyond any permitting
12 requirements in place.

13 MS. HOWE: Thank you. That's all my
14 questions.

15 MR. DUCHESNE: Thank you. We can now go to
16 staff and Board questions. Oh, I beg your pardon,
17 yes, we are allowing two questions, I believe.

18 MS. RACINE: Thank you very much.

19 MR. DUCHESNE: And we do appreciate the
20 brevity. And, again, we have set a precedent to some
21 extent with Ms. Daniels that intervenors will have
22 some leniency even though they did not ask for time,
23 but we'd like it to be respected for briefness.
24 Thank you.

25 MS. RACINE: I appreciate that. I'll keep

1 it to the two questions. Good morning, Dr. Byron.

2 DR. CARRIE BYRON: Good morning.

3 MS. RACINE: My name is Kristin Racine and
4 I'm representing Upstream and NVC here and, as I
5 said, I have two questions for you. The first
6 relates to in your December 11 pre-filed testimony
7 you describe how Nordic will be employing
8 state-of-the-art microfiltration screening of .02 to
9 .04 Micrometers. I was hoping you could clarify this
10 for me because Nordic's MEPDES application and others
11 who have filed testimony in this matter describe the
12 use of a .4 micron filter. In your opinion, is this
13 a change in the permit application and an agreement
14 that the .4 micron filtration is not sufficient to
15 protect against bacteria leaks let alone viruses?

16 DR. CARRIE BYRON: It's my understanding
17 that Nordic is always striving to improve these
18 technologies and these technologies are improving at
19 a quite rapid pace. So, if anything, that filtration
20 is getting smaller and finer to be able to take out
21 smaller particles, smaller bacteria and so that's an
22 improvement.

23 MS. RACINE: Do you know if that will be a
24 design change because of a smaller filter and the
25 amount of water that needs to be pumped through?

1 DR. CARRIE BYRON: I'm sorry, you'll have to
2 ask Nordic that question.

3 MS. RACINE: And the second question
4 pertains to you stated in your pre-filed testimony
5 and several times today there are no better
6 alternatives to this best in class RAS technology.
7 Is it not true that certain recent advances in closed
8 RAS and minimum zero discharge RAS being designed and
9 operated in other parts of the U.S., Canada and the
10 Middle East would actually have a much lower water to
11 pound of fish ratio and would not require continuous
12 water input from the ground and surface water
13 sources?

14 DR. CARRIE BYRON: No. At the scale that
15 Nordic is proposing you absolutely need to be able to
16 utilize some fresh, new water in your system, again,
17 to maintain healthy, clean production of the fish.

18 MS. RACINE: So the best in class ties into
19 the scale of the project?

20 DR. CARRIE BYRON: Yes.

21 MS. RACINE: Thank you.

22 MR. DUCHESNE: Great. And I believe Ms.
23 Daniels also has a quick follow-up. And I would
24 apply the same rules, it needs to be brief and direct
25 to the point.

1 MS. DANIELS: I'll do my best. Dr. Byron,
2 you talked about the impact that what the fish are
3 fed has to do with what actually is coming out in the
4 effluent into the bay. And I've been following this
5 issue pretty closely for a couple years here and I
6 have to say that I don't have information yet with
7 any specifics about what Nordic intends to feed the
8 fish. Now, once again, I hear you testify that to
9 cutting edge kinds of feed materials and ways to cut
10 down on the fish meal and supplements, you know, for
11 the Omega 3s and whatever it is that salmon need.
12 I'm no expert on this, but what exactly are the fish
13 going to be fed and how can the DEP actually evaluate
14 the effluent without having some indication of what
15 the fish are going to be fed?

16 DR. CARRIE BYRON: I'm sorry, I can't speak
17 on behalf of Nordic as to what they're going to be
18 fed, but I can speak to how some alternatives for
19 feed are better for the environment than other forms
20 of feed. Moving away from fish-based protein would
21 be what I would recommend in my expert opinion try
22 and minimize of the fish-based feed to alleviate
23 pressure on marine resources, marine forage fish.

24 MS. DANIELS: And are you aware of any
25 sources of say insect meal or algae kinds of

1 additives to fish feed that are available in the
2 quantity to feed 33,000 metric tons of fish at this
3 point in time?

4 DR. CARRIE BYRON: Certainly moving to
5 insect or bacterial-based sources of protein in feeds
6 would absolutely be a best practice. These
7 technologies are very young, very new and developing
8 rapidly and it's my understanding that Nordic is
9 committed to following these advances and technology
10 and using the best available technology possible.

11 MS. DANIELS: Committed to following these
12 things and using whatever is best available, thank
13 you. And I do have one other comment with regards to
14 soluble nitrogen. In their permit, Nordic does talk
15 about a discharge of 1,600 pounds of soluble nitrogen
16 per day into the bay and which is quite significant
17 and as I understand there are no real guidelines at
18 the DEP for soluble nitrogen at this time although
19 the Legislature has asked for it to become a priority
20 item to bring forward. So my understanding, 1,600
21 pounds of soluble nitrogen, well, I did a little bit
22 of digging around at our wastewater in Belfast --

23 MS. TOURANGEAU: Objection. That's clearly
24 testifying, not asking a question.

25 MR. DUCHESNE: I would agree. If you have a

1 question, it's a good time to ask it.

2 MS. DANIELS: Right. Right. Do you think
3 that it would be all right to discharge 12 times the
4 amount of discharge of soluble nitrogen into the bay
5 every day that's currently happening from our
6 wastewater treatment plant?

7 DR. CARRIE BYRON: That's current happening
8 from your waste -- I'm sorry, I don't understand what
9 you're getting at.

10 MS. DANIELS: The City of Belfast discharges
11 130 pounds of soluble nitrogen a day and Nordic is
12 in -- predicts discharging 1,600 pounds. Is that --
13 is that a value that alarms you at all?

14 DR. CARRIE BYRON: With the system that
15 Nordic intends to put in place, no, I am not alarmed.
16 Their systems go above and beyond anything that is
17 regulated or enforced by regulations right now.

18 MS. DANIELS: So you're talking about the
19 nitrification and the denitrification cycles that you
20 talk about?

21 DR. CARRIE BYRON: Yes.

22 MS. DANIELS: Uh-huh. Okay. Thank you.

23 MR. DUCHESNE: Great. Thank you very much.

24 We will now move to questions from the Board and
25 staff. Yes, Mr. Pelletier.

1 MR. PELLETIER: Thanks. I appreciate a lot
2 of the comments. A couple of them I'm not sure
3 you'll be able to answer, but the first thing was in
4 terms of temperature and it sounds as though the
5 temperature that you're talking about here is kind of
6 evaluated on a bay-wide kind of process just because
7 of the volume of water in the bay, but there is still
8 going to be at the outfall itself similar to a lot of
9 places you'll see wastewater treatment plants that
10 are along rivers and you'll see places where the ice
11 doesn't freeze where the ducks congregate and I'm
12 assuming there is going to be an area by that
13 discharge point where there will be some sort of
14 measurable impact. Do you have any comment about
15 that?

16 DR. CARRIE BYRON: I really don't have a
17 comment on that. I think -- I think the only thing
18 that I can say is looking at ecosystem-wide function
19 and productivity you need to look beyond just that
20 immediate couple foot area where the outfall is. I
21 think to me what's important is maintaining ecosystem
22 function and so for that you need to look at a
23 slightly larger scale than just a few feet or meters
24 right at the outfall.

25 MR. PELLETIER: I'm totally on board with

1 what you're saying and absolutely agree, but then
2 again is it a couple of feet or is it a couple
3 hundred feet or is it a couple hundred yards or, you
4 know, that's the kind of -- that's -- how big is that
5 plume?

6 DR. CARRIE BYRON: What's that scale? I
7 have not done that calculation, I'm sorry. I can't
8 answer that exactly.

9 MR. PELLETIER: Thanks. And then -- and two
10 other questions. I'm not sure you'll know, but I
11 don't know who else to ask, but in terms of these
12 screens that they're putting on and the difference
13 between .2 and .02, I'm assuming that would be a huge
14 maintenance issue, you know, keeping those screens
15 from clogging.

16 DR. CARRIE BYRON: I'm sorry, I am not the
17 best person to answer that question.

18 MR. PELLETIER: I don't know who else to
19 ask, but you know. And finally, I don't think you'll
20 be able to do this one too, but there is a comment
21 about these circular tanks versus oval tanks and
22 bacterial buildup, any idea, you know, about how --
23 whether -- that the, you know, these elongated oval
24 tanks pose some sort of bacterial -- more bacterial
25 than the round?

1 DR. CARRIE BYRON: The only thing I can say
2 is bacterial like to adhere surfaces, so the more --
3 the higher the surface area to volume ratio is like
4 that provides for surface for bacteria to adhere to,
5 but I can't imagine a circular versus oval shape has
6 much to do with that --

7 MR. PELLETIER: Okay.

8 DR. CARRIE BYRON: -- in and of itself.

9 MR. PELLETIER: Thank you very much.

10 DR. CARRIE BYRON: Mmm Hmm.

11 MR. DUCHESNE: Thank you. I do have a
12 question and I was a government major in college, so
13 I learned nothing useful, but I did -- my way to an
14 MBA later on I learned not to count on statistics, so
15 I always look twice. And the idea that 2.6 trillion
16 gallons a day sloshes back and forth in Penobscot Bay
17 is probably true, but a lot of that sloshes out
18 through Eggemoggin Reach, a lot of it sloshes down to
19 the other end of Deere Isle and Stonington and only a
20 portion of that washes into Belfast Bay, so we're
21 really not talking about 2.6 trillion gallons if I
22 understand correctly. When you look at Belfast Bay
23 you've got it bounded a little bit by Sears Island on
24 one side and Northport on the other side. It's a bit
25 of a cul de sac, so we're not actually talking, I

1 think, about 2.6 trillion. The question the Board is
2 going to have to deal with is with this plume of
3 effluent how much effect is there going to be on the
4 local area of Belfast Bay once you discard the areas
5 that are probably not going to be affected, does that
6 change your calculus much?

7 DR. CARRIE BYRON: I stand by my statement.
8 Thank you.

9 MR. DUCHESNE: Thank you. Very helpful.
10 Any -- yes, Mr. Sanford.

11 MR. SANFORD: So I live near Windham
12 Correctional Center so escapees could be an issue for
13 me.

14 (Laughter.)

15 MR. SANFORD: So are you saying that
16 essentially escapees is a non-issue --

17 DR. CARRIE BYRON: I am.

18 MR. SANFORD: -- of this project?

19 DR. CARRIE BYRON: I am.

20 MR. SANFORD: Okay.

21 DR. CARRIE BYRON: Yes, escapees is not an
22 issue for this project given the number of barriers
23 that Nordic plans to have in place, you know,
24 typically three barriers might be viewed as a lot and
25 Nordic has 12 in place and they're not using boats to

1 transport fish, so these fish will never be near the
2 ocean anyway. Where we've had situations of escapees
3 at other farms it's typically because they're using
4 boats to transport fish from offshore holding places
5 or just moving them around between the ocean and the
6 land and at those points escapees could be possible,
7 but that's not a practice that Nordic intends to use.

8 MR. SANFORD: Okay. So following-up on
9 escapees to the micro, micro level, do you see an
10 issue with potential viruses because I realize that
11 these screens can catch bacteria, but not viruses.

12 DR. CARRIE BYRON: So these screens are
13 becoming so small that they're almost to the point
14 where they could capture viruses. I would -- I might
15 be going off on a limb right here a little bit, but I
16 would expect in the upcoming years 5, 10 years that
17 we will have that technology for these screens to
18 actually capture viruses, but, yeah, right now we're
19 at the level of capturing bacteria.

20 MR. SANFORD: Okay. Thank you.

21 MR. DUCHESNE: Any other questions from
22 Board or staff? Seeing none, we thank you very much.

23 DR. CARRIE BYRON: Thank you.

24 MR. DUCHESNE: We have -- I'm sorry, we have
25 recross and redirect -- or redirect and recross, so.

1 There is nobody to ask, right. Rescue me.

2 MS. BENSINGER: Because there is no one to
3 ask you redirect, if you have anything else you'd
4 like to add in response to the questions or to
5 clarify any of your answers on the questions now
6 would be the time to do that.

7 DR. CARRIE BYRON: Thank you for the
8 opportunity. I have nothing more to add.

9 MR. DUCHESNE: Great. Good. Thank you very
10 much.

11 DR. CARRIE BYRON: Thank you.

12 MR. DUCHESNE: Oh, yes. If you could just
13 hold a moment. Okay. We have a question from the
14 public. Can you explain the increased risk to the
15 health of the fish from using surface water and why
16 aquifer water is used in most modern RAS facilities
17 in use today?

18 DR. CARRIE BYRON: The question -- I'm
19 trying to understand the question. The question --

20 DR. DUCHESNE: Yes.

21 DR. CARRIE BYRON: -- is assuming there is
22 an increased risk to the fish?

23 MR. DUCHESNE: Using surface water instead
24 of aquifer water.

25 DR. CARRIE BYRON: I'm sorry, I can't

1 comment on that. I'm not sure I fully understand the
2 question and what that risk would be.

3 MR. DUCHESNE: Okay. Great. Well, thank
4 you. I am not sure I can clarify it any better, so.

5 DR. CARRIE BYRON: Thank you.

6 MR. DUCHESNE: We can now move to Upstream
7 Watch, I believe, with Dr. Pettigrew.

8 MS. RACINE: I just want to clarify, I think
9 that we've already established that Mr. Gulezian is
10 here as an accommodation and not going to be
11 testifying.

12 MR. DUCHESNE: Yes.

13 MS. RACINE: Okay. Thank you.

14 MR. DUCHESNE: And also as you're setting up
15 I did want to say on the record I appreciated
16 Nordic's flexibility so far in allowing witnesses --
17 or some of the intervenors a few extra questions even
18 though time was not asked for. It's been a very
19 welcome accommodation. Thank you. You may begin
20 when ready, Mr. -- Dr. Pettigrew.

21 DR. NEAL PETTIGREW: Yeah. Hi. I'm Neal
22 Pettigrew. I'm a Professor of Oceanography at the
23 University of Maine. I was trained at -- at Woods
24 Hole at MIT. I spent 10 years at the University of
25 New Hampshire and almost the last -- almost the last

1 30 years at the University of Maine.

2 So I guess as some of you may know, I have
3 been involved in a lot of ocean observing systems.
4 One in the Gulf of Maine, which was at one time
5 called GoMOOS. It's been going on for 10 -- for 20
6 years. I have another one that's been going on for
7 close to 10 years down in the Caribbean region around
8 Puerto Rico and the Virgin Islands. And I guess I --
9 this should say -- actually, the first ocean
10 observing system that was used anywhere as far as I
11 know was actually in Penobscot Bay and that was the
12 first, believe it or not, was the first buoys that
13 were put in that used cell phones. In fact, it had
14 the old bag phone and it was a very successful
15 experiment, which led us on to doing other things
16 around -- around the world. So I do have an
17 experiment, which you may have seen some results of,
18 not very many have been put a whole lot in my
19 testimony. But we had four buoys that were kept
20 within Penobscot Bay for about a year and we had
21 another buoy just outside of Penobscot Bay trying to
22 understand the exchange between the bay and also
23 the -- the gulf -- the whole Gulf of Maine. And so
24 those results are basically what I was trying to
25 represent and -- and I want to try and understand

1 what the -- the modeling and so forth that was done
2 by a Nathan Dill and how it was different from the
3 kind of modeling that we preferred to have done in
4 Penobscot Bay that would actually show what the
5 circulation of the bay is.

6 Okay. So actually, the first thing I'd like
7 to do if I could is have -- have Gary just read one
8 statement that Mr. Gill had put in his -- in one of
9 his testimonies and then I'd just like to comment on
10 that and move on from there.

11 GARY GULEZIAN: And I'm Gary Gulezian and
12 I'll be reading a paragraph from the MEPDEs permit
13 application. This is Attachment 12 and it's on Page
14 7, which is a memorandum from Nathan Dill to Nordic
15 Aquafarms on the results of his modeling. And here
16 is the -- the quote. The information presented here
17 is based entirely upon numerical modeling with
18 limited knowledge of the in-situ conditions at the
19 proposed outfall. It is important to understand that
20 hydrodynamic modeling is not an exact science. As
21 such, any predictions presented here should be
22 considered only as estimates of the proposed dilution
23 and plume behavior. Numerous assumptions and
24 simplifications have been made in this analysis which
25 contribute to significant uncertainty in the modeling

1 results. In general, these simplifications and
2 assumptions are reasonably conservative such that
3 errors would tend to overpredict negative impacts.
4 However, it is also possible that predictive error
5 could underestimate impacts, thus, it is recommended
6 that a field data collection program be designed and
7 implemented to provide site specific data for further
8 analysis and to validate the accuracy of model
9 results.

10 DR. NEAL PETTIGREW: Okay. So -- thank you.
11 And I just want to say that I really agree with this
12 statement by himself that we that -- we really need
13 to worry about new data to understand --

14 MR. DUCHESNE: Yes, if we could push the
15 microphone back.

16 DR. NEAL PETTIGREW: Oh, right, yeah.
17 Basically, I want to say that I agree strongly with
18 this statement that we really need to get data in the
19 region in order to really understand what the
20 situation is, how it acts, what the circulation of
21 that region is like. And so I'd just like to say
22 that I wanted to make comments that I was very
23 surprised actually that a two-dimensional numerical
24 model was used rather than a three-dimensional
25 numerical model. The reason that this surprises me

1 is that the first thing is that it vertically
2 averages the entire, you know, not just the
3 circulation but the stratification, everything was
4 vertically average, so you no longer can tell the
5 difference between what's going on near the bottom,
6 near the surface and in between.

7 The other thing that really concerned me was
8 that there was -- that the forcing for his modeling
9 left out most of the forcing of things that we
10 normally can include in all of these models and
11 basically just had the -- the Penobscot River forcing
12 the flow and then the only other thing were just the
13 tides, just have the tide coming in and out. And so
14 the things that were left out -- the most important
15 think that was left out actually is somewhat of a
16 surprise and that is the exchange between Penobscot
17 Bay and particularly the coastal current and the
18 Penobscot Bay. It turns out that from the work we
19 had done and things we had even seen from satellites
20 we found out that the flow into Penobscot Bay
21 completely is much more important than all of the
22 flow coming out of the river, okay. The circulation
23 is really -- is really driven primarily in the lower
24 part of the bay by the flow from the eastern Maine
25 coastal current that turns into shore. So the

1 circulation is quite complex. It's not like a
2 typical estuary, okay. So you can imagine what would
3 happen if you -- if you leave that out and, in fact,
4 didn't even include wind. We know that wind makes a
5 big change the circulation. Where is that stuff --
6 in the water that you're going to be pumping in
7 there, where is it going to go, okay. I would assume
8 that people would like to know actually where it
9 goes.

10 So the way to set up a model is you have
11 only one thing, you have -- because of the water from
12 the river coming out. So basically, as you know from
13 estuaries what happens is you've got this river water
14 coming towards the -- towards the ocean and then
15 there is some entrainment of the -- of the silt water
16 that's -- I mean, the salty water that's beneath it
17 that gets dragged with it, so some flow has to be
18 coming back in at a greater depth, which has the
19 salty water coming back in. However, the net flow,
20 if you vertically integrate over that the net flow is
21 just the water coming out of the river, okay. It all
22 comes offshore. And so the model shows that all of
23 the flow in Penobscot Bay -- the model that he uses
24 shows that all of the models in Penobscot Bay is
25 going south.

1 Okay. So the actual circulation is quite
2 different. The -- for instance, on the -- on the
3 west side of Islesboro there is more flow going north
4 at depth than the fresher water going south at the
5 surface. And by at the surface, I mean by just the
6 upper couple of meters. All of the rest of the flow
7 is heading north there. If you go to the other side
8 of Islesboro you've got the -- you've got more of
9 the -- of the river water coming out. Then you also
10 have flow coming in near the bottom, but in general
11 on that side if you were to vertically average the
12 net flow is, in fact, to the south, okay. If you go
13 down to Vinalhaven there is a lot more flow coming in
14 from offshore off of the -- off of the bay -- I mean,
15 off of the -- in the gulf into the bay. And if you
16 go to the other side there is more water coming out
17 of the east side of Vinalhaven.

18 So right where they're talking about this --
19 this water that they're going to be dumping in there
20 I would assume that they would like to know where
21 it's headed, right. And if you -- if you just talk
22 about the tides what actually happens is it just goes
23 back and forth, okay. It's the net flow or the mean
24 flow that really counts where this stuff is going to
25 go. So the tides, as you probably know, has -- there

1 is a tidal excursion length, right, and -- and
2 actually the tidal excursion length in that region is
3 only about a kilometer and so that water is just
4 staying right there going back and forth and the only
5 thing that is going to move it is the mean flow and
6 which down near the -- you know, down -- and most of
7 the water column is all heading north. Some of it
8 will probably actually even manage to go up the river
9 for some distance.

10 So that is one of the main situations that I
11 think we would prefer to have a regular
12 three-dimensional model with all of the forcing that
13 goes in there. And, in fact, one was done by Huijie
14 Xue and others years ago, I forget exactly when it
15 was, but it would have been probably right around
16 2000 or something like that and that does, in fact,
17 show that the flow is going clockwise around
18 Islesboro. It's -- at the surface it's true that
19 most of the time it is going south, but if you
20 integrate it or average it from the bottom up on the
21 west side it's -- it's going north, so that's where
22 this water is going to really go. Some of it will
23 hang -- possibly hang around in -- in Belfast Bay
24 area for a while, some of it will turn around and
25 come back down then start heading go out. We would

1 like to know how long it's going to stay in the Gulf
2 of Maine before it finally exits and those kinds of
3 things are not done by the type of modeling that was
4 used. The whole model seems to suggest to me that --
5 the whole approach seemed to suggests that you would
6 think that it's going out pretty fast, so he chose a
7 value for the -- for the water -- the fresh water
8 basically coming out of the river or the flow coming
9 out of the river and they used the largest part of
10 the range, which is more than twice as much as the
11 low end of the range. So they used the strongest
12 flow and so what you would think is there is a lot of
13 flow, it's not going to stay very long and it's going
14 to -- it's going to go out into Penobscot -- out into
15 the Gulf of Maine.

16 So I really think that I would like to
17 see -- I agree with what they said, but I would like
18 to see an experiment done for that region that really
19 allows us to know better. Where was my buoy? It's
20 far south on that west side of Islesboro not up where
21 this -- where this project is going to be run. It
22 would be -- it would be -- I think -- I guess the
23 main point that I'm trying to make is we really need
24 a baseline for this region if we want to understand
25 how well this system will work out there and how to

1 see what changes, if any, have occurred. We need to
2 make a baseline in that region and so that's what
3 I'm -- that I'm hoping happens.

4 With regard to the other model that was
5 introduced had called CORMIX, I think. I really
6 don't know the details and haven't had the time to
7 actually go in there and -- and look at that, but the
8 basic -- I think it's important to remember the basic
9 idea is they put these, oh, what's the right word,
10 now I'm forgetting it, rather than just putting it
11 out the end of this pipe they're putting on these
12 diffusers, okay. And so the diffusers -- what do the
13 diffusers do? Well, what the diffusers do, they --
14 they get a lot of mixing between what they're pumping
15 in there and what was already in there very fast,
16 very soon right as it always comes out. And so they
17 keep saying that the density of the water that's
18 going in is -- so that it's going to rise and then
19 they worry about, and they should, worry about the
20 fact that up near the surface it's stratified and
21 therefore sometimes at least they're admitting it
22 will not mix it all the way to the surface. If it
23 doesn't, it's going to stay down in the area that is
24 on average going north.

25 So the idea that they -- using the density

1 of what they put in and assuming that it's going to
2 come all the way to the surface is not very realistic
3 because most of the mixing or the turbulence that
4 happens is happening right there. So its density is
5 going to become similar to the density of the bottom
6 water and so we don't know how far out -- how far
7 it's going to be able to rise anyway. So that whole
8 idea, I think, I just -- to be perfectly honest, I
9 would like to be able to talk to Mr. Dill about these
10 things rather than having to come to hearing and say
11 these kind of things, so maybe that's a possibility.
12 I would like to help them make plans for the kinds of
13 work that should be done out there to understand the
14 whole system. And then I imagine there is a lot of
15 questions that people are going to be asking and I
16 don't know if I've already spoken too long, but I
17 just got started.

18 MR. DUCHESNE: As long as you keep speaking
19 effectively, I think you're in good shape.

20 DR. NEAL PETTIGREW: I guess, for instance,
21 one of the things that worried me was they were
22 talking about tide, you know, they were very into the
23 tides because I think the tidal currents, of course,
24 are stronger than the mean flow especially down deep
25 and they thought that was what was going to do the,

1 you know, essentially the mixing to get to this
2 thing -- they call it dilution rather than fusion,
3 but it's the same idea. And so they -- so what they
4 did is they told us how strong they thought it was --
5 what it was, it was like 10 centimeters per second,
6 okay. And they're using a steady state model, all
7 right, so they're saying it's got this constant value
8 and that's what it is it and they make a calculation
9 of how much of that mixing occurs.

10 So first of all, from the model -- from the
11 buoy that I it had in there for a whole year down
12 south where -- where it was narrower and there was a
13 little bit of funneling going on where it should have
14 been stronger it was only 15, not 20, okay. I
15 expected it would be even weaker when you get up
16 around Belfast. It turns out there that was some
17 work done recently and, let's see if I can remember
18 how to say that guy's name, Fandel. He did a
19 measurement and he said that the currents were
20 between 5 and 10, okay. So now we're down to 5 and
21 10, so if you take the middle value of that like 7
22 1/2, that tells you -- you can -- you can kind of get
23 an idea that it's a lot smaller. Now, so 7 1/2
24 relative to 20, that's a big difference, but it gets
25 even stronger than that because that's the -- that's

1 the amplitude of the tides. That's the maximum tidal
2 current you're going to have and that only happens,
3 you know, twice in a -- and the rest -- half of the
4 time it's zero and half of the time it's -- it's
5 averaging to be about 2 1/2. So you have to -- you
6 can't just take that value -- this constant value and
7 stick it in and try to expect to understand how this
8 is going to wind up mixing everything, so what you
9 have to do is you have to -- you have to use really
10 what we call the root means square.

11 Now, what does that mean? It means because,
12 if I can find this for you, roughly for them it means
13 that the average is not halfway between those, so you
14 don't have to divide by 2, you divide by the square
15 root of 2 to get the right answer, so it knocks it
16 down to about a third. So now all of a sudden we're
17 down to 5 meters per second instead of 20, so it's
18 getting smaller. In addition, when you're -- when
19 you're discharging near the bottom you can expect
20 that the currents right down near the bottom where a
21 lot of this mixing is going to happen very quickly
22 basically, you know, because of the -- the friction
23 down near the bottom it will get even smaller than
24 that. So it is an order of magnitude less really by
25 the time you're done than it was in their -- in their

1 assumption that you could expect 20 centimeters per
2 second essentially all of the time.

3 MS. TOURANGEAU: I'm sorry to interject. At
4 this point, the discussion of CORMIX was not in the
5 pre-filed direct testimony and I have allowed this to
6 go on for five minutes, but at this point I am going
7 to have to object.

8 DR. NEAL PETTIGREW: Okay.

9 MR. DUCHESNE: All right. Yes, I think
10 you're -- it's probably correct that it is beyond the
11 scope of what has been pre-filed --

12 DR. NEAL PETTIGREW: Okay.

13 MR. DUCHESNE: -- and what... The -- the
14 cross-examination might be ready to cover.

15 DR. NEAL PETTIGREW: Yeah.

16 MR. DUCHESNE: I think if we can stick
17 closer to what's currently your testimony that would
18 be great.

19 DR. NEAL PETTIGREW: Okay. So I guess I've
20 certainly talked too long and I, you know, I didn't
21 even bring the notes that I expected to bring today,
22 so I'm just chatting and I just --

23 MR. DUCHESNE: I guess my question is is
24 this going to be on the exam?

25 (Laughter.)

1 DR. NEAL PETTIGREW: For some people, but no
2 one here. So I guess I'll just call it quits then
3 and ask for questions.

4 MR. DUCHESNE: Great. And I believe we go
5 right to cross-examination from Nordic, so.

6 MS. TOURANGEAU: So given Dr. Pettigrew's
7 request to have a conversation with Mr. Dill, I
8 thought it would be appropriate to do that. So
9 Mr. Dill is going to come up and have a chat with
10 you.

11 DR. NEAL PETTIGREW: Right now?

12 MS. TOURANGEAU: Yeah.

13 DR. NEAL PETTIGREW: Oh, okay.

14 MS. TOURANGEAU: And I'm going to waive my
15 cross-exam time and allow Mr. Dill to do it instead.

16 DR. NEAL PETTIGREW: Okay. Yeah, he can --
17 he can ask the questions, but having just a
18 conversation right here is, I don't think, as useful
19 as what I hope we can have which is a conversation in
20 the future.

21 MR. DUCHESNE: I think we can entertain a
22 preliminary discussion. I think that would be more
23 useful than cross-examination and very enlightening
24 for the Board. We don't want to -- Miss Racine?

25 MS. RACINE: No, that's fine. I was just --

1 might I have just two minutes to speak with Dr.
2 Pettigrew for a moment?

3 MR. DUCHESNE: Sure.

4 MS. RACINE: Okay. Is that all right?

5 MR. DUCHESNE: Yeah, five minute break,
6 please.

7 MS. RACINE: All right. Thank you so
8 much.

9 (Break.)

10 MR. DUCHESNE: Well, thank you. I'll call
11 this back to order now. It's kind of exciting
12 because it's a little bit different than how a Board
13 hearing would normally go. Three of us haven't been
14 on the Board a year, one of us has never presided as
15 an officer on any of this before, so this is all new
16 grounds for me. Things I want to be cautious about,
17 by enlarge we're supposed to be sticking to the
18 pre-filed testimony because all parties have had a
19 chance to review that. Second of all, it's not an
20 opportunity to re-engineer the project. What we're
21 actually doing is examining the application, see
22 where it might be deficient, see what this Board may
23 want to make for our recommendations, et cetera, so
24 there was those limits. And the last thing is it has
25 to be in English so we understand what you're talking

1 about. And with that in mind, you can go ahead and
2 proceed.

3 MR. DILL: I guess I --

4 MR. DUCHESNE: Oops, I'm sorry.

5 MR. PARKER: I want to ask Mr. Pettigrew a
6 question that maybe they can address, the two of
7 them, while they're the discussing this.

8 MR. DUCHESNE: Yes, we have a quick question
9 to help set up your discussion from Mr. Parker.

10 MR. PARKER: I'm not sure it's a quick
11 question, but I'll try to make it quick.

12 MR. DUCHESNE: Yes, he doesn't actually --

13 MR. PARKER: Maybe you guys can address this
14 while you're trying to work on something together.
15 But I was quite interested to note that Dr. Byron
16 quoted the volume of the bay but was not willing to
17 get into a discussion about how much water is where
18 and how it moves because when Mr. Pettigrew looked at
19 this he said, well, we've got this water moving
20 around the island, we've got it moving out in
21 different areas, but nobody has addressed the amount
22 of water coming into the bay not from tidal action.
23 The stream itself, okay, that's adjacent to this
24 project puts in 22 million gallons a day. I am sure
25 the Passagassawakeag River puts a lot of water in.

1 I'm sure the runoff from the shore puts a lot of
2 water in. So you've got -- you don't have a basin
3 sitting there with just what water is in it
4 circulating around, you've got all kinds of
5 additional water coming in and the water coming into
6 that bay above and beyond what this 7 million gallons
7 is a tremendous amount of water and that has to be
8 taken into account if someone is going to try to
9 consider dilution factors and movement occurrence and
10 all that stuff. So I commented Dr. Byron for not
11 getting into a discussion of that because none of
12 that information was provided to anyone. There is a
13 basin out there that holds a certain amount of water
14 and it flushes from certain areas, but it's in-fed
15 every single day from multiple sources.

16 MR. DUCHESNE: Okay. So we do have that
17 question? And just another set up for the
18 conversation if we can, I think Mr. Pelletier has a
19 question to enable your conversation and then we will
20 get to in-depth questions from Board and staff after
21 we get through this session.

22 MR. PELLETIER: And I appreciate the
23 indulgence. Just a follow-up on Mr. Parker's
24 question because that's -- putting this in scope and
25 scale is important. And when you're saying the bay

1 we've -- we've talked about Penobscot Bay, but we've
2 also talked about Belfast Bay and Dr. Pettigrew was
3 also taking about the Gulf of Maine. So I'm not sure
4 how far out there, but in particular Belfast Bay,
5 Rockland Bay -- I mean, Penobscot Bay and then
6 beyond, so just some perspective of location. Thank
7 you.

8 MR. DUCHESNE: And Ms. Tourangeau.

9 MS. TOURANGEAU: May I interject just for a
10 second too kind of on the schedule. And I know that
11 Presiding Officer Duchesne said this earlier, but we
12 are taking some of these wastewater witnesses like
13 Dr. Byron and Dr. Pettigrew out of order in order to
14 accommodate scheduling issues and some of these
15 issues when Mr. Dill does testify towards the end
16 will be addressed. And I'm sure it seems a little
17 weird to be doing it this way, but that's part of the
18 reason why you don't have some of the information
19 that you're looking for. It's coming.

20 MR. DUCHESNE: Wonderful comment. Thank
21 you. Very helpful. And you may proceed.

22 DR. NEAL PETTIGREW: I am not quite sure
23 where we stand.

24 (Laughter.)

25 NATHAN DILL: I was thinking I should

1 probably introduce myself. So my name is Nathan
2 Dill. I work with Ransom Consulting on behalf of
3 Nordic Aquafarms. I'm a civil coastal engineer. I
4 have a background in --

5 MS. DOSTIE: Nathan Dill --

6 NATHAN DILL: Yes.

7 MS. DOSTIE: -- I don't think your
8 microphone is on.

9 NATHAN DILL: Oh, I'm sorry. So I'll start
10 over again. I guess I won't get into a big long
11 introduction because I can do that tomorrow. So my
12 name is Nathan Dill. I'm with Ransom Consulting on
13 behalf of Nordic Aquafarms and I -- this was a little
14 bit unexpected, so I wasn't quite prepared for this,
15 but.

16 I guess if -- if I could -- if I could start
17 the conversation --

18 DR. NEAL PETTIGREW: Yes.

19 NATHAN DILL: -- I'll just go back to the
20 initial quote that you had read out of my -- my memo,
21 which I believe that was a member that was on the --
22 on the CORMIX modeling, the near-field analysis.
23 And -- and I think that, you know, there is sort of a
24 general statement in there about, you know, numerical
25 modeling, you know, is not an exact science, it's

1 only going to provide you an estimate and I just -- I
2 think that, you know, I think you'd agree with me
3 that all models whether it's a CORMIX model, a 2D
4 ADCIRC model or a three-dimensional FVCOM model or
5 some other three-dimensional they've all suffered
6 that same problem of they're not -- they're not
7 really able to -- they're not reality, they're just
8 an approximation of reality and they all have this
9 challenge of how do you demonstrate that this model
10 is -- is approximating reality well enough and that
11 requires you to go out and collect data and -- and,
12 you know, run the model, deal with all of the, you
13 know, potential issues with trying to develop and run
14 these models can be a challenge but then also show
15 that model is able to be produced from actual
16 observations.

17 DR. NEAL PETTIGREW: I would agree 100
18 percent with what you just said. And, for instance,
19 the Princeton model that we used years ago down
20 there, we used it exactly that way. The
21 three-dimensional model had every kind of forcing
22 that you could imagine, heat, you know, heat and all
23 of the flow coming in from offshore and all that kind
24 of stuff and how was it used, how do we make sure it
25 was being reasonable. And the answer was we had two

1 buoys at that time down near Vinalhaven, one on each
2 side, and so the model was basically, you know, we
3 made sure that the model agreed with the flow, that
4 was -- that was there. And that flow was unexpected
5 by everybody. Nobody expected there was so much
6 water coming into Penobscot Bay and that's kind of
7 going around and coming back out the other side of
8 the island. So, yeah, I would agree it's -- you can
9 think of it as a dynamic interpolator really. I
10 mean, that's really what it does. I mean, you know
11 what it is where you have made measurements, you
12 don't know what it is between, so rather than just
13 doing a straight line between them you use dynamics
14 to try and get a better picture of what's between the
15 two points or the five points or whatever that you
16 know. So, yeah, they're much more powerful at doing
17 that than we are but it's just a tool.

18 NATHAN DILL: And so the -- when I first
19 started looking at this, you know, one of the -- one
20 of the things I had to, you know, had to figure out
21 what, you know, what the field is, how are we going
22 to approach this problem and you look at what the
23 regulations are and it essentially, you know,
24 suggests that you use this model CORMIX, which CORMIX
25 is a -- is not a -- not sort of a discreditizing

1 numerical model so much as it is a three-dimensional
2 solver that gives, you know, that uses different
3 models to -- I'm not sure how familiar you are with
4 the CORMIX, but it's really designed to be applied in
5 an application for wastewater discharge and -- and
6 it's -- and it looks at -- it looks at how the
7 discharge is going to behave when -- when that --
8 right from when that water is ejected into the water
9 column until it -- until it, you know, goes through a
10 sort of transformation where the momentum of the
11 velocity of the water coming out is kind of stirring
12 up the water around, mixing it together and it looks
13 at, you know, the effects of the buoyancy and the
14 plume, you know, in this case it's -- it's fresh
15 water so it's -- it's fresher water than the water
16 that is -- that is around there just about all of the
17 time, I believe it will be all of the time and so
18 it's going to rise and that will usually dominate
19 over temperature differences when it's potentially
20 colder in the -- in the summertime the discharge
21 would be colder than the -- the -- but so that --
22 that model was kind of the first thing we looked at
23 and one -- one of the difficulties of that model
24 although it's well-established as sort of the model
25 to -- to look at how, you know, how you're going to

1 dilute water from a discharge like this is that it's
2 a steady state model, so it only kind of considers
3 the current moving in one direction.

4 MR. DUCHESNE: May I just briefly --

5 NATHAN DILL: Yes.

6 MR. DUCHESNE: -- interrupt? There is a lot
7 of testimony type discussion --

8 NATHAN DILL: Yes.

9 MR. DUCHESNE: -- and I just need to check
10 and see if you've actually been sworn in as a witness
11 just to make sure we have a --

12 NATHAN DILL: Oh, no, not yet.

13 MR. DUCHESNE: So have you -- have you been
14 sworn in?

15 MS. RACINE: Not yet that.

16 MR. DUCHESNE: Do you affirm that the
17 testimony that you are about to give is the whole
18 truth and nothing but the truth?

19 NATHAN DILL: Yes, I do.

20 MR. DUCHESNE: Thank you. And, again, as
21 much as possible asking questions of the witness --
22 the benefit of this is it's much better to have a
23 qualified scientist asking a question in
24 cross-examination than an attorney. And no offense
25 to the attorney.

1 MS. TOURANGEAU: I agree.

2 MR. DUCHESNE: But you're on solid ground
3 here, but I would like to try to keep it as much as
4 possible to questions about some of his testimony
5 that was both pre-filed and also as it pertains to
6 the application.

7 NATHAN DILL: So I did try to scribble down
8 some questions while Dr. Pettigrew was testifying so
9 maybe I'll just ask them.

10 DR. NEAL PETTIGREW: Okay.

11 NATHAN DILL: You know, I guess, you know,
12 were you aware that the CORMIX model is a 3D model
13 and that it looks at the three-dimensional behavior
14 of the discharge?

15 DR. NEAL PETTIGREW: I had the --

16 NATHAN DILL: Oh, go ahead. Keep going.

17 DR. NEAL PETTIGREW: Yeah, as I -- I -- as I
18 have said -- well, maybe I didn't. Yeah, I know very
19 little about the CORMIX model. I know very little
20 about it. I haven't -- I haven't looked into it and
21 so forth. I knew it was a -- that it was a steady
22 state and -- and I wasn't even sure that it was
23 three-dimensional.

24 NATHAN DILL: Yeah, it does give -- it gives
25 you a three-dimensional picture of what the plume

1 looks like. And the -- the challenge with it that I
2 tried to point out in the -- in the memo that went to
3 Nordic Aquafarms in it's -- in the -- in the permit
4 application is that it -- it is a -- the problem with
5 CORMIX in a tidal environment is it's a steady state
6 model, so it just -- it just looks at the flow going
7 one way constantly. So you've got -- you've got
8 this, you know, water that's being discharged into a
9 column of water that's essentially moving, you know,
10 in one direction and -- and the challenge with that
11 is in a tidal environment the water actually -- the
12 speeds change and the water may come back and so when
13 that water comes back you've got some of the diluted
14 water still in that water that's moving back.

15 DR. NEAL PETTIGREW: Absolutely.

16 NATHAN DILL: And so -- and so -- so what
17 can happen is if you just apply CORMIX to situations
18 like this is it may underestimate what the
19 concentrations are or what the actual dilution is
20 after you had many tidal sessions going back and
21 forth. And so we went to the --

22 MR. DUCHESNE: So I'm sort of looking for
23 the question here.

24 NATHAN DILL: Right. Okay. I'll keep going
25 on to the questions. So -- all right. So I guess

1 would you agree with me that the -- that the currents
2 that are driven by sort of the eastern Maine coastal
3 current that are, you know, driving additional
4 current in addition to the -- to the tidal current
5 would actually be an additive effects -- it would
6 have an additive effect on the instantaneous current
7 at a specific time?

8 DR. NEAL PETTIGREW: Well, I guess the
9 answer is yes. It's -- it has more effect when
10 you're down in the southern part of the bay. We --
11 but when we put our buoys in there we found out that
12 we still had flow coming in even with drifters that
13 we put in and they weren't drifters at the surface.
14 The drifters were droves that are down at some depth
15 and, yes, so the flow does --

16 NATHAN DILL: Is that even -- even on an
17 ebbing tide? Or is that a -- is that like highly
18 averaged flow?

19 DR. NEAL PETTIGREW: It can -- well, some of
20 the flow coming in is about the same size as the
21 tide, yeah, but basically, you know, from our point
22 of view when you care about where stuff is going it's
23 not going due to the tides. The tide is just going
24 back and forth and, like I said, for the size of the
25 tidal current it's not going very far. It's going,

1 you know, a kilometer or something like that. The
2 real flow is the mean flow.

3 NATHAN DILL: So is -- so I guess if the
4 ADCIRC model, which we've developed, it doesn't
5 include that current. It also doesn't include wind
6 force.

7 DR. NEAL PETTIGREW: Exactly.

8 NATHAN DILL: It's essentially just
9 simulating the tide going back and forth.

10 DR. NEAL PETTIGREW: Yes.

11 NATHAN DILL: So what's that going to do to
12 an estimate of the dilution compared to a model that
13 may actually have an additional current that has been
14 providing a larger circulation around Islesboro? If
15 I look at how the -- how the water is going to
16 disperse, you know, throughout the bay.

17 DR. NEAL PETTIGREW: I am not sure if I
18 understood the question, but let me try to answer it.
19 If you, you know, it's actually -- you have this
20 small little tidal excursion --

21 NATHAN DILL: Mmm Hmm.

22 DR. NEAL PETTIGREW: -- and so that water
23 from the tides it just stays in that same area and
24 you just keep adding stuff to it over and over if
25 there weren't any mean flow. Now, the mean flow is

1 going to move it somewhere else. Some of it may go
2 over towards the -- towards Belfast Bay, harbor or
3 bay, whatever you call it, some of it might go
4 around. So in other words, if it was really going
5 south the way -- the way your model seems to think it
6 is, it -- it would wind up going out a lot faster
7 than -- than it does now because it's -- some of it
8 might go up the river, some of it will go around the
9 other side and come down and so you're going to have
10 more of it in Penobscot Bay than you would have if it
11 just headed south, but I'm not sure if that's what
12 you're asking.

13 NATHAN DILL: Well, I -- yeah, so it's not
14 exactly because it's not so much -- what I'm not so
15 much -- we're not so much interested from the impacts
16 perspective and where it's going but more how much is
17 diluted, so. So if it's -- if it's going back and
18 forth -- we have many models saying it's going back
19 and forth and may be traveling slowly with the river
20 discharge that -- that's pushing it and I would -- I
21 would -- you haven't seen the full model results --

22 DR. NEAL PETTIGREW: No.

23 NATHAN DILL: -- so the ADCIRC model does
24 actually show that if you get closer to Islesboro the
25 current goes north just from the tidal --

1 MR. DUCHESNE: Yeah, would you be able to
2 come back and cross-examine --

3 NATHAN DILL: -- circulating -- yeah, sorry.

4 MR. DUCHESNE: Would you be available to
5 come back tomorrow and cross-examine Mr. Dill?

6 DR. NEAL PETTIGREW: I have -- I have -- I
7 teach tomorrow, so I can't.

8 MR. DUCHESNE: Oh, no. It would have been
9 very enlightening. I do want to as much as possible
10 move forward with questions.

11 NATHAN DILL: Ask questions. Okay. So I
12 guess what I'm getting at is would you agree with me
13 that adding additional forcing that's going to drive
14 non-tidal currents in the model are going to tend to
15 disperse the, you know, if the -- from a particle
16 tracking respect use particle tracking to represent
17 where the discharge is going to go, if I add
18 additional currents that are non-tidal that they
19 would tend to disperse that -- those particles more
20 throughout the -- the bay. They may -- they may end
21 up going north some, but other times they're going to
22 go south and so that is, you know. Sorry, if that's
23 a question.

24 DR. NEAL PETTIGREW: Well, I guess it's a
25 hard -- it's a hard answer. I don't really

1 understand the question, but, yeah, if you can -- if
2 you can say there are events going on and it's
3 generally going north but sometimes it goes south
4 with a wind event or something like that, so, yeah,
5 then it's sort of like you've taken the tidal
6 excursion and extended it a little bit, so that's
7 true that would happen. But, you know, when it
8 spends a while going south and then spends a while
9 going north, I just think that -- I don't know
10 exactly how fast you thought it was going south,
11 whatever the model shows the strongest --

12 NATHAN DILL: Well, I think if you look --
13 if you look at the ADCIRC model results and I know
14 it's hard to show certain animation of what the tidal
15 excursion looks like, but if you -- I don't know, I
16 guess I'm testifying more than making a question
17 here, but.

18 DR. NEAL PETTIGREW: Yup.

19 NATHAN DILL: But the -- your -- the tidal
20 excursion from the ADCIRC model even though it's a
21 two-dimensional model, I guess, would you agree that
22 it's able to -- to simulate conservation of mass in
23 such a way that the tidal excursion that comes out of
24 the model if the -- it's getting the water level
25 right, that in order to get those water levels right

1 and it's conserving mass that that is going to
2 essentially give you an accurate representation of
3 the tidal excursion.

4 DR. NEAL PETTIGREW: Well, I certainly am
5 not going to say no because I really don't understand
6 your model very well. The only thing that I thought
7 was that you had -- that you had south flow that was
8 much stronger than we really expected and therefore
9 you're moving it out of a region a lot whereas if it
10 was weaker and it stayed in the region then you would
11 keep adding stuff to the same area of the tidal, so.

12 NATHAN DILL: Okay. All right. But you
13 don't -- would you agree with me that you don't
14 really know -- and I don't think it's necessarily
15 been reported what exactly the average flow rate
16 coming out of the ADCIRC model is --

17 DR. NEAL PETTIGREW: No, I don't know.

18 NATHAN DILL: -- compared to what may have
19 come from the POM model or other modeling.

20 DR. NEAL PETTIGREW: Correct. I don't know.

21 NATHAN DILL: I think just to change the
22 questions a little bit -- line of questioning a
23 little bit, so are you aware there is other
24 discharges in Penobscot Bay that are discharging
25 nitrogen and nutrients and other things?

1 DR. NEAL PETTIGREW: Sure.

2 NATHAN DILL: Do you know if any of them
3 that have applied the three-dimensional circulation
4 model or even a two-dimensional circulation model to
5 evaluate the -- what's going to happen with those
6 nutrients?

7 DR. NEAL PETTIGREW: I believe
8 Passagassawakeag River was included in the POM model.

9 NATHAN DILL: Mmm Hmm.

10 DR. NEAL PETTIGREW: I'm not sure. I don't
11 remember any others in particular.

12 NATHAN DILL: I guess I'm not asking about
13 fresh water inflow, I'm asking about wastewater
14 discharges.

15 DR. NEAL PETTIGREW: No, I have -- no, I
16 have no knowledge of that.

17 NATHAN DILL: So would you agree with me
18 that applying all these dimensional bay-wide models
19 is kind of going above and beyond what has been done
20 for other wastewater discharges in the bay?

21 DR. NEAL PETTIGREW: I would -- I would
22 agree, yes.

23 NATHAN DILL: Yeah, me too.

24 (Laughter.)

25 MR. DUCHESNE: Thank you. You can continue

1 in a moment. I just want to say what's valuable to
2 us is one of the things the Board is going to have to
3 wrestle with is what is the actual result of this
4 kind of discharge and because what we heard from the
5 public last night is the same concern that's being
6 echoed here. Is it dispersing so fast that we see
7 negligible effects or does it collect somehow and
8 create unintended effects that we're not aware of.
9 That's probably going to end up being a key point of
10 discussion within the Board as we deliberate, so the
11 clearer we are on it the better. Furthermore, and
12 Mr. Dill will have an opportunity to later testify
13 and be cross-examined, et cetera, so we don't have to
14 get too far in the weeds on -- on his modeling. I
15 think what we do need to do with the questions is
16 your testimony and -- and his reaction to it and the
17 type of questions that would be asked by counsel. So
18 we can finish up.

19 NATHAN DILL: I guess the question --
20 another question I have is just are you aware that --
21 that the -- there will be, you know, additional data
22 collected and monitoring going forward that will be
23 able to provide more -- more actual, you know,
24 in-situ data in this location --

25 DR. NEAL PETTIGREW: Well, obviously --

1 NATHAN DILL: -- before the --

2 DR. NEAL PETTIGREW: Yup. Sorry.

3 NATHAN DILL: -- before the plant has sort
4 of ramped up to it's full capacity?

5 DR. NEAL PETTIGREW: Yeah, I did -- I did
6 read that and I said I'm really pleased about that
7 more data is going to be collected. The question
8 that I always worry about is like who is going to be
9 collecting the data. It is it somebody with the
10 company and do they just tell you what they want you
11 to hear that -- that looks good for them or is it
12 somebody who is going to be sort of just interested
13 in what's really happening in that region. And so
14 that's -- that's the issue. That's why I would like
15 to have discussions and try and help design things
16 like this. Basically just keep saying, you know, we
17 really need this baseline. We don't have a good
18 baseline right now and when just make -- when you
19 make measurements for a few days in the -- in the
20 summer season or all of the seasons it doesn't really
21 mean you know what it's like throughout the season,
22 that's why I like the idea of having a continuous
23 model for about a year so you see all of the seasons.
24 You see all -- that doesn't mean the next year is
25 going to be just like it, but at least gives you a

1 start. And if I were the company, which I'm not,
2 but, I mean, it's a question of whether are you going
3 to do this only after you've already started building
4 so you're already making changes to the -- to the
5 local region and you're saying that, well, it's only
6 partially being operated right now not a full bore,
7 but -- but you're already putting them in before
8 you've had a chance to make a decision is this a good
9 place, is this enough -- is this too much water, is
10 it not -- or can we do a lot more water than this, we
11 don't know, you know, I certainly don't know the
12 answer to that. I don't know if the company does
13 either.

14 NATHAN DILL: One more question. Are you
15 familiar with the Penobscot Bay oil spill study that
16 was done by Normandeau for the Department of
17 Environmental Protection and published in -- or
18 reported in 1978?

19 MS. RACINE: I -- I would object to this as
20 a bit outside the scope of direct, but, I mean.

21 NATHAN DILL: Well, I -- I just -- if I
22 could --

23 MR. DUCHESNE: It's borderline, but I'll
24 allow it.

25 MS. RACINE: Okay.

1 MR. DUCHESNE: Thank you.

2 NATHAN DILL: I'm just getting to the
3 testimony regarding the -- the full season. So are
4 you aware that that report provides information from
5 a data that was collected throughout an entire year
6 since 1975 including stratification and data
7 measurements in -- in Belfast Bay?

8 DR. NEAL PETTIGREW: So that was data that
9 was gathered in real time, so every hour or whatever
10 you get data from the whole year; is that correct?

11 NATHAN DILL: I -- I -- no, there were
12 not -- there was not a full year of time series
13 recorded, but there were samples and -- and
14 measurements during -- during different time periods
15 ranging throughout the year during different seasons.

16 DR. NEAL PETTIGREW: I -- I have a vague
17 memory of that. Like you said, it was a long time
18 ago even for me. But -- but the point that I am --
19 that I always make is just having little times when
20 you -- you looked at it here and you looked at it
21 there, we have big changes, as you know. There are a
22 lot of changes that happen and when you were there
23 may or may not have been something that was really
24 typical for that particular -- that particular month
25 or that particular season, so that's why I am in

1 favor of something that's continuous.

2 MR. DUCHESNE: Thank you. That's why I
3 allowed the question to get to the point of what kind
4 of measurements do we need to have and over what time
5 period in order to have a better idea of how this
6 whole system works, so I appreciate that.

7 NATHAN DILL: Just if I could follow-up with
8 that.

9 MR. DUCHESNE: Briefly.

10 NATHAN DILL: Are you aware that that data
11 does provide a range of conditions in terms of
12 temperature at depth and the stratification and
13 that -- that information from that report giving that
14 range of stratification throughout the different
15 seasons -- was used to provide the --

16 MS. RACINE: Objection. I --

17 NATHAN DILL: -- in the CORMIX modeling?

18 MS. RACINE: Objection.

19 MR. DUCHESNE: I'll entertain the objection.
20 I think you're probably going to be sustained on
21 this, but go ahead.

22 MS. RACINE: Objection. I believe he is
23 more testifying as to someone's opinion about the
24 contents of the report than asking a question about
25 it.

1 MR. DUCHESNE: Yes, and more to the point, I
2 think this is way outside of any pre-filed testimony.

3 MS. RACINE: I agree.

4 MR. DUCHESNE: So the discussion has
5 been effective.

6 DR. NEAL PETTIGREW: We'll talk about that
7 later.

8 MR. DUCHESNE: You should have a very
9 entertaining phone call. I do want to check with
10 Miss Tourangeau to see if there is any additional
11 questions that you would like to ask Dr. Pettigrew.

12 MS. TOURANGEAU: I'll do a couple.

13 NATHAN DILL: Okay.

14 MR. DUCHESNE: Okay. Great. Thank you,
15 Mr. Dill.

16 MS. TOURANGEAU: Good morning.

17 DR. NEAL PETTIGREW: Good morning.

18 MS. TOURANGEAU: I'm just going to ask a
19 couple, two probably, questions.

20 DR. NEAL PETTIGREW: Okay.

21 MS. TOURANGEAU: So overall you think the
22 best approach would be a year long science experiment
23 to figure out what's going on in the bay?

24 DR. NEAL PETTIGREW: Yes.

25 MS. TOURANGEAU: Okay. Assuming that's not

1 required, would modeling be an acceptable mechanism
2 for determining impacts at the outfall?

3 DR. NEAL PETTIGREW: Well, I mean, modeling
4 is used by a lot of people rather than actually --
5 actually making actual measurements so you can really
6 tell what's going on, so it's -- it's cheaper and
7 that's why people do that, but me, personally, no, I
8 don't believe that use -- that's not enough. In
9 fact, the models have to be calibrated by the actual
10 data that's existing and data that that's going on in
11 real time is the easiest way to do that.

12 MS. TOURANGEAU: So there is no alternative
13 in your opinion to doing a full on science experiment
14 that is by modeling? That's -- modeling just is not
15 an adequate substitute in your opinion?

16 DR. NEAL PETTIGREW: In my opinion, yes,
17 that's correct.

18 MS. TOURANGEAU: Okay. So a combination of
19 CORMIX, which is 3D modeling, ADCIRC and
20 Maureparticle tracking is not an acceptable modeling
21 regime for you?

22 DR. NEAL PETTIGREW: No. I mean -- I mean,
23 how did we do -- when we did an experiment 20,
24 almost -- well, it was more than 20 years ago, what
25 did we do? We had real time data making measurements

1 at multiple depths. We measured all of the, you
2 know, the temperature, the salinity, we measured all
3 of the currents, we measured all the wind, we
4 measured the atmosphere pressure, we did all of that
5 at a lot of locations. We also had a
6 three-dimensional model running at the same time. We
7 also had drifters that were thrown in to prove that
8 the flow went around the islands. We also had
9 buoy -- I mean, we also went out on boats and did
10 surveys. We spent a whole day going back and forth
11 across the channel to make sure that we got rid of
12 the tidal current and see which way is the flow is
13 going and that kind of thing. So, yeah, we believe
14 that you have to do a lot of different things
15 together. Just putting a model in there is just
16 like -- it's just a very small part of -- as a
17 scientist of what we think we need to do to
18 understand this.

19 MS. TOURANGEAU: Mmm Hmm. And so although
20 there will be testing that goes on and sampling and
21 all, you know, compliance with all of the applicable
22 regulations after the fact that in combination with
23 modeling of three different varieties in advance is
24 inefficient without a full science experiment?

25 DR. NEAL PETTIGREW: Well, that's my --

1 that's my belief, yes.

2 MS. TOURANGEAU: Okay. Thank you.

3 DR. NEAL PETTIGREW: I think if you -- I
4 mean, the modeling that has been done is not a
5 three-dimensional circulation model, so they haven't
6 even done that.

7 MS. TOURANGEAU: The CORMIX modeling, I
8 believe, is a three-dimensional.

9 DR. NEAL PETTIGREW: That's -- that's steady
10 state. So that's not even -- I mean, that's not even
11 really a model, it's a calculation really.

12 MS. TOURANGEAU: The Maureparticle also adds
13 on another dimension of that, correct?

14 DR. NEAL PETTIGREW: Well, all of those
15 models do the same thing. We put the particles in
16 ours too so we can tell exactly, you know, based
17 after we calibrate it with all of the measurements
18 that are going to be in real time we can actually
19 figure out how long by the time this stuff goes out.
20 We do it with things like lobster larvae and stuff.
21 We can put them in saying they're here, how long does
22 it take before they get someplace else, so it's a
23 more -- it's a more complete method if you really are
24 interested in understanding what is actually acting
25 in that area and then you have a, you know, like a --

1 you basically have this baseline to understand, okay,
2 so now if we go out and we see changes we'll be able
3 to see what the changes were.

4 MS. TOURANGEAU: And you understand that
5 even the modeling that's been done, the three
6 different types of modeling, the CORMIX, the
7 three-dimensional steady state, the ADCIRC and the
8 Maureparticle has not been done for other discharges?

9 DR. NEAL PETTIGREW: Oh, other people?

10 MS. TOURANGEAU: Correct.

11 DR. NEAL PETTIGREW: I didn't know that for
12 sure, but I --

13 MS. TOURANGEAU: Yeah.

14 DR. NEAL PETTIGREW: -- I agree with what
15 you said.

16 MS. TOURANGEAU: Thank you.

17 DR. NEAL PETTIGREW: Okay.

18 MR. DUCHESNE: Thank you very much. I
19 believe we'll go to DEP and staff and Board questions
20 now. Questions from the Board or staff? Let me just
21 double-check.

22 MS. BENSINGER: Ms. Tucker, did you want to
23 make your request?

24 MS. TUCKER: There were just a few questions
25 we had based on -- oh, I don't have a microphone.

1 MS. BENSINGER: Can you use your microphone,
2 please?

3 MR. DUCHESNE: And be prepared to define --

4 MS. BENSINGER: No, no, no, use your
5 microphone.

6 MS. TUCKER: I don't have a microphone.

7 MS. BENSINGER: Oh, I'm sorry.

8 MR. DUCHESNE: And be prepared to define
9 what few is.

10 MS. TUCKER: Three. Three questions and
11 they're very brief I would hope, but I don't think
12 they're going to elicit a lot, but I do think based
13 on the discussion that we have three questions.

14 MR. DUCHESNE: Does anybody object? Good.
15 Thank you very much. And, again, we are allowing
16 some latitude so long as it is brief and it's mostly
17 a timekeeping matter for me. We have not gone way
18 past schedule, so we're doing all right on time, so I
19 can entertain the request, but that may not always be
20 true but in this case it is, so please proceed.

21 MS. TUCKER: Thank you very much. The first
22 question I have, Dr. Pettigrew, is the proposal for
23 this project is to discharge 7.7 million gallons a
24 day of wastewater into the bay every day. Will
25 Nordic really be able to discharge wastewater into

1 the bay every day or will there be days where the
2 tides or storms or other weather conditions or power
3 outage, although they do have back-up generators, but
4 will there be days where they will not be able to
5 discharge into the bay pursuant to the modeling
6 that's been presented by Mr. Dill and -- and sort of
7 the optimal concept?

8 MS. TOURANGEAU: This goes beyond the scope
9 of Dr. Pettigrew's pre-filed testimony.

10 MR. DUCHESNE: It does, yes. I will sustain
11 the objection assuming that was an objection.

12 MS. TOURANGEAU: It was.

13 MR. DUCHESNE: Thank you. And if you just
14 narrow the question down to the testimony.

15 MS. TUCKER: Well, are you concerned about
16 there being times when the wastewater would be
17 discharged into the bay or not circulate the way
18 because of weather conditions?

19 DR. NEAL PETTIGREW: Well, I guess I'm not
20 quite sure if I understand the -- I have no idea
21 whether they're going to -- like I -- when they say
22 they're going to do so much per day, I have no idea.
23 Is it going to happen all at once part of the day or
24 is it going to be equal all times of the day? I
25 don't have any idea how they're -- how they're

1 planning on doing this.

2 MS. TUCKER: And would that change your
3 opinion about the impact of the discharge if it was
4 done at different rates at different times of day or
5 how that was -- the discharge is planned?

6 DR. NEAL PETTIGREW: I suppose it could be
7 differently. They could pick a different tide if --
8 they could put it all during that time and it would
9 have a change, yeah, they could maybe make it go in a
10 direction they liked better than if they just put it
11 out at all times with the tide.

12 MS. TUCKER: Based with your experience with
13 the bay are there slack tides or spring and fall
14 variations that would impact whether this model
15 works?

16 DR. NEAL PETTIGREW: Well, I -- I haven't
17 studied that far north of Islesboro, so I don't know
18 any real details about that, but, I mean, no matter
19 where you are tides change in the spring and their
20 needs and all that good stuff, but I'm sure they're
21 expecting that.

22 MS. TUCKER: Would you expect that there
23 needs to be storage capacity on days you can't make a
24 discharge to the bay?

25 MS. TOURANGEAU: Objection. This goes

1 beyond the scope of any pre-filed testimony.

2 MR. DUCHESNE: Yeah, sustained.

3 MS. TUCKER: Thank you.

4 MR. DUCHESNE: Thank you. Now, we can go to
5 Board and staff questions. Mr. Sanford.

6 MR. SANFORD: Do you think the models either
7 two-dimensional or three-dimensional adequately
8 account for what appears to be more dynamic
9 hydrologic loading or things that might happen as a
10 result of changing climactic factors? Because we --
11 we seem to be in a period where -- because I know
12 there's data collected on present and past, but if we
13 enter a period of change are the models -- can this
14 be robustly or sufficiently anticipated?

15 DR. NEAL PETTIGREW: I'm not sure I
16 understand the question, but if you're thinking about
17 ocean climate change things and we know that is
18 happening. As a matter of fact, you know, having a
19 buoy out, you know, talking about something a little
20 bit different but it gives you the idea, we've had a
21 buoy that's out in the northeast channel right next
22 to George's Bank and there is -- the flow, all of the
23 nutrients that come into the Gulf of Maine come in
24 there and that's what makes us have lots of fish and
25 things like that eventually, so we have seen changes,

1 you know, over the last 10 years or so with the flow
2 has completely changed. Instead of always bringing
3 the nutrients in, now during the winter that slope
4 water goes back out, so, yeah, I mean, the models
5 aren't necessarily going to predict that's going to
6 happen but when you do have a -- when you do have
7 measurements there you see it happening and then you
8 can adjust your models to try and see how that effect
9 will spread throughout more of the gulf and/or the
10 bay, wherever you're doing the modeling. I'm not
11 sure if I answered the question.

12 MR. SANFORD: Well, yeah. Do you think such
13 changes are likely to continue?

14 DR. NEAL PETTIGREW: Yes.

15 MR. SANFORD: Okay.

16 MR. DUCHESNE: Other questions from the
17 Board? Yes, please proceed.

18 MR. PELLETIER: I understand that the -- I
19 understand that kind of the big picture principle
20 behind all of this and that Dr. Byron talked about
21 and it kind of makes sense is that dilution is the
22 solution here in the big picture, you know, but the
23 localized effects I think are big huge concerns by
24 many that expressed last night and, you know,
25 temperature and a lot of the different effluence that

1 are coming out. Is it possible to, you know, to
2 model with the information that we have without
3 conducting a year long science experience as was
4 referenced, a -- something that could actually look
5 at the Belfast Bay locality with existing models
6 right now? Or what I understand from you is we just
7 don't have those data to actually characterize
8 that -- those conditions right now.

9 DR. NEAL PETTIGREW: I'd say that we
10 probably don't have all of the data we need, but on
11 the other hand, you know, like I said, the
12 Penobscot -- I mean, the Princeton model is no longer
13 the one that we would use and we are starting up
14 another model that's more -- more modern than that.
15 And I can imagine it might be of some use, for
16 instance, when you do have winds coming from the west
17 you get a huge effect on the flow, you know, in that
18 area of -- or Belfast Bay area and a lot of the flow
19 from the river is going to be coming in. But if you
20 had -- if you had water that was just discharged in
21 that area that could very well be -- by the wind
22 could very well wind up on the beach in that area.
23 On the other hand, if it flows in the opposite
24 direction it will wind up bothering Islesboro instead
25 of Belfast. But those kinds of effects can happen, I

1 mean, storms or even just changes in wind are a big
2 effect and models are capable of doing that. I just
3 don't know how, you know, if we -- I don't know
4 how -- what -- you know, how much of the -- what that
5 water is going to be like that they're going to be
6 discharging. I have no idea of the details of what's
7 going to still be in there.

8 MR. PELLETIER: Thank you.

9 MR. DUCHESNE: I'll ask one, I guess. There
10 is a lot of talk about the gulf changing. Mola mola
11 ocean sunfish used to be relatively scares out there
12 and last year they were like speedbumps. Is that
13 really going to invalidate much of the previous
14 experience in model and data collection as things
15 change so rapidly so we don't have such a good
16 historical baseline to go on?

17 DR. NEAL PETTIGREW: Well, I mean, I think
18 the -- when we -- we have to use -- I mean, one of
19 the -- this is -- it's hard to say this, but the
20 hardest thing we used to have every time we did
21 modeling was getting the salinity correct and we
22 rarely got that right and you really -- you have
23 these open boundaries to everything because the whole
24 ocean is connected and so that is -- that is
25 difficult. I don't -- I don't think that, you know,

1 as we know more about the changes that are happening
2 then the models can adjust those, but I'm not sure,
3 like I said before, I don't know whether it's useful
4 or not but you can just think about it, but you never
5 really know what's happening unless you're making
6 measurement and then -- and these models really are
7 just it's like a -- it's a dynamic interpolation and
8 so it will do that if you -- if you have some data
9 telling you there have been changes it will try to
10 give you an idea of not just where you had the
11 measurements but nearby also.

12 MR. DUCHESNE: Yes, Mr. Wood.

13 MR. WOOD: Dr. Pettigrew, if a discharge
14 permit was issued for this proposed activity, would a
15 dye study be helpful?

16 DR. NEAL PETTIGREW: I think a dye study
17 would be helpful. A lot of times people might not
18 like it when it happens because, you know, it makes a
19 bit -- but it would be -- I forget what it's called,
20 that red stuff, some people might freak out when they
21 see that, but I think that would be a good idea to
22 see kind of where it would go. The trouble, I mean,
23 the studies, you know, you have to do it at different
24 times of the tide or different times of the year and
25 different, you know, what's the wind doing, but,

1 yeah, I think it would be a great way to be able to
2 see where, you know, just be able to look from the
3 surface what you're going to be able to see and if
4 not you can lower instruments that can make
5 measurements and find out how much is down there.
6 So, yeah, I think it would be a good idea if you can
7 get people to agree that -- I've had -- I've only
8 done it once and usually people are always -- don't
9 want me to do it.

10 MR. WOOD: Thank you.

11 MR. DUCHESNE: We do have one question from
12 the audience. We should probably give you an
13 opportunity to sum up as well for a minute. A
14 question from the audience, what recommendations for
15 further background and baseline data is needed for
16 the Board of Environmental Protection to have
17 sufficient information to judge the applicant's
18 submission regarding currents?

19 DR. NEAL PETTIGREW: Can you read that to me
20 one more time?

21 MR. DUCHESNE: Sure. What recommendations
22 for further background and baseline data is needed
23 for the Board of Environmental Protection to have
24 sufficient information to judge the applicant's
25 submission regarding currents? I'd also like to

1 commend the penmanship of the person who wrote this
2 question. Thank you.

3 DR. NEAL PETTIGREW: I'm not -- I'm not sure
4 I can really -- I don't know what the Board really
5 needs, honestly. I don't know much about the Board.
6 I know that -- all I can -- and, you know, I'm not
7 sure I am answering the question correctly, but I
8 guess I could say that I'm somewhat of an expert
9 relative to most other people about the circulation
10 in Penobscot Bay. I don't think I know enough about
11 it to answer that question myself, so I would assume
12 that you need more information as well.

13 MR. DUCHESNE: I think maybe the faster way
14 to sum up the question is what advice would you give
15 the Board and what should we pay attention to as we
16 start to deliberate on this? Given the fact that you
17 had some concerns the models that were used, what
18 Mr. Dill was questioning about earlier about his
19 models, how should the Board analyze this when we get
20 to it? Any suggestions?

21 DR. NEAL PETTIGREW: Well, I don't know
22 how -- how -- I mean, it seems like you'd have to do
23 it like right now and so --

24 MR. DUCHESNE: No, not yet.

25 DR. NEAL PETTIGREW: Okay. Well, yeah, I

1 guess the idea is, I mean, we're taking our time
2 unfortunately, but we -- we are getting ready. I
3 have a lot of data out there. I only mentioned one
4 experiment a number of times when we have other data
5 out there and we're finally getting around feeling
6 how important this is for a lot of people. We're
7 just getting back to this -- to this -- and I -- my
8 only -- the only excuse I want to give you is, you
9 know, I started a bunch of other experiments in the
10 meantime, so we haven't really worked all the way
11 through all of this. We haven't published it yet
12 honestly. And we're developing a new model that will
13 answer -- that will be much better than the -- than
14 the Princeton model that we used in the past. So
15 we're working on that now, but we realize that, you
16 know, that it's not going to happen in the next month
17 or two. We're hoping to get something published, you
18 know, within the year, but.

19 MR. DUCHESNE: Great.

20 DR. NEAL PETTIGREW: I'm not sure I'm
21 answering the question.

22 MR. DUCHESNE: No, that's fine.

23 DR. NEAL PETTIGREW: Okay.

24 MR. DUCHESNE: Yes, we have a question from
25 Ms. Bertocci.

1 MS. BERTOCCI: Okay. We've been down in the
2 details for a while, so I want to just step back and
3 make sure I have a sense of your general assessment
4 of what you feel the probability is that the effluent
5 could sort of stagnate. You talked about the
6 sloshing back and forth, so given the relative
7 inflows of the fresh water from the Penobscot River
8 and from the Passagassawakeag and the other inputs of
9 fresh water what you know about the bisymmetry of
10 Belfast Bay versus Penobscot Bay and your belief
11 about the general circulation, what's your level of
12 concern that we could see stagnation of the Belfast
13 Bay area with the influence from the effluent?

14 DR. NEAL PETTIGREW: Well, I don't know -- I
15 haven't studied Belfast Bay. I don't know anything
16 about the -- what the bottom really looks like. I
17 haven't paid close attention to it. I guess what I
18 would say is there are always issues that one has to
19 worry about because when you have changes in the bay
20 like you've got a cove or the shoreline curves or
21 something and you have flow going by it and then you
22 have something that's called a secondary circulation
23 that can happen. So imagine you've got flow going
24 this way and then there is this area where the
25 shoreline suddenly goes like that. Well, what do you

1 think happens? What happens as that this flow goes
2 by, it winds up kind of generating a secondary
3 circulation that goes around and around that cove and
4 so, you know, I mean, things like that could happen.
5 So some of that water that you're trying to get out
6 of Penobscot Bay, some of that may get into that cove
7 and go around for a while, that's -- that's secondary
8 circulation that normally happens. I don't -- I
9 don't have any predictions to tell you where that is
10 going to be. I just can't guarantee you that there
11 aren't places where, yeah, it might hang around
12 longer than we would expect.

13 MS. BERTOCCI: Thank you.

14 MR. DUCHESNE: Great. Thank you. We can
15 now, I believe, proceed to redirect.

16 MS. RACINE: We're going to waive
17 redirect.

18 MR. DUCHESNE: Okay. There is no cross so
19 we can proceed. Thank you very much. You've been
20 very helpful. We can take a five minute break.

21 (Break.)

22 MR. DUCHESNE: And as you are moving towards
23 your seats, I would call attention to a few people
24 who have joined the table up here. From the
25 Department, I believe Nick Livesay was sitting in the

1 back during most of the proceedings; Beth Callahan,
2 Project Manager has joined us up front; Dawn
3 Hallowell, I think, was observing from the back
4 before, she's now up front because these are issues
5 that she deals more closely with than the rest of us;
6 Susan Lessard and Mark Draper from the Board are
7 eligible to participate in this discussion and they
8 have now joined us on the Board as well.

9 So we can now proceed with Nordic witnesses
10 you can jump right in. Let me just check and make
11 sure everyone has been sworn in. Yeah, Miss
12 Tourangeau is not here. She may have some interest
13 in this. While we're fetching her, if you can just
14 stand for a moment and raise your right hand if you
15 have not been sworn in. Do you affirm the testimony
16 you are about to give is the whole truth and nothing
17 but the truth?

18 (Witnesses affirm.)

19 MR. DUCHESNE: Thank you so much. And I'm
20 just going to wait for a moment to make sure Miss
21 Tourangeau is ready.

22 MS. TOURANGEAU: I need to manage my water
23 resource better.

24 (Laughter.)

25 MR. DUCHESNE: Very good. You may proceed.

1 ELIZABETH RANSOM: Good morning, Presiding
2 Officer Duchesne and members of the Board, members of
3 DEP staff and Board staff as well. Thank you so much
4 for the opportunity to be here today to testify on
5 behalf of Nordic Aquafarms. It's a project I've been
6 working on for about two and a half years now, so I
7 really appreciate the time everyone is taking to
8 review this project.

9 My name is Elizabeth Ransom. I work as a
10 Principal and Senior Geologist at Ransom Consulting.
11 I hold a Bachelor's degree in Geology from Carleton
12 College and a Master's degree in Geological Sciences
13 from the University of Southern California. I have
14 more than 30 years of experience in environmental
15 consulting with a career spanning a broad range of
16 technical expertise including geologic investigation
17 into groundwater resources, contaminant hydrology and
18 remediation, design implementation of monitoring
19 plans, environmental permitting, alternatives
20 analysis for permitting and remedial alternatives
21 selection and design and implementation of public
22 involvement plans.

23 In my volunteer life I've also spent seven
24 years on my local Conservation Commission, five years
25 as a chairperson where I was instrumental in writing

1 the first town bylaws for wetlands protection and was
2 able to see those voted on by the town and accepted
3 into regulation. I've also spent time as one of the
4 founding members of Maine's first chapter of
5 Surfrider Foundation where I worked to get some of
6 the coastal communities to actually provide
7 additional wastewater treatment during the winter
8 months so that we could have improved water quality
9 in our bay.

10 My role in Nordic Aquafarms has been to
11 oversee the personnel with specific expertise who
12 undertook a variety of tasks for the project,
13 including hydrogeologic investigation, water supply
14 development, discharge modeling and stormwater
15 management. I also coordinated with subcontractors
16 who have specific expertise in air permitting, which
17 you'll hear about later, which is Mainly
18 Environmental; groundwater modeling, McDonald
19 Morrissey Associates, who you've heard already;
20 wetland formation, vernal surveys -- vernal pool
21 surveys, stream and wildlife, fisheries assessments
22 and benthic studies, Normandeau, who sits to my right
23 and will be speaking soon, and to provide information
24 to the project team. As Ransom's project manager for
25 the Nordic Aquafarms project, I also coordinated

1 preparation of the Natural Resources Protection Act,
2 or NRPA, application as well as the Site Location of
3 Development, or SLODA, application and prepared the
4 alternatives analysis provided in the NRPA
5 application and included as Nordic's Exhibit 6.

6 In June -- so I'll be talking about two
7 different things today kind of distinct. The first
8 thing I'll be talking about is the alternatives
9 analysis, which is a required document under NRPA.
10 What is that? That's -- that's the document that
11 says why are we here. I think you've heard some
12 testimony from some of the public last night that
13 says this isn't the right place. The alternatives
14 analysis is to tell you why this is, in fact, the
15 right place. I'll also be speaking later about
16 mercury. You've heard, again, some testimony last
17 night about HoltraChem and some concerns about
18 mercury in the bay. I'll be providing you some
19 information on that.

20 So I'll start with the alternatives
21 analysis. In June of 2017, Nordic Aquafarms asked
22 Ransom to assist with some site selection and
23 environmental permitting for a land-based aquaculture
24 facility. They wanted that facility to be located
25 somewhere between Washington D.C. and the Canada

1 border knowing that there are -- from their market
2 research they knew that there would be a good market
3 for this. There are many major cities within a close
4 driving distance in that range and their idea is to
5 have not just frozen product, but fresh product that
6 they can get directly to the consumer.

7 So when we started looking at the project,
8 they were, you know, their purpose -- their driving
9 purpose was that they knew that right now the U.S. is
10 one of the largest consumers of salmon and seafood in
11 general and right now the U.S. only produces about 10
12 percent of what we consume. So they were looking for
13 a way to help meet that demand and so the purpose of
14 their project is to provide that 33,000 metric tons
15 of high quality seafood to consumers in the
16 Northeastern U.S.

17 So in -- in laying out their project to us
18 they identified a number of objectives for siting the
19 project to ensure that the project is both
20 economically viable and commercially sustainable as
21 well as environmentally sustainable and specifically
22 this objective included production of the 33,000
23 metric tons of salmon, reducing the -- the carbon
24 footprint of that addition of fresh farmed Atlantic
25 salmon, producing enough volume of salmon that

1 they're going to offset the cost of the fixed
2 investment of that infrastructure. So, you know,
3 we've been talking a lot about discharge pipes and
4 large buildings, there is a certain amount of cost to
5 that infrastructure that their production has to then
6 offset. They want to have a production cost per unit
7 of fish that's going to be cost competitive with
8 other suppliers because obviously if they come to
9 market with a product that's too expensive nobody
10 wants to buy that. They also want to provide, you
11 know, not only the 100 direct jobs to the local
12 community but also the indirect jobs that come out of
13 a project of this scale. So, you know, not only are
14 they employing the engineers and the scientists that
15 helped them build this project hopefully, but also
16 there will be suppliers, there will be vendors that
17 they will have during their operational time that
18 will receive a benefit through this project. They
19 also want to see a byproduct market develop. So
20 there are things such as the development of using
21 perhaps cuttings for lobster bait or other byproducts
22 from the facility being used that -- that are part of
23 their purpose in siting this facility.

24 So -- so how did we go about that? We
25 looked from using geographic information systems data

1 that's readily available for the -- for the coastline
2 and we looked at some availability of land as well as
3 just general factors about this -- the -- this --
4 both the offshore and on-shore environment. We knew
5 that one of the driving factors in the selection for
6 Nordic was going to be the ability to have cold,
7 clear both fresh and seawater for their project. So
8 contamination would be an issue that they would not
9 want to deal with in a water source, but also water
10 that's too warm is not something they want to be
11 dealing with as an operational concern. To have
12 located down in Florida, for example, would increase
13 their cost to bring that water to a temperature
14 that's right for raising their fish. So on the basis
15 of that alone we had narrowed the opportunity to
16 locate this facility to really the three most
17 northern New England states. Most of the coastline
18 was immediately not suitable as a result of the
19 temperature of seawater.

20 As we applied these criteria for assessment
21 and we ultimately found that Maine was the only
22 viable option and up to 534 potential properties in
23 Maine were identified an individual assessment of
24 those 534 properties was something Ransom carried
25 out. We ultimately reduced this list to about 40

1 locations that we visited individually and made site
2 visits to each of those properties to get a better
3 sense of not perhaps doing a full wetlands
4 delineation of each of them, but understand whether
5 there were other perhaps either environmental or
6 operational concerns with those -- with those
7 locations. Things like traffic, I realize that's not
8 a criteria that the Board hears, but it's obviously a
9 piece of Nordic's understanding of how do I get
10 supplies in and out, how do I get my fish to market
11 and is that something with Maine's summer population
12 that might impact the viability of one of these
13 locations. Following that, Nordic -- Erik Heim of
14 Nordic came with Ransom representatives to look at
15 the narrowed down site list and ultimately narrowed
16 that list further.

17 So how did we -- where did we did we go from
18 there? We summarized and scored four of the
19 remaining locations in the site selection matrix.
20 These potential sites included Belfast and an
21 alternative site in the mid-coast, a northern site
22 and a southern site and based on a potential score of
23 50 points Belfast scored the highest at about 45.
24 The next closest site was the northern site at 35
25 points. Based on this assessment, which I have

1 greatly oversimplified, the Belfast site was selected
2 for potential development. I encourage you to read
3 the full alternatives analysis that was provided as
4 part of the application. The alternatives analysis
5 though is not just merely a tool to why are we in
6 Belfast. It's also how did we lay the site out, did
7 we make the best use of the site that was selected.
8 So as a part of the alternatives analysis we looked
9 at four potential site layouts. Option 1, which
10 included six modules on 49 acres of land; Option 2,
11 which was three modules on 39 acres of land; Option
12 3, which is 6 acres -- excuse me, six modules on 54
13 acres of land; and Option 4, which is five modules on
14 54 acres of land. These options were then evaluated
15 in accordance with the NRPA guidance for the
16 following criteria; we look at regulatory
17 requirements, environmental impacts, construction and
18 engineering for operational feasibility and financial
19 facility and those were scored in a weighted matrix.

20 Out of 180 possible points, Option 3, the
21 six modules on 54 acres of land is the preferred
22 alternative with a score of 116 points. Options 1
23 and 2 do not meet applicable regulatory requirements.
24 So although these options were scored and received
25 scores of 93 and 67 points respectively, they could

1 not be built. They basically don't meet things like
2 fire code requirements or city setbacks. So and
3 Options 1 and 4 aren't feasible through their either
4 technical, logistical or financial constraints. So
5 there are no practicable alternatives to the
6 preferred alternative.

7 The alternative analysis also considered
8 specific layouts for the three intake and outfall
9 pipelines. So the pipeline routes included looking
10 at the Little River, which is Option 1; the Eckrote
11 property, which is Option 2; and Option 3 coming up
12 to Tozier Road to the north. The Eckrote property
13 also included three different possible configurations
14 of the pipeline from the shoreline to the discharge
15 and intake points and these include a straight, a
16 slightly curved and a double curved route. The
17 criteria is such for each pipeline route included,
18 again, regulatory requirements, construction
19 considerations, engineering designs, challenges and
20 risks and financial feasibility. The results of the
21 overall alternatives analysis indicate that a six
22 module facility located on 54 acres of land with a
23 curved pipeline through the Eckrote parcel is the
24 only alternative that can meet the project
25 objectives.

1 So from there, I'm going to kind of
2 transition a little bit into the testimony on mercury
3 and some of this may seem like it's a little ahead,
4 but hopefully as we go down the line with the other
5 people on this panel it will all kind of come
6 together.

7 So materials excavated for construction of
8 the proposed pipeline will include marine sediments,
9 which will be excavated, set to the side of the
10 excavation on a confined mat area while pipes are
11 being placed and used to refill the excavated area.
12 Excess sediment that doesn't fit back into the
13 pipeline trench because the pipes are now taking up
14 space will be removed from the site for upland
15 disposal. As a preliminary step in evaluating
16 potential disposal options, Normandeau conducted a
17 sampling program to test -- take samples from marine
18 sediment in the vicinity of the proposed pipeline
19 routes under evaluation. Samples were collected
20 using a Vibracore and EPA/U.S. Army Corps of
21 Engineers Regional Implementation Manual guidance.
22 Those samples were collected on November 29, 2018.
23 Multiple samples were collected for grain size while
24 two samples, Samples B3 and A6/A7 composite were
25 submitted for chemical and physical characteristics

1 including metals.

2 Mercury concentrations were 0.267 micrograms
3 per kilogram -- excuse me, milligrams per kilogram
4 for Sample B3 and not detected at a detection limit
5 of 0.103 milligrams per kilogram for the composite
6 sample comparing those to the Maine Remedial Action
7 Guidelines for mercury looking at the recreational
8 use and exposure pathway standard shows that the
9 mercury concentrations and sediment in the area of
10 the pipeline route are more than an order of
11 magnitude below the applicable Remedial Action
12 Guidelines.

13 Mercury concentrations at the sample
14 locations in the area of the pipeline route were also
15 compared to available data for this part of the bay
16 from the regional mercury studies such as those
17 conducted for the Penobscot Bay Mercury Study, PRMS,
18 released in 2013 as part of the HoltraChem site. As
19 noted in the PRMS, mercury concentrations
20 substantially decrease with distance from the former
21 HoltraChem site and are in the .2 to .3 milligrams
22 per kilogram range in the vicinity of the
23 northwestern end of Islesboro and the mouth of
24 Belfast Bay. In other words, the detailed studies
25 from the HoltraChem facility although the sampling

1 methodology is somewhat different is fairly extensive
2 and the data we have compares similarly to the data
3 that they have collected. The data of .2 to .3
4 milligrams per kilogram are below what we consider
5 the new observed adverse effect level of 3.3
6 milligrams per kilogram for mercury. In other words,
7 invertebrates including shellfish and worms will have
8 no statistically or biologically significant
9 increases in the frequency or severity of impact from
10 a concentration of .2 to .3 milligrams per kilogram
11 of mercury.

12 So the PRMS data ultimately led to some
13 portions of the Penobscot River north of Fort Point
14 and Wilson Point being closed to lobster in 2014. In
15 2014, the Maine CDC, DMR and DEP conducted a study of
16 lobsters and crabs where they looked at tissue
17 samples to understand better the potential impacts of
18 mercury on the actual shellfish population and that
19 data was then used modify the closure area. The
20 closure area was then extended to south of Squaw
21 Point and Perkins Point. That one lane is roughly
22 six miles north of where the proposed pipeline will
23 be. So we based on this say that there is no
24 significant impacts to shellfish that would, excuse
25 me, would be expected from disturbing mercury with

1 concentrations of .2 to .3 milligrams per kilogram.

2 As I mentioned earlier, part of the reason
3 why we conducted this sampling was to evaluate
4 potential disposal options for the material that's
5 excess from construction. We looked at some of the
6 Maine state landfills that are available to take
7 these types of material and Crossroads Landfill where
8 construction waste would potentially be disposed of
9 is licensed by the State of Maine to dispose of
10 non-hazardous waste. We typically analyze landfill
11 waste using both a total sample methodology and also
12 what's referred to as a TCLP. You take the toxicity
13 characteristic leaching procedure, you evaluate
14 whether or not what we place in that landfill over
15 time is going to leach into groundwater and
16 potentially surface water bodies that aren't near the
17 landfill. If we fail, so-called, the total
18 character -- the total waste numbers, you would then
19 look to actually leach it in a laboratory and
20 simulate what might happen in the landfill.
21 Typically, we look at something what's called sort of
22 the 20 times rule. Are we less than 20 times the
23 toxicity characteristic concentrations? If so, then
24 we can consider that waste to be non-hazardous. So
25 what we did is we compared the results of the

1 sampling we had to those TCLP values or the 20 times
2 rule values and said where -- where do we stand? Are
3 we going to have these sediments be something that
4 can, in fact, be disposed of in a landfill.

5 Of note, we looked at the mercury value.
6 The mercury value applying the 20 times rule that we
7 don't want to exceed is a total of 4 milligrams per
8 kilogram and, again, at .267 we're well under that 4
9 milligrams per kilogram, so this material would -- we
10 would expect it to be suitable for disposal of the
11 landfill. Now, a landfill has certain acceptance
12 criteria that they are obligated to meet under their
13 permits and so when the material actually is
14 generated it is customary practice to then have the
15 landfill require that you take one sample for every
16 500 cubic yards of that material for them to accept
17 it. So obviously what we've collected isn't the
18 final word on sediment sampling, but it's a good
19 indicator of the fact this material will, in fact, be
20 acceptable to the landfill and that we could proceed
21 with an option for upland disposal.

22 I think I've gone on long enough. I'm going
23 to maybe let Adele speak to some of the wetlands work
24 and...

25 ADELE FIORILLO: Thank you. Good morning,

1 Officer Duchesne, members of the Board and staff from
2 the DEP. My name is Adele Fiorillo. I am a
3 professional wetland scientist. That certification
4 comes from the Society of Wetland Scientists and is
5 based on experience and education. I have a Master's
6 degree from San Francisco State University in Marine
7 Biology where I focused on wetland ecology for my
8 thesis work. I am a Senior Project Manager with
9 Normandeau Associates and I specialize in
10 delineating, evaluating and characterizing wetlands,
11 fresh water and coastal wetlands, and developing and
12 implementing impact compensation programs as well as
13 including creation, restoration and enhancement of
14 those ecosystems. And I have over 30 years of
15 experience doing this work.

16 I'd like to give you a sense of the natural
17 resources that are on site based on our studies.
18 I'll start with the fresh water wetlands. The fresh
19 water wetlands on the site are basically two general
20 types of forested wetland and a wet meadow wetland
21 and both of those areas have indications of
22 disturbance. The forested areas have been logged and
23 the wet meadow areas have been -- undergone some
24 agricultural and mowing over the years. And another
25 component of the fresh water wetland is that there

1 are a considerable amount of invasive species, again,
2 indicating their level of disturbance.

3 The project area encompasses 54 acres and I
4 calculate that the wetlands represent less than 10
5 percent of the overall project area. And given the
6 needs of a project of this size, you know, the land
7 area, the proximity to fresh water and salt water
8 it's not unreasonable and almost difficult to find
9 other properties that would have less wetlands on
10 them.

11 The streams on the site are represented by
12 the intermittent flows. There are no perennial
13 streams on the project site. And the streams
14 essentially develop because they -- they represent
15 overland flow from stormwater. And as the overland
16 flow begins to accumulate it starts to cut into
17 channels and create the actual streams, so there is
18 no connection between the stream channel and
19 groundwater. It's really all overland flow. One
20 component of the project is to improve the flows from
21 these streams into the reservoir. Right now, they're
22 very silty. It's a silty, sandy, clay, loam, soil,
23 so they're highly erodible and so all of this
24 overland flow becomes channelized and actually goes
25 into Reservoir 1, so one of the components to the

1 project is to clean that up and have this Reservoir 1
2 with less sediment input.

3 I wanted to highlight one of the streams on
4 the project site, which is the most easterly stream,
5 we designated that one as S9, Stream 9, and then the
6 lower reaches of that stream are very highly
7 channelized near the water department property, but
8 in the upper reaches have some good riparian habitat
9 that are well vegetated with shrubs and that is the
10 only stream that shows up on the USGS map, so during
11 project design that -- the focus was to avoid that
12 stream and also to incorporate that into the
13 compensation plan to make the channelized aires
14 improved.

15 We did vernal pool surveys. There are no
16 vernal pools on the project site. And the coastal
17 wetlands on the project site include cobble beach,
18 salt marsh, intertidal and subtidal areas. The salt
19 marsh is a narrow fringe in the upper reaches of the
20 tidal area. And the cobble beach transitions quickly
21 to a mix of sand, silt mud and -- in the intertidal
22 and subtidal areas. Impacts are predominantly
23 temporary or were permanent or relatively small in
24 the coastal wetlands.

25 The forested and meadow habitats do

1 represent a varied environment, so it does provide
2 opportunity for wildlife species, but these habitats
3 are not unique. There is a lot of forested and open
4 meadow habitats in Maine and along the coast. One
5 component to the forested area is that we don't
6 expect a significant loss of habitat because the tree
7 removal in the winter will avoid any impact to avian
8 and bat species.

9 The tidal waterfowl and wading bird habitat
10 out along the coast, again, will be temporarily
11 impacted during construction, but that's a narrow
12 window and that habitat will remain after the project
13 is complete. Inland waterfowl and wading bird
14 habitat is outside the project area although it's
15 adjacent associated with Reservoir 1.

16 And Elizabeth had noted we did benthic
17 surveys. We did grab samples and took the samples to
18 the laboratory and sorted for benthic organisms and
19 the abundance of the benthic organisms is relatively
20 low. I'll talk a little bit later about what we did
21 find in those samples.

22 So the quick impact summary. Fresh water
23 wetland impacts are 1,096 in 30 square feet and 3,960
24 of those square feet are temporary. We have a
25 compensation plan for permanent impacts via the

1 In-Lieu Fee Program in on-site improvements of 91,065
2 square feet of riparian area restoration and then all
3 temporary impacts will be restored in place.

4 Impacts to intermittent streams are measured
5 in linear feet, 1,988 and 120 linear feet of that are
6 temporary. And, again, we have a compensation plan
7 for on-site improvements of 1,623 square feet of
8 streams and drainages and, again, the temporary
9 impact will be restored in place.

10 Coastal wetland impacts are 638,580 square
11 feet and most of them, 631,877 square feet are
12 temporary and will be restored in place.

13 Impacts to natural resources have been
14 tabulated and we can -- all of these numbers are
15 included in Nordic Exhibit 13 and also shown on the
16 wetland and stream impact mapping dated October 2019
17 and that's Exhibit 12.

18 A little bit on the compensation plan. The
19 compensation plan is dated May 10 of 2019, was the
20 developed to compensate for unavoidable impacts and
21 it represents a combination of payment into the
22 In-Lieu Fee Program as well as permitting on-site
23 compensation. I'll just go over them briefly. And
24 the impact compensation package is reflected in a
25 plan dated November 4, 2019 as Nordic Exhibit 14 if

1 you want to refer to that. So on-site compensation
2 includes areas of six different streams -- five
3 different streams on the site and one drainage area.
4 The stream designated as S9 will restore riparian
5 buffer in areas that are currently unvegetated along
6 the banks over 91,000 square feet. Stream 3, we're
7 going to do native plantings. There is currently a
8 bridge there. We're going to replace the bridge,
9 which is in bad repair. It's along the trail and so
10 it gets widely used so that will be a benefit to the
11 stream and then revegetate state the banks with
12 native vegetation. There is also some stone steps
13 along the steeply sloped trail that are in disrepair
14 that will be repaired for better access to the trail
15 and stabilize that slope with native plantings. The
16 Stream S5 currently is crossed by the trail, but
17 there is really -- it's just a footpath across the
18 streambed, so we're going to put a new bridge in
19 there to prevent further damage to that stream
20 channel. And the same with Stream 6, we're going to
21 put -- we're going to provide streambed protection
22 with a new bridge and revegetate the plantings
23 because all of these slopes are unstable. And then
24 there is a drainage and on the Eckrote property where
25 we're going to stabilize the slopes. There is

1 currently a plunge pool and stabilize those slopes
2 with native plantings. So all told, permittee
3 responsible on-site compensation totals 92,680 1/2
4 square feet and that offsets the calculated In-Lieu
5 Fee payment of \$613,466.48.

6 And I think that concludes my overview of
7 the project from a wetland and natural resource
8 perspective. I'm going to turn it over to Tyler, who
9 is a fisheries biologist with Normandeau Associates.

10 TYLER PARENT: Hello. As Adele said, my
11 name is Tyler Parent. I'm a fisheries biologist with
12 Normandeau Associates. My main piece of the project
13 was to assess the potential fisheries impact
14 associated with the proposed action.

15 The impact assessment was basically split
16 into two pieces. One being some surveys that we
17 conducted in 2018. The first part of that was a
18 diver and video camera survey, so we basically
19 dragged a camera behind a boat as well as a diver
20 from a different tow to characterize the bottom
21 habitat so that we could know what we were working
22 with as well as conducting some water quality
23 samplings to establish some baseline values so that
24 the projected values from Nordic could be compared to
25 them to understand the differences or lack thereof

1 that we might be encountering, as well as my major
2 piece was a desktop analysis of available literature
3 to look at the species that are available in the area
4 and the impact that might be caused to them.

5 The major considerations for an impact
6 assessment like this would be the engineering
7 characteristics and so the various design pieces of a
8 project like this can have a major bearing on how
9 much impact there might be, the construction plan,
10 and so that's how they are going to go about building
11 this and the planned characteristics of the facility
12 after it has began operating. In order to do this, I
13 consulted with two state agencies in the State of
14 Maine, those being the Department of Inland Fisheries
15 and Wildlife as well as the Department of Marine
16 Resources and in doing so I basically asked them for
17 a list of species that they would like me to consider
18 for impacts and when they respond I can make life
19 histories and go forward with the impact assessment
20 on that list of species that they've provided. As
21 well as from the camera tows, as well as the diver
22 tows we characterized marine habitat and we took into
23 consideration the fact that Belfast Reservoir Number
24 1 is a fresh water habitat that is adjacent to the
25 property and we essentially found this. So Belfast

1 Reservoir Number 1 is viable habitat for some fresh
2 water fish, however because there has been a dam
3 there since the 1980s basically nothing in the marine
4 habitat is going to be accessing that and so it is
5 essentially insulated and this project is not going
6 to have much bearing on what's going on with Belfast
7 Reservoir Number 1 as it's been dammed for so long.

8 Marine habitat is mainly homogenous in the
9 project area and that was determined, like I said, by
10 the diver tows and the camera tows, homogenous being
11 it's very much the same throughout the pipeline route
12 aside from a couple of small vegetation patches
13 closer to shore. And this is -- this is fairly
14 deliberate. This is -- that's good news. When we're
15 looking at a pipeline path like this it's good to see
16 almost nothing there because it will be minimally
17 disruptive to the aquatic community.

18 Also good to note that pockmarks exist in
19 the bay and so that's an interesting geological
20 feature that is somewhat rare, but these big circular
21 patches that are basically from gas emitting from
22 below the substrate and that can cause complication,
23 however, they deliberately are ending their pipeline
24 before any of the pockmarks exist in the bay. And if
25 you're interested in where those exist relative to

1 the pipeline there are some figures in some of the
2 filed paperwork if you'd like to know where they are
3 relative to the pipeline.

4 DMR and Inland Fisheries and Wildlife
5 provided me a list of species and I'm just going to
6 go through them very quick to let you know what I
7 considered. For finfish we looked at American eel,
8 alewife, blue back herring, winter flounder and
9 rainbow smelt. For shellfish I considered American
10 lobster, Atlantic sea scallop, blue mussel and soft
11 shell clam. The Penobscot being so important to the
12 Atlantic salmon and a couple other federally listed
13 species I also without recommendation from the state
14 agencies considered Atlantic salmon, Atlantic
15 sturgeon and short-nosed sturgeon because really the
16 Penobscot River is really the place for Atlantic
17 salmon these days and we should probably consider
18 them in this analysis.

19 Water use. You will probably hear about it
20 a lot in the future and you've already heard a little
21 bit, but I'll run through it. Their intake will
22 consist of two pipes existing out in Belfast Bay.
23 There will be smaller volume of water pumped from the
24 fresh water source of the Belfast Reservoir Number 1
25 as well as some well water and some city water from

1 the Belfast Water District to make up their
2 collective water use at the facility. The discharge.
3 All of the water will be filtered before being
4 discharged back into the bay and they've got an
5 impressively exhaustive filtration regimen and you'll
6 hear more about that, I'm sure, and the maximum
7 discharge volume of 7.7 million gallons per day is
8 their projected volume.

9 For impacts to these various species I
10 separated them into temporary versus permanent. And
11 so temporary is going to occur during construction
12 and that will be mainly in three ways and that's
13 under water noise, turbidity increases and
14 displacement of an aquatic organism could also occur
15 during construction. Permanent impacts would be
16 there is now a new structure is in place after it is
17 built and that can be its own impact. Some loss of
18 eggs and larvae at the intake and changes to water
19 quality could occur and so all of those things are
20 going into potential consideration for impact.

21 For each of these things mitigation measures
22 will be taken. Under water noise is very common in
23 in-water construction to use a soft start technique
24 and that's basically just starting more quietly than
25 the loudest operational noise that you will be using

1 for your equipment allowing sort of a warning signal
2 to go out to make sure that mobile organisms are able
3 to vacate the area and have minimal impact.
4 Turbidity will be minimized. Increases in turbidity
5 will be minimized by floating turbidly curtains,
6 which is also a very common construction practice in
7 water. And then displacement is mainly going to be
8 mitigated by adhering to the very common in-water
9 work window of November 1 through April 1.

10 So the new structure that's going to be in
11 place, a recent -- fairly recent design change is
12 that the pipeline will now be raised just a little
13 bit off the sea floor and that actually makes the
14 overall permanent footprint much lower than having
15 the pipeline rest on the sea floor the entire way and
16 that will actually allow a narrow migratory corridor
17 for any mobile organisms that might want to move
18 underneath instead of over the pipeline. As far as
19 the intake design, they are having an engineering
20 velocity less than 0.5 feet per second. And water
21 quality, like I said before, all of the water will be
22 filtered using their exhaustive filtration regimen
23 prior to being released into the bay and no adverse
24 impacts are expected from a water quality change.

25 Now, I will respond a little bit to some

1 testimony which had to do with my particular
2 expertise. First, by Mr. Bill Bryden. The
3 first thing I want to clarify is that in his
4 testimony he -- he referred to Belfast Bay as Class A
5 water and two things about that, one it is Class SB,
6 which is the marine class, and so Class A is actually
7 not applying to salt water and so that's important to
8 note. And then because we now have the correct Class
9 of SB the projected discharge is supposed to -- it
10 plans to comply with all of the Class SB regulations.

11 Let's see. The other piece of Mr. Bill
12 Bryden's testimony that pertains to me is that he a
13 few times referred to the Belfast Reservoir Number 1
14 and the Little River at large as potentially viable
15 Atlantic salmon habitat and, like I mentioned before,
16 that the dam has been there since the 1800s and while
17 maybe a long time ago salmon were there it hasn't
18 been accessible to that species for a very long time
19 and so this project won't have any impact on what's
20 going on.

21 The second testimony that I'm going to Mr.
22 Richard Podolsky. The main thing that pertains to me
23 in his testimony is the repeated phrase thermal
24 anomaly. And so there were several paragraphs
25 talking about mostly migratory fish and several other

1 species that I was looking at are migratory
2 encountering what's called a thermal anomaly. And I
3 first want to say that this thermal anomaly does not
4 always mean the water will be hotter than the
5 surrounding water because during the summer it is
6 very likely that their discharge will be colder than
7 the surrounding water. And then if you sort of
8 interpolate there then there will be times when there
9 is not necessarily a noticeable difference. As well
10 as through some modeling it's also been determined
11 that 200 feet from the intake, or sorry, from the
12 discharge it's the projected difference of
13 temperature is 0.3 degrees Celsius is protected value
14 based on our calculations. And then, you know, of
15 course, I'm saying that's 200 feet away. Even if a
16 migratory fish, in this case let's say an Atlantic
17 salmon or a juvenile or an adult river herring, is
18 heading back to its natal water basically
19 Mr. Podolsky said that they would be hitting a
20 thermal wall and that that would essentially prevent
21 continued migration. And even if they have the
22 possibility of coming closer to the intake before
23 realizing that the water is a slightly different
24 temperature they will not abort their migration.
25 These fish are -- are aimed at getting where they

1 need to go to continue their life histories and the
2 bottom line is a little obstacle like that they will
3 say, well, this water is slightly different
4 temperature than what I was just swimming in and they
5 will change their course while still traveling
6 towards the flow being the Penobscot River or
7 whatever tributary they're trying to find and they
8 will continue their way towards their migratory
9 destination.

10 Let's see. And that is all I have. Thank
11 you very much.

12 LAUREN WALSH: Good morning. My name is
13 Lauren Walsh. I'm with Cianbro Corporation. I am
14 their Corporate Environmental Manager. I have been
15 with Cianbro for about nine years now. My
16 responsibilities are implementation of their
17 environmental management system, their policy and
18 their general goals. A lot of that includes working
19 with the projects on construction management access
20 plans.

21 My project experience includes work with the
22 Sarah Mildred Long Bridge, Portsmouth Naval Shipyard,
23 The Walk Bridge in Connecticut, Pittsfield Solar and
24 the Maine Power Reliability Project. Prior to
25 joining Cianbro in 2010, I worked for nearly five

1 years with MaineDEP assisting on the development and
2 implementation of the state's Multi-Sector General
3 Permit for Discharge of Industrial Stormwater. My
4 task with that project include permit development and
5 writing, regulatory assistance and compliance for
6 various industries and through that experience I
7 gained quite a bit of knowledge about the various
8 roles and responsibilities of those industries and
9 complying with Maine's Water Quality Standards and
10 the impacts of stormwater from those storm
11 industries. I have a Bachelor of Science in Biology
12 and minor in Chemistry from Moravian College. I am
13 also an active member of the Associated General
14 Contractors of America's Environmental Steering
15 Committee since 2015. This committee regularly
16 participates in meetings and open discussion with
17 both EPA, Army Corps of Engineers, Fish and Wildlife
18 and other regulatory agencies on policies,
19 construction practices and other procedures that
20 effect both of environment and the construction
21 industry as a whole.

22 Cianbro and Woodard and Curran is the
23 design-build team that is responsible for designing
24 and constructing the seawater access system for the
25 proposed Nordic Aquafarm facility. Cianbro has

1 provided a review of Woodard and Curran's initial
2 design for the proposed route of the pipeline and the
3 construction. Cianbro as a whole has provided the
4 construction means and methods for the proposed
5 access and overall constructability guidance for this
6 portion of the facility. My role in this through
7 this scope of work I provided a review of the basic
8 erosion and sediment control measures, construction
9 means and methods in respect to avoiding and
10 mitigating the impacts and protecting the resource
11 that is the others on the panel have discussed.

12 The purpose of my testimony today is to
13 review and discuss the construction methods within
14 the intertidal zone to provide a broader picture of
15 the sequence of construction and the means to reduce
16 sedimentation and turbidity from the seawater access
17 construction as a whole. Those items I am going to
18 discuss would be the construction process within the
19 intertidal in the wetland -- in the coastal wetland,
20 work planning within that access zone and to relieve
21 mitigation measures.

22 To start with, the construction access
23 within the intertidal zone. As noted in my written
24 testimony both the pipeline, both the intakes and
25 discharge portions, will follow a route from the

1 facility under Route 1 through the Eckrote property
2 before crossing into the coastal wetland and
3 intertidal zone and extending into deeper water. The
4 intertidal zone portion seawater access extends
5 approximately 850 feet from the Maine shoreline in
6 mean high water to mean low water line. The current
7 project requests 100 foot wide access route, so this
8 is important in determining our construction access.
9 We have 100 feet of width. We are only planning to
10 impact a portion of that for construction. So there
11 is a temporary impact as well as the permanent impact
12 to the pipeline.

13 The first step -- and this is Nordic Exhibit
14 Number 19 that was included in my testimony will
15 provide a picture of that. The first step in
16 constructing our access will be placement of timber
17 mat accessway the full length of that 850 feet. So
18 we'd go from the shoreline out to the low water line.
19 We would place those mats all at once, they'd be
20 anchored down and they would stay through the
21 different tide cycles.

22 Next, we would position equipment to begin
23 contemplating and planning excavation of the
24 pipeline. That timber mat access would be placed
25 over the pipeline route itself, which is a minimal

1 portion of that 150 feet. The mat accessway would
2 then -- we'd have equipment, excavation equipment
3 that would travel out that pipe -- the matted access
4 route and begin excavation from the end of the mean
5 low water line back.

6 We would have barges with cranes on them
7 that would be assisting for the excavation process.
8 The cranes and materials would be staged on those
9 barges. We would use two different types of barges.
10 We'd use a jack-up barge, which is a barge that stays
11 afloat essentially. It has spuds that are fixed and
12 it can be -- it supports low water work very well.
13 It does not ground out onto the bottom, so we would
14 be minimizing within impact within that full 100 foot
15 width to a limited of the spuds themselves.

16 In addition, we would also propose to use
17 standard spud barges, which would potentially be
18 bottomed out during low water. Those barges would be
19 used to contain any excavated material from the
20 trench itself. So you'd have your matted access
21 route and then you'd have your barges alongside of
22 that matted access route, excavator on the matted
23 access route would excavate a section of the trench,
24 would then put the excavated material onto one of the
25 barges, not the jack-up barge, the jack-up barge will

1 not support the weight of the excavated material.
2 That excavated material may or may not be sitting on
3 the bottom dependent on the tide cycle and the level
4 of water depending on where we are in that 150 foot
5 zone.

6 The trench will already be excavated. We
7 have trench boxes that we're proposing to be placed
8 into that trench, so from the crane operated barge
9 they'd take a -- pick a trench box, put it into the
10 trench. The trench would then support the sides of
11 that excavated area to reduce any washing back and
12 forth from any water that would be in that area and
13 obviously it would be a wet environment. Once the
14 trench boxes are put in place, we would also have
15 ready at the same time another material barge with a
16 piping system, section of pipe somewhere from 20 to
17 40 feet in length, place that pipe connected
18 appropriately depending on where we are in the
19 construction sequence and then we'd begin backfilling
20 that trenched section.

21 Backfill will consist of stone, which,
22 again, would be staged on one of the jack-up barges
23 or possibly one of the floating barges depending on
24 the tide cycle and the location. The goal -- the
25 ultimate goal of this would be to have all of this

1 work, this excavated section, 20 to 40 feet in length
2 a one tide cycle, a low tide cycle.

3 We recognize the furthest 200 to 300 foot
4 stretch that is out towards the mean low water line
5 there is going to be a very short window. We have
6 proposed utilizing a trench box system that would be
7 higher than the mud line, that way if -- if for some
8 reason that section was left open during high water
9 during that tide cycle the washing action would be
10 limited. We'd reduce the risk of a turbidity
11 discharge from any sediment washing out of that
12 trench area, out of that disturbed area. Plus, if
13 the stone is within and around the piping section
14 that's what's going to hold the material in place
15 better. So the key to this would be, you know,
16 scheduling the work for this though low tide cycles.

17 The -- finally, you know, once everything is
18 in place within the intertidal zone, we'd remove
19 those timber mats as we go covering everything back
20 up and managing any excess sediment from that work
21 area. That's a brief summary of the general
22 construction -- proposed construction process.

23 MR. DUCHESNE: Great.

24 LAUREN WALSH: The --

25 MR. DUCHESNE: Oh, sorry. I was premature.

1 LAUREN WALSH: And I just wanted to speak
2 quickly on the turbidity management. And the
3 excavated material will be placed on those barges.
4 If they were ground out we would have a filter fabric
5 and a containment system. We've used Jersey barriers
6 in the past. We've used various types of filtration
7 devices, BMPs, to make sure we don't have turbidity
8 coming off of the excavated material, so we would
9 have that in place. We would not leave any excavated
10 material on one of those barges that's grounded out
11 through tide cycle. So it would float -- it would go
12 back to a staging area until the tide cycle allows us
13 to put it back in the trench again. The sediment, as
14 Elizabeth mentioned, the material that was not to be
15 placed back within the trench would be tested and
16 sent off-site for a shoreside landfill disposal.

17 We would use turbidity curtains as was -- as
18 was discussed, which is standard practice. We are
19 also proposing a metered turbidity monitoring program
20 primarily for the open water work, which would assure
21 that we weren't allowing any turbidity discharges
22 that would be beyond the background levels, so. And
23 we would develop a plan in conjunction with the
24 Department for -- for that. And that concludes my --
25 my summary. Thank you.

1 MR. DUCHESNE: Thank you. And that
2 concludes the testimony and we can go to cross. And
3 Ms. Tucker.

4 MS. TUCKER: Ms. Ransom, I'm going to start
5 with you. Are you an engineer? I did not hear that.

6 ELIZABETH RANSOM: No, I'm a professional
7 geologist.

8 MS. TUCKER: Do you have any expertise in
9 the study of mercury in sedimentation?

10 ELIZABETH RANSOM: Specific to mercury, no.
11 I have an extensive background in contaminant
12 affected sites, yes.

13 MS. TUCKER: You -- you mentioned having
14 some alternatives for uses for some of the byproducts
15 of the facility and doing sort of an order as your
16 stream of consciousness went through that. Isn't it
17 true that in Maine salmonids are prohibited for use
18 as, for instance, bait?

19 ELIZABETH RANSOM: That's correct. At the
20 moment the -- the legislation written around the use
21 of salmonids is from a time when there was
22 substantial concern over its infectious salmon
23 anemia, ISA, from the net pen population being
24 distributed more widely by using it as a bait source.
25 So my understanding is that that's currently what's

1 on the books and it would need to be changed if
2 significant land-based material were to be used as
3 bait in the future, yeah.

4 MS. TUCKER: Based on the current proposal
5 for the discharge of water into the bay there is no
6 plan that I have seen that you will reheat the water
7 prior to discharge so that it is the same temperature
8 as the ambient water temperature when it is released
9 even though that technology does exist in this
10 industry; is that correct?

11 ELIZABETH RANSOM: I think this testimony
12 string or this question strays a little bit from what
13 I was discussing in my testimony. But to your point,
14 I believe there will be more discussion of the
15 discharge itself when Mr. Dill gives his testimony
16 later in the week here.

17 MS. TUCKER: I would beg to differ because
18 you talked about and several people on this panel
19 have talked about that -- what the water temperature
20 will be after discharge and that the 5 to 30 degrees
21 increase in the temperature at the time of discharge
22 will have no impact, so I'm asking --

23 ELIZABETH RANSOM: So --

24 MS. TUCKER: -- do you have any -- isn't
25 there --

1 ELIZABETH RANSOM: Let me give you a
2 correction then. First of all, the -- the
3 temperature of the discharge as stated in the MEPDES
4 application material is 15 to 18 degrees Celsius,
5 that's roughly 55 to 64 degrees Fahrenheit. The
6 temperature -- the ambient differential that Tyler
7 was talking about earlier is .3 degrees. I have no
8 idea where the 5 to 30 degree number that was in the
9 public statements came from. It's roughly .3 degrees
10 of temperature differential coming out the -- at any
11 given time what comes out the discharge pipe compared
12 to what's in the surrounding bay waters obviously
13 varies seasonally. Sometimes it's going to be cooler
14 than what's existing and other times it's going to be
15 warmer, but the ambient differential is .3 degrees.

16 MS. TUCKER: So are you suggesting that in
17 Penobscot Bay that our temperatures are between 15
18 and 18 degrees Celsius which would be 55 to 69
19 degrees ever?

20 ELIZABETH RANSOM: No. I'm not sure exactly
21 how to explain this. So the temperature profiling
22 obviously shows a gradient from surface to bottom
23 levels and that -- that range of temperatures from
24 surface to bottom changes seasonally and also within
25 a tide cycle. And so what we do, and I think Nate

1 would be probably the right person to address that in
2 more detail, but what we do when we look at that is
3 we compare the discharge when it comes out to the
4 ranges of temperature that exists in the bay. And
5 there is a, again, I am kind of getting out of my
6 scope, but I think they will be telling you a little
7 bit more about this in his testimony. There is a --
8 there is a range of permitted difference between, you
9 know, so you can -- you can thermally only vary so
10 far from what is in the bay at any given time. And
11 so this discharge will comply with that seasonal
12 variance that's allowed. So it will not be a 30
13 degree difference. It will not be a 5 degree
14 difference. It has to maintain no more than I
15 believe it's 1.8 at one time of year and 4 degrees in
16 another time of year and so Nordic's discharge will
17 do that. It will meet those standards.

18 MS. TUCKER: 15 degrees Celsius --

19 MS. TOURANGEAU: I'm going to object to any
20 more questions on this. It's not within the scope of
21 her pre-filed testimony and she's done her best to
22 answer the question but Mr. Dill is the correct
23 person.

24 MR. DUCHESNE: It's sustained. I believe
25 that we're asking good questions to the wrong

1 witness.

2 MS. TUCKER: Well, I guess I'll be asking
3 him later because he's talking about the temperature
4 too. So when you did your alternatives analysis for
5 placement of the pipeline, isn't it true that we are
6 currently in front of this Board on the third
7 alternative for the route off of the Eckrote lot?

8 ELIZABETH RANSOM: We actually, as I stated
9 in the alternatives analysis, we looked at three
10 different entry points as well as three different
11 routes within the entry point from the Eckrote lot,
12 so I'm not sure it would be correct to say that it's
13 the third alternative.

14 MS. TUCKER: I think it's the third
15 alternative off the Eckrote lot.

16 ELIZABETH RANSOM: Correct. There are three
17 alternatives that were studied from the Eckrote lot.

18 MS. TUCKER: The first Eckrote lot
19 alternative was submitted in September of 2018,
20 correct?

21 ELIZABETH RANSOM: We submitted one
22 alternatives analysis with six routes that are shown
23 in that.

24 MS. TUCKER: Here is my question. Off the
25 Eckrote lot, the original submerged land

1 application --

2 MS. TOURANGEAU: Objection. That's not the
3 permit that's here and she's talking -- her -- and
4 filed direct testimony goes to the alternatives
5 analysis.

6 MS. TUCKER: I wasn't finished with the -- I
7 wasn't finished with the sentence. The original
8 filing to the Board or the DEP at that point was off
9 the Eckrote lot in September of 2018?

10 MS. TOURANGEAU: Objection. Again,
11 you're -- there was no application to this Board or
12 to the Department of Environmental Protection in
13 September of 2018. It was in May of this -- of last
14 year, 2019, and that application included an entire
15 alternatives analysis.

16 MS. TUCKER: There was MEPDES permit that we
17 had a hearing on --

18 MR. DUCHESNE: Before the discussion
19 continues between the two parties and may I interject
20 since there happens to be an objection. I agree that
21 we're straying a little bit outside of what was
22 testified to before and what the expertise is.

23 MS. TUCKER: If I may have a little leeway
24 because it does have to do with the sediment testing
25 that was done.

1 MR. DUCHESNE: If you can get more directly
2 to that question --

3 MS. TUCKER: I will do that.

4 MR. DUCHESNE: -- that will be helpful.
5 Thank you.

6 MS. TUCKER: In November of 2018, the route
7 was requested to be changed and was changed by Nordic
8 to be a more circuitous route, which we globally
9 called the twisted sister off the Eckrote lot; is
10 that correct?

11 ELIZABETH RANSOM: There have always been
12 multiple pipeline routes studied as a portion of the
13 alternatives analysis. That goes back to my very
14 first day standing on the -- the property and looking
15 at the alternative ways to possibly get a pipeline
16 out. So, again, I'm not sure I fully understand your
17 question. We've always been studying more than one
18 pipeline route.

19 MS. TUCKER: In November of 2018, the -- the
20 route for the pipeline that was being proposed at
21 that time by Nordic was off the Eckrote lot and it
22 was the twisted configuration, the second route
23 proposed, correct, in November of 2018?

24 ELIZABETH RANSOM: I'm -- I'm not sure that
25 November 2018 we had one pipeline route, so I guess I

1 don't understand your question. The alternatives
2 analysis has always considered multiple pipeline
3 routes.

4 MR. DUCHESNE: Before I'm going to have to
5 rule on this again, what I think is trying to be
6 grasped at is there seems to be on the basis of your
7 question a ranking of how this was done, 1, 2 or 3
8 and what is being testified or responded to is this
9 has been one of three without any kind of ranking if
10 I'm understanding that correctly.

11 MS. TUCKER: Actually, here is my point.

12 MR. DUCHESNE: That would be good.

13 MS. TUCKER: Presiding Officer Duchesne,
14 the -- the point is that settlement testing was done
15 for mercury in November of 2018.

16 MS. TOURANGEAU: Objection. At this point
17 we're testifying to the Presiding Officer and not
18 asking a question.

19 MS. TUCKER: I'm trying to explain.

20 MS. BENSINGER: If -- if I could maybe help.

21 MS. TUCKER: That would be good.

22 MS. BENSINGER: It seems that Ms. Tucker is
23 asking about a change in the proposed preferred route
24 by Nordic and Ms. Ransom is talking about the
25 alternatives analysis which considered all

1 different -- a variety of routes for the pipeline.
2 If you could just answer the question, Ms. Ransom,
3 about was there a change to the preferred proposed
4 route last fall. I think that's the question.

5 ELIZABETH RANSOM: I think the preference
6 has always been to have the straightest route
7 possible because that provides for the most
8 operational flexibility, it's the least impactful in
9 most cases and it's less expensive. So if you were
10 to look at the, you know, preference going into
11 things it would be the straightest possible route. I
12 do think maybe I'm -- if I'm not misunderstanding
13 part of your line of questioning is to the -- the
14 sample collection itself. You'll note that if you
15 look at the map --

16 MS. BENSINGER: If I can interrupt, I think
17 the question is was there a proposed route that was
18 changed to a different proposed route for the
19 pipeline?

20 ELIZABETH RANSOM: There -- there was a
21 proposed route that had multiple curves that was part
22 of the alternatives and I think we --

23 MS. BENSINGER: Was the -- the question is
24 was it changed. Was your proposed route changed over
25 time in your application?

1 ELIZABETH RANSOM: There were different maps
2 provided to the Department that definitely updated
3 the route along the way, yes.

4 MS. BENSINGER: So the route did change.

5 ELIZABETH RANSOM: One of the proposed
6 routes did change, yes, we proposed a different one.

7 MS. BENSINGER: To what is proposed now,
8 yes.

9 ELIZABETH RANSOM: Yes.

10 MS. BENSINGER: Okay. Thank you.

11 MS. TUCKER: Thank you. At the time you did
12 testing for your sediment core sampling, you did
13 that, didn't you, along the second route that was
14 then the current route to be proposed? The November
15 2018 route was the twisted route not a straight route
16 off of the Eckrote lot?

17 ELIZABETH RANSOM: So all of the routes
18 originate in the same spot, so then the closest to
19 shore samples --

20 MR. DUCHESNE: I'm sorry, could I just
21 interrupt for a second?

22 ELIZABETH RANSOM: Sure.

23 MR. DUCHESNE: Unlike just about everybody
24 else speaking today, you're closer to the mic than
25 most.

1 ELIZABETH RANSOM: Oh, sorry.

2 MR. DUCHESNE: I suspect that our listeners
3 online --

4 ELIZABETH RANSOM: Sorry on that.

5 MR. DUCHESNE: -- may be being blown out.

6 ELIZABETH RANSOM: Is this okay?

7 MR. DUCHESNE: That's better. Thank you.

8 ELIZABETH RANSOM: Yeah, okay. So all of
9 the -- all of them start in, you know, the same entry
10 point and then from there the three different options
11 diverge and so the sampling that was conducted, some
12 of that sampling is quite close from what is now the
13 preferred alternative and some of that sampling is
14 further away. So, for example, Sample A6/A7 was
15 closer to the more curved route and it's now roughly
16 750 to, you know, 800 feet from the preferred
17 alternative versus Sample B3, which is roughly 200
18 feet from the preferred alternative, maybe a little
19 bit less than that.

20 MS. TUCKER: I'm looking at your
21 Supplemental Exhibit A from November 2018. It looks
22 like Figure 18-1 Location of Sediment Samples.

23 MS. TOURANGEAU: Is this a Nordic exhibit?

24 MS. TUCKER: Yes, it is.

25 MS. TOURANGEAU: What's the number?

1 MS. TUCKER: I just said it. It's Figure
2 18-1 from Supplemental Exhibit A from November of
3 2018.

4 MS. TOURANGEAU: So that's Nordic Exhibit
5 18. I'm just trying to help Ms. Ransom find it.

6 MS. TUCKER: I don't know what its -- what
7 Nordic's number is. It's Figure 18-1.

8 ELIZABETH RANSOM: Is that what you're
9 referring to?

10 MS. TUCKER: Yes.

11 ELIZABETH RANSOM: Yup.

12 MR. DUCHESNE: Just for the Board's sake,
13 could you --

14 ELIZABETH RANSOM: Yup. It's a map
15 showing -- 18-1, it's a map showing a pipeline route
16 and some sample plots.

17 MS. RACINE: Can you tell us in --

18 MR. DUCHESNE: Yeah, tell us --

19 ELIZABETH RANSOM: Sure. It's in your --

20 MS. TOURANGEAU: Ms. Tucker, can -- do you
21 know where this is for the Board?

22 MR. DUCHESNE: Yes, since the question was a
23 reference that was made by Miss Tucker, she can
24 direct us.

25 MR. MARTIN: If I could clarify, I think

1 this is an application reference. That Figure 18 is
2 within the application, not necessarily through the
3 Board.

4 MS. BENSINGER: Yeah, so it's not an exhibit
5 that's before the Board. This is apparently an
6 exhibit that was part of the application; is that
7 correct?

8 MS. TUCKER: It is part of the application
9 and this goes to the issue of whether sediment
10 testing has been done along the route that's being
11 proposed.

12 MS. BENSINGER: Right. So that's not an
13 exhibit in evidence. I mean, it's not before the
14 Board and the hearing record. If you're going to
15 offer that exhibit you have to provide copies.

16 MS. TUCKER: I'll be happy to proffer --
17 provide copies and I proffer that the application
18 Figure 18-1 is -- and it is referenced in the
19 testimony from 12/11/19.

20 MS. BENSINGER: So Ms. Ransom referenced it
21 in her testimony?

22 MS. TUCKER: Yes.

23 MS. BENSINGER: And you didn't attach it?

24 ELIZABETH RANSOM: I think it is attached.
25 Yes, I think it is attached.

1 MS. BENSINGER: Oh, it is attached. Okay.
2 Never mind.

3 MR. SANFORD: Section 18, Page 2.

4 ELIZABETH RANSOM: Thank you, Mr. Sanford.

5 MR. SANFORD: It's in Exhibit 7.

6 MS. TOURANGEAU: It sounds like it's Nordic
7 Exhibit 7. I'm sorry, I can't be more helpful. I
8 don't...

9 MS. BENSINGER: Is it in the direct or
10 rebuttal?

11 (Several people respond Direct.)

12 MR. DUCHESNE: Correct. It is in Section --

13 MS. TOURANGEAU: 7 would have an in direct
14 because we stopped indirect at 23, I think.

15 MR. DUCHESNE: One by one we're starting to
16 find it. It's under solid waste. Who knew to look
17 there. I believe most of us are caught up, so you
18 may continue with the questions.

19 MS. TUCKER: Isn't it true that no sediment
20 core sampling has ever been taken along the currently
21 requested route that shows all of the length of the
22 route with sediment testing done to see if mercury is
23 in the sediment in that location?

24 ELIZABETH RANSOM: It would be incorrect to
25 say that no sediment testing was done along the

1 preferred route.

2 MS. TUCKER: For mercury?

3 ELIZABETH RANSOM: For mercury, that's
4 correct.

5 MS. TUCKER: So you never tested for mercury
6 along this route that you're now proposing that the
7 Board approve you to do?

8 ELIZABETH RANSOM: Not the exact route, no,
9 because as I stated earlier one of those samples is
10 roughly 200 feet away. The other sample is less than
11 800 feet away and as -- as I noted in my previous
12 summary, these samples are pretty similar to what's
13 been found in more extensive mercury sampling in the
14 bay and we would expect that although there is always
15 variability in the subsurface that any additional
16 samples collected in that area would be a similar
17 range of .2 to .3 milligrams per kilogram of mercury.

18 MS. TUCKER: I believe that you referenced
19 Chapter 5 of the Penobscot River Mercury Study Phase
20 2 study done by Dr. Yeager in your testimony; is that
21 correct?

22 ELIZABETH RANSOM: That's correct.

23 MS. TUCKER: And you studied that?

24 ELIZABETH RANSOM: I didn't -- I wouldn't
25 say extensive study, but I've read it more than --

1 more than once and I have certainly looked at
2 the mapping of where mercury has been found and the
3 methodology used to generate that mapping.

4 MS. TUCKER: This would be referenced in MGL
5 Exhibit 3, I believe. In the excerpts that we
6 provided in Exhibit 3, which are from Chapter 5, we
7 reference estuary samples 7-A, 8-A and 8-C. Would
8 you agree that those also appear on Figure 5-8 of the
9 Chapter -- Chapter 5 report?

10 MS. TOURANGEAU: Objection. This goes
11 outside the scope of Ms. Ransom's direct testimony,
12 which had referenced Nordic Exhibit 39, which is
13 specific excerpts from the PRMS study only.

14 MS. TUCKER: Actually, she just made a
15 statement that this -- there is low levels of mercury
16 along this area according to the report, so she
17 clearly understands. I am asking her to look at
18 these figures because as I --

19 MS. TOURANGEAU: Her pre-filed direct
20 testimony does not address those figures and so --

21 MS. TUCKER: But her statement here today
22 does and I was --

23 MS. TOURANGEAU: It shouldn't. It needs to
24 be on the -- can we limit the questions to the direct
25 testimony?

1 MR. DUCHESNE: I believe this is within the
2 scope of what we're discussing, so I'm going to allow
3 the question.

4 MS. TUCKER: In looking at Sample 8-A of the
5 estuary study done in Chapter 5. Dr. Yeager reports
6 to the federal court that at 15 to 16 centimeters of
7 depth that the mercury level is 495 nanograms per
8 gram.

9 MS. TOURANGEAU: Objection. Can you provide
10 that reference?

11 MS. TUCKER: It's in Exhibit 3. MGL Exhibit
12 3.

13 MS. TOURANGEAU: Do you have a copy for Ms.
14 Ransom given that it was not an exhibit?

15 ELIZABETH RANSOM: Yeah, it would be helpful
16 for me if I can actually see where the sample you're
17 referencing comes from?

18 MS. TOURANGEAU: And I would also like to
19 object that you are asking Ms. Ransom to testify on
20 someone else's exhibit in a way that was not part of
21 her pre-filled direct or rebuttal testimony and I
22 would object to you're answering that question.

23 MR. DUCHESNE: And this time I would say
24 that counsel is much closer to reality in terms of --
25 of what I can allow and not, so I need to confine

1 this to what has been testified on, what was in
2 pr-filed testimony and what this panel is assembled
3 to inform the Board with.

4 MS. TUCKER: Nordic proposes to dig trenches
5 that are roughly 10 feet deep; is that correct,
6 through the intertidal zone and now into the subtidal
7 out to roughly 30 to 32 feet of water depth at mean
8 low water?

9 ELIZABETH RANSOM: The depth obviously
10 varies because as you leave shore and you ultimately
11 surface the pipe you'll obviously have depths that
12 are much shallower than 10 feet, but.

13 MS. TUCKER: Shallower than 5 to 7 inches?

14 ELIZABETH RANSOM: At some point, you'll
15 break through to the surface so you will cross the 5
16 to 7 inches.

17 MS. TUCKER: How much of that will be within
18 the 5 to 7 inch range?

19 MS. TOURANGEAU: Objection. Again, this
20 goes beyond the scope of pre-filed direct or rebuttal
21 testimony.

22 MR. DUCHESNE: I think that's a fair
23 question to ask just so we have some scope of what
24 the disturbance is, so I think it's acceptable.

25 ELIZABETH RANSOM: Are you asking me how

1 much of it will actually be laid in 5 to 7 inches or
2 are you asking me how much of it will have to break
3 through that layer?

4 MS. TUCKER: Both.

5 ELIZABETH RANSOM: So most of the intertidal
6 area will require breaking through that 5 to 7
7 inches. There will be a much shorter distance that's
8 actually laid in, you know, just that last bit before
9 it surfaces.

10 MS. TUCKER: Can you quantify that as -- as
11 project manager, can you quantify that length?

12 ELIZABETH RANSOM: The length that's
13 breaking through I would say is maybe the last --
14 they're laying this pipe in 20 to 40 foot sections, I
15 would say it's that last section that would be
16 breaking through.

17 MS. TUCKER: So how much from mean low water
18 out to where it breaks through is being disturbed
19 below the depth of 5 to 7 inches?

20 ELIZABETH RANSOM: Most of the roughly --
21 most of the intertidal area.

22 MS. TUCKER: So based on that where it's 15
23 to 16 centimeters that would indicate that where it's
24 495 nanograms per gram that level of mercury will be
25 disturbed?

1 ELIZABETH RANSOM: Again, I don't know where
2 this 495 milligram per kilogram sample that you're
3 referencing comes from. The data I reviewed suggests
4 that the levels of mercury in the sediment near where
5 this pipeline is being laid is in the .2 to .3
6 micrograms -- milligrams per kilograms.

7 MS. TUCKER: But the testing --

8 ELIZABETH RANSOM: Based on not just my
9 testing but the testing done as a part of the PRMS.

10 MS. TUCKER: That is the testing done as a
11 consequence of PRMS. That's Dr. Yeager's report from
12 Chapter 5 where that chart comes from.

13 ELIZABETH RANSOM: The chart doesn't show me
14 any sample locations. As you look at the PRMS,
15 you'll see that concentrations decrease as you move
16 further away from HoltraChem's facility and as you
17 get down to this portion of the bay the line of
18 samples is in the .2 to .3 milligram per kilogram
19 range.

20 MS. TUCKER: Isn't it true that in Figure
21 5-8 of the PRMS Chapter 5 report it shows where those
22 core samples were taken 7-A, 8-A and 8-C and it shows
23 that those are the closest ones to where you're
24 proposing to disturb this area and it shows these
25 factors of 500 nanograms per gram or roughly --

1 MS. TOURANGEAU: Objection.

2 MS. TUCKER: -- ten times background.

3 MS. TOURANGEAU: Can you provide an exhibit
4 that shows what you're testifying to so that she can
5 answer the question?

6 MS. TUCKER: Yes.

7 MR. DUCHESNE: Yes, I'm going to interrupt
8 for just a second. First of all, the objection is
9 noted and I am uncomfortable with having the witness
10 testify on data that was not hers. I understand that
11 references to other exhibits are possible, but it's
12 not like she could have studied for this test without
13 having experienced pre-filing her testimony and
14 reviewing what she herself is presenting, so I'm
15 going to be a little cautious about allowing a line
16 of questioning that strays past what she has
17 presented the Board and submitted as evidence.
18 Reference to other studies are fine, but she can't --
19 I would find that she can't easily verify or deny
20 what's in somebody else's study, so I would like to
21 narrow the questioning to what she is prepared to
22 deal with.

23 MS. TUCKER: Well, she has testified that
24 she's familiar with the level of mercury here from
25 the Penobscot River Mercury Study and it doesn't

1 appear that to be the case. Representations are
2 being made to this Board about this area not having
3 mercury and it's been repeatedly made by this
4 applicant that there is not a concerning level of
5 mercury here. When the federal court's experts that
6 are neutrally appointed by the federal court and done
7 more than a 10 year study on this area says this area
8 has 10 times the background level.

9 MR. DUCHESNE: I guess -- yes, and this is
10 what concerns me. I believe you'll probably bring
11 this information to the Board later on with other
12 testimony, is that a safe assumption?

13 MS. TUCKER: Some of it, yes.

14 MR. DUCHESNE: Okay. Because -- and we look
15 forward to that, but to question the witness on
16 somebody else's testimony and line of expertise on
17 this is venturing a little outside the bounds, so I
18 would like to confine the testimony to what was
19 pre-filed and what this panel is empanelled to talk
20 to us about.

21 MS. TUCKER: To go back to your other
22 representations about the impacts of putting pipeline
23 out there, what geological or geotechnical surveys
24 and studies did Nordic do of the holocene mud that is
25 in the area of where the pipelines are posed to be

1 placed?

2 ELIZABETH RANSOM: Nordic conducted a
3 variety of things. They did -- as Normandeau alluded
4 to earlier, they did sampling for both the
5 geotechnical properties of the material that would be
6 excavated, so -- or supporting the pipeline so they
7 looked at things like grain size analysis of that
8 material. They looked at benthic surveys of that
9 material and they used both a diver and a camera to
10 look for things like changes in the sea floor
11 material, so, you know, is it a boulder, is there a
12 change in the substrate. They also did a more
13 detailed bathymetric survey to evaluate demographic
14 differences. And also they looked at a choice of
15 contractor and the reflecting -- the reflection of
16 those layers as to, you know, are there significant
17 changes in the sediment as you go from the surface to
18 depth, are we, you know, are we finding a bedrock
19 surface or is that material sandy, silty, muddy what
20 have you, so there has been an extensive amount of
21 work on that.

22 MS. TUCKER: Isn't it true that none of the
23 studies that you've provided give any indication to
24 how holocene mud that's full of methane, which is
25 methane venting -- an active methane venting area in

1 a 10,000 year old marsh can support this pipeline
2 using the anchors that you've proposed.

3 ELIZABETH RANSOM: First of all --

4 MS. TOURANGEAU: Objection. It's outside
5 the scope of Ms. Ransom's testimony.

6 MR. DUCHESNE: That it seems -- it looks
7 that way to me too. Can you be more specific as to
8 why that is within her testimony right now?

9 MS. TUCKER: Ms. Ransom has spoken about as
10 the project manager about the ability to put these
11 pipelines using the proposal now this new
12 installation method, but there has been no evidence
13 provided on the impacts of scouring. There's been
14 lots of representations by people on this panel
15 including Ms. Ransom that there is not going to be
16 any turbidity, that the effects are short-term, that
17 it's six months and everything will be back to
18 normal.

19 MR. DUCHESNE: Okay.

20 MS. TOURANGEAU: Can I --

21 MR. DUCHESNE: Yeah, I'm going to allow the
22 question for now.

23 MS. TOURANGEAU: Can I -- can I make a point
24 though?

25 MR. DUCHESNE: Absolutely.

1 MS. TOURANGEAU: So there were -- folks will
2 remember some additional exhibits that came in from
3 Mr. Bernacki, I believe, and that were addressed in
4 the Nineth Procedural Order and in response to those
5 exhibits which raised these kind of issues, Nordic on
6 Monday of this week submitted Nordic Exhibits 39 and
7 40 and Nordic Exhibit 40 addresses these issues and
8 that came in through Mr. Cotter, so to the extent
9 that you want to ask questions on that, I understand
10 that the Board was going to allow more time, but we
11 should pull Mr. Cotter up to do that.

12 MR. DUCHESNE: Yeah. I believe they're not
13 even distributed to the Board.

14 MS. BENSINGER: And Mr. Cotter is schedule
15 to testified when?

16 MS. TOURANGEAU: He testified already on the
17 SLODA issues.

18 MS. BENSINGER: Right. And he's not coming
19 back?

20 MS. TOURANGEAU: Well, we had to kind of
21 figure out how we were going to do that and so it
22 seems like this might be the time.

23 MR. DUCHESNE: Okay. I would allow that
24 because --

25 MS. BENSINGER: If you could allow us a

1 moment we're going to distribute those materials to
2 the Board.

3 MS. TOURANGEAU: He's coming up again for --
4 on the MEPDES conversation, but that's a subset of --
5 I don't know how you want to handle that.

6 MR. DUCHESNE: Well, we can't do MEPDES --

7 MS. TOURANGEAU: Right.

8 MR. DUCHESNE: -- with the full panel --

9 MS. TOURANGEAU: Yes.

10 MR. DUCHESNE: -- but when it comes to the
11 stability of the pipeline on soils and the ocean
12 floor that may have methane bubbles underneath that
13 is a significant part of the conversation and it
14 would be appropriate to --

15 MS. BENSINGER: Let's take a five minute
16 break and we'll --

17 MS. TOURANGEAU: Sorry.

18 MS. BENSINGER: -- distribute those
19 materials to the Board.

20 MR. DUCHESNE: Great.

21 MS. BENSINGER: And that was cc'd to all the
22 parties when you submitted it?

23 MS. TOURANGEAU: Of course. And I've handed
24 out hard copies to the parties that have been in
25 attendance. If you are here and you did not get one,

1 I brought enough for everyone.

2 MS. BENSINGER: Thank you.

3 (Break.)

4 MR. DUCHESNE: Thank you very much for that
5 brief five minute break. For our listeners at home,
6 Edward Cotter has now joined the panel. If you're
7 just catching up Edward Cotter, Elizabeth Ransom,
8 Adele Fiorillo, Tyler Parent and Lauren Walsh are a
9 panel of five up here and we may resume. And I
10 believe we were delving into a series of questions
11 where Mr. Cotter will be helpful to Ms. Tucker's
12 questions. So you may proceed.

13 MS. TUCKER: Mr. Cotter, isn't it true that
14 in the fall of 2018 that you testified to the Harbor
15 Committee in Belfast that during one core sample that
16 Nordic collected you found 237 nanograms per gram of
17 mercury?

18 EDWARD COTTER: I remember testifying to the
19 Harbor Committee about questions that they had
20 regarding city ordinances. I don't recall and I
21 don't have a record of the discussion from that time.
22 But, yes, we did talk about our findings of mercury
23 from our samples.

24 MS. TUCKER: And wasn't that 237 nanograms
25 per gram?

1 EDWARD COTTER: I -- I reported whatever our
2 findings were.

3 MS. TUCKER: And wasn't that core sampling
4 tested --

5 MS. TOURANGEAU: Objection. This goes
6 beyond the cope of anyone's pre-filed direct and
7 rebuttal testimony in these proceedings.

8 MS. BENSINGER: Can you please speak up?

9 MS. TOURANGEAU: Sorry. Objection. This
10 goes beyond the scope of anyone's pre-filed and
11 direct testimony in these proceedings.

12 MR. DUCHESNE: Yeah, I believe it's relevant
13 to impeaching the testimony, so I'm going to allow
14 it.

15 EDWARD COTTER: Yes, I -- I recall
16 presenting information to the Harbor Committee.

17 MS. TUCKER: Are you or Ms. Ransom, either
18 one of can you answer this, familiar with how that
19 core sample or that figure was found was tested?

20 ELIZABETH RANSOM: Yes. As I stated earlier
21 in my testimony, the samples that were collected by
22 Normandeau were done -- I'm sorry, I'm too close
23 again, aren't I? You'd think I'd learn. So those
24 were tested using the Army Corps of Engineers
25 Regional Implementation Manual Guidance. It is a

1 compositing soil methodology and it is a methodology
2 that is appropriate to characterization of material
3 for things that you plan to look at for upland
4 disposal.

5 MS. TUCKER: And isn't it true that in the
6 Penobscot River Mercury Study the court's expert said
7 in order to find the location, depth and level of
8 mercury from HoltraChem dumping that it must have a
9 different testing methodology used where -- in the
10 first 20 centimeters from the surface down every 1
11 centimeter segment is tested, from 21 to 40 every 2
12 centimeter segment is tested and from there on every
13 5 centimeter segment is tested and that's in Chapter
14 5 of Dr. Yeager's report of the Penobscot River
15 Mercury Study.

16 ELIZABETH RANSOM: The PRMS methodology is a
17 specific methodology that the court required for the
18 HoltraChem remedial studies. It's not a generally
19 applicable methodology for testing material to be
20 landfilled in the State of Maine. So, yes, I'm aware
21 it's a different methodology than what we used.

22 MS. TUCKER: And what you did use was a 6
23 1/2 foot deep core that you composited, in other
24 words, you mixed all of the pieces and the parts of
25 it together before you tested; is that correct?

1 ELIZABETH RANSOM: One of the samples for
2 mercury was a composite, the other one was a
3 discreet.

4 MS. TUCKER: The one with 237 nanograms per
5 gram was a composited 6 1/2 foot core, was it not?

6 ELIZABETH RANSOM: 200 and -- it's 267 and
7 that was a composite, yes.

8 MS. TUCKER: So you would have mixed --

9 MS. TOURANGEAU: Objection for just one
10 second. Can we make sure that folks are using the
11 same -- I'm not quite sure what to call it, but there
12 is some -- people are using nanograms per kilogram
13 and other people are using milligrams per kilogram
14 and I think it's leading to confusion about the
15 numbers being different when they're actually the
16 same.

17 ELIZABETH RANSOM: Yeah, let me -- I'll
18 clarify that. So Ms. Tucker has been using nanograms
19 per gram which results in a number of 267. I've been
20 using milligrams per kilogram, which moves that
21 decimal point over and makes it .267. The reason
22 I've been using milligrams per kilogram is that both
23 the Maine Remedial Action Guidelines and the landfill
24 criteria are reported in milligrams per kilogram, so
25 to make direct comparisons out of the data we've

1 received to the applicable criteria we've been using
2 milligrams per kilograms, but I recognize that a lot
3 of the PRMS data is in nanograms per gram. So
4 hopefully that clarifies if the Board is using the
5 different units.

6 MS. TUCKER: And in that -- to answer the
7 question, you took a 6 1/2 foot core, you mixed it
8 all together and then tested and got 267 nanograms
9 per gram?

10 ELIZABETH RANSOM: That's correct.

11 MS. TUCKER: And according to the Penobscot
12 River Mercury Study chart that you submitted --
13 Nordic submitted yesterday morning as Nordic Exhibit
14 39, it shows that the expected average of the mercury
15 in the area where you plan to put this pipeline is
16 200 to 300 nanograms per gram?

17 ELIZABETH RANSOM: Yes.

18 MS. TUCKER: And isn't it true that in June
19 of 2016, the Department of Marine Resources and the
20 Maine CDC closed a 7 square mile area at the -- near
21 the upper estuary of Penobscot Bay less than 5 miles
22 from here because they found 40 lobsters over a one
23 year period that had an average of 292 nanograms per
24 gram of mercury in their tail meat?

25 ELIZABETH RANSOM: So my understanding of

1 the study you're referring to is that DMR, DEP and
2 Maine CDC looked at lobster tissue analyses as to
3 the -- what they were finding in the different
4 lobster populations who migrate in and out of the
5 sediments both clean and mercury contaminated. And I
6 am not the right person to describe the uptake of
7 mercury in lobsters and how -- what they are in for
8 soil reflect what ultimately is in their tissue.
9 That's more of a biologist question, but it's not a
10 direct correlation. So a lobster being in 200
11 nanograms per gram of mercury does not necessarily
12 equate to that same level in their tissue. It's much
13 like when we eat tuna fish, we're recommend to not
14 eat it continuously because we will then have more
15 issues with what's in our body from bioaccumulation.
16 It's the same -- an analogous situation with any
17 marine organism it's not exactly what you eat that
18 day that goes directly into your tissues, it takes
19 time and biological processes to make that happen,
20 so. I understand there is a closure there, but it's
21 not directly related to the concentrations. Not a
22 one-to-one correlation.

23 MS. TUCKER: Isn't it true that Nordic has
24 done no study to see what level of Mercury it could
25 expose lobsters to through resuspending buried

1 HoltraChem mercury that would not result in lobsters
2 taking up additional mercury and closing an
3 additional portion of Penobscot Bay to lobstering?

4 ELIZABETH RANSOM: It's my interpretation
5 from the study that's already been conducted that the
6 reason the closure line is 6 miles north of Nordic's
7 proposed pipeline location is because those -- those
8 who did study this in detail came to the conclusion
9 that the levels to the south were not enough to make
10 such a closure necessary.

11 MS. TUCKER: Isn't it true that what the --
12 what they concluded was that because the mercury is
13 buried to the south there is no risk to the lobsters,
14 but if it's unburied that calculation changes, does
15 it not, by dredging?

16 ELIZABETH RANSOM: This goes a bit beyond
17 anything in my testimony.

18 MR. DUCHESNE: And I would agree.

19 MS. TUCKER: Mr. Cotter, isn't it true that
20 in last legislative session when the Maine Lobstering
21 Union and the Sierra Club and others tried to get the
22 Penobscot River Mercury Study standard adopted for
23 all proposed dredging north of the southern tip of
24 Islesboro that Nordic Aquafarms opposed that in the
25 Legislature and you said in the case of the Nordic --

1 MS. TOURANGEAU: Objection. We're
2 testifying and we're going outside of the scope of
3 the pre-filed.

4 MR. DUCHESNE: Sustained. That's correct.
5 Sustained.

6 MS. TUCKER: I'd like to for the record
7 preserve that I'm attempting to impeach Mr. Cotter
8 because he's taken a position in the past that --
9 about the levels of mercury in his testimony to the
10 Legislature, which this body should be able to take
11 notice of under the Chapter -- Title 5 of the Maine
12 Administrative Procedures Act.

13 MR. DUCHESNE: It does seem to be outside of
14 the scope. Is the objection still raised?

15 MS. TOURANGEAU: Mr. Cotter just turned
16 around and --

17 MR. COTTER: I -- I did.

18 MS. TOURANGEAU: Did you testify?

19 MR. COTTER: I did.

20 MR. DUCHESNE: Okay. Go for it.

21 MS. TUCKER: Isn't it true that in your
22 testimony you said in the case of the Nordic project
23 in Belfast preliminary testing indicates no mercury
24 levels of significant concern in the soils in line
25 with expectations based on the Amec Foster Wheeler

1 Penobscot River Estuary Study.

2 EDWARD COTTER: That's correct.

3 MS. TUCKER: And it's true that the Amec
4 Foster Wheeler Penobscot River Estuary Study is only
5 the Phase 3 study of where to do remediation in the
6 southern tip of Verona Island and Mendall Marsh and
7 has nothing to do with the rest of Penobscot Bay?

8 EDWARD COTTER: I was referencing a figure
9 in there, which I don't have in front of me, but I
10 believe it's the same one that I'm looking at in the
11 exhibits that show results from parts of the PRMS
12 study. I believe, that was the Phase 2 you just
13 said. So we were looking at relevant data to that
14 testimony which agreed with the results from our
15 testing that had been done.

16 MS. TUCKER: Isn't it true that under the
17 core sampling methodology from the Corps of Engineers
18 and the EPA that applies for any dredge spoils to be
19 dumped in the aquatic environment in New England.
20 But it says that if the core shows significant
21 stratification subsamples --

22 MS. TOURANGEAU: Objection. This project
23 doesn't include any --

24 MS. TUCKER: -- must be made --

25 MS. TOURANGEAU: -- in-water disposal of

1 dredge spoils.

2 MS. BENSINGER: If you could wait until she
3 asks the question before you raise the objection.
4 It's really hard for the court reporter to record two
5 people talking at once. Thank you. So if you would
6 finish asking your question and then if you would
7 pause before you answer it anticipating this
8 objection that would be great.

9 MS. TUCKER: If the cores show significant
10 stratification subsamples must be made of each layer.

11 MS. TOURANGEAU: Objection. This project
12 doesn't include any in-water disposal of sediments.

13 MS. TUCKER: If I may, that's a false
14 statement because all of the dredge spoils -- all of
15 the material removed from -- by trenching and
16 dredging and put on the side under the federal rules
17 and the guidelines from the DEP are considered dredge
18 spoils and when they're put back in the hole it's
19 also considered another set of dredge spoils and so
20 this would apply. It's dredging.

21 MS. TOURANGEAU: It's not disposal.

22 MR. DUCHESNE: Yes, I'm going to --
23 actually, I'm going to allow the question in for
24 reasons that I think this is -- it's drawn the
25 attention to some of the Board members as well.

1 There is a little bit of fuzziness in the definition
2 as to what's dredging, what's disposal and the extent
3 we can talk about that I think that's acceptable, so
4 I'm going to allow the question.

5 EDWARD COTTER: Could you repeat the
6 question, please?

7 MS. TUCKER: Isn't it true that under the
8 standards of the Corps of Engineers --

9 MR. DUCHESNE: Mic.

10 MS. TUCKER: I broke it.

11 MR. DUCHESNE: If you need to you can use my
12 microphone, I'm barely using it.

13 MR. TUCKER: I just want to thank Mr. Lannan
14 because he's like the only one on our side of the
15 room that is technologically capable.

16 (Laughter.)

17 MS. TUCKER: So if the -- I'm supposed to
18 repeat it again, right? I've lost track of what I'm
19 supposed to do. If the cores show significant
20 stratifications subsamples must be made of each
21 layer.

22 EDWARD COTTER: You referenced an Army Corps
23 requirement?

24 MS. TUCKER: Yes.

25 EDWARD COTTER: I am not sure I am familiar

1 with the Army Corps requirements for marine disposal,
2 so I can't answer that.

3 MS. TUCKER: But isn't it considered marine
4 disposal when you take sediment out and put it to the
5 side and then shove it back in the hole that is
6 considered marine disposal by the Corps and the EPA,
7 so this project entails a significant amount, tens of
8 thousands of cubic yards of material being moved and
9 then shoved back in the hole.

10 MS. TOURANGEAU: Objection. Testifying.

11 MR. DUCHESNE: Just making sure our court
12 reporter is caught up. I note the objection. I
13 think the court is -- what the Corps does and what
14 the Corps rules are are interesting and perhaps
15 relevant to the discussion but not for the criteria
16 we need to judge on, so I'd like to stay as much
17 focused as possible on the criteria that we have to
18 deal with.

19 MS. TUCKER: If I may, Presiding Officer,
20 under the DEP rules that standard in the EPA and the
21 Corps is the standard adopted by DEP for testing of
22 sediment.

23 MS. BENSINGER: You can ask the question,
24 but Mr. Cotter has already answered that he's not
25 familiar with the Corps rules on that particular

1 topic.

2 MS. TUCKER: But it is your testimony that
3 nobody ever tested all of the sediment layers
4 pursuant to either the EPA, Corps standard or the
5 PRMS standard?

6 EDWARD COTTER: I think our testimony is
7 that we have followed current guidelines for removal
8 of material and upland disposal.

9 MS. TUCKER: Isn't it required even for
10 upland disposal of any material from the aquatic
11 environment that you would still have to comply with
12 the Corps sampling standards and take sediment cores
13 all along the route proposed for the pipeline, not a
14 pre-existing route that no longer is in effect?

15 EDWARD COTTER: The guidelines that -- that
16 we see are applicable are the disposal guidelines
17 which are under Chapter 400 where we would need to
18 sample material that's been removed prior to shipping
19 off to an upland facility and tested in accordance
20 with the permit requirements in Chapter 400
21 requirements.

22 MS. TUCKER: But don't you have to do the
23 sediment testing before you can dredge, not before
24 you can dispose, before can you dredge?

25 EDWARD COTTER: I don't know that. I don't

1 understand where you're getting your parameters from.

2 MS. TUCKER: The DEP guidelines for
3 dredging.

4 EDWARD COTTER: Are you able to provide that
5 to me?

6 MS. TUCKER: Yes, it's on the website and it
7 says for applicants posing to dispose of dredge
8 material in coastal waters, which would include
9 shoving it back in the hole, the Maine Department of
10 Environmental Protection requires the applicant and
11 federal agencies proposing to dispose of dredged
12 material in coastal waters sample and test the
13 material as outlined in the U.S. Environmental
14 Protection Agency and U.S. Army Corps of Engineers
15 joint publication entitle, quote, Evaluation of
16 Dredge Material Proposed for Ocean Disposal, closed
17 quote, 1991.

18 EDWARD COTTER: I think --

19 MS. TUCKER: Further requirements for
20 sampling -- sorry, it's a long thing.

21 MS. BENSINGER: Excuse me, this is not an
22 exhibit that's in evidence; is that correct?

23 MS. TUCKER: I moved -- I proffer this that
24 the Board take notice of DEP guidance on its own
25 website pursuant to the Administrative Procedures

1 Acts. We didn't pre-file this. I -- I will file
2 this as a proffer because this issue has come up
3 while we're testifying, so I did not pre-file it, but
4 this is something that's on DEP website so that the
5 Board will be expected to use as its guidance for
6 this application as well.

7 MS. BENSINGER: And you don't have any
8 copies for the parties?

9 MS. TUCKER: I can make them over lunch and
10 bring them.

11 MS. BENSINGER: Can you -- can you show it
12 to Mr. Cotter?

13 MS. TUCKER: I can.

14 EDWARD COTTER: I think I can -- my response
15 without looking at that is, you know, this was -- I
16 am not sure that it's true that this is an issue that
17 came up during this testimony. None of our plans
18 have changed. And I do believe in my opinion that
19 Ms. Tucker is taking a very liberal reading of ocean
20 disposal and I do not think that we believe that we
21 agree with that reading of that rule.

22 MS. TUCKER: I would suggest I'm basing that
23 on the case law and the federal regulations.

24 MR. DUCHESNE: The suggestion is fine, but
25 can we confine ourselves to questions?

1 MS. TUCKER: Sure.

2 MR. DUCHESNE: Thank you.

3 MS. TUCKER: What is the area that Nordic is
4 proposing to disturb the sediment in order to install
5 the pipes?

6 EDWARD COTTER: The square foot area?

7 MS. TUCKER: Yes.

8 ELIZABETH RANSOM: The sediment area is --
9 is roughly 40 feet wide by I believe it's 1,200 and
10 something feet long of intertidal area.

11 MS. TUCKER: I did not confine myself to
12 intertidal. Every place that you are disturbing the
13 sediment to put the pipelines in and that would
14 include putting your brackets all the way out to the
15 end of the intake.

16 EDWARD COTTER: If -- if you're talking from
17 our pump house all the way to the end, I think --

18 MS. TUCKER: No, I'm talking about within
19 the -- from the high water mark out to the end of the
20 intake.

21 EDWARD COTTER: I think --

22 MS. TOURANGEAU: Objection. Can I clarify
23 the question? I think what you're asking is for the
24 impacted coastal wetland?

25 MS. TUCKER: I'm asking for the area where

1 the sediment is going to be disturbed, not -- there
2 is a different definition being used by Nordic only
3 counting where the little feet of your brackets are.
4 I'm asking for from the tip of the intake pipe to the
5 high water mark.

6 EDWARD COTTER: And that --

7 MS. TUCKER: And the width. And -- because
8 it's my understanding the width, which has changed
9 several times, but the width is 100 feet wide of the
10 area to be disturbed.

11 EDWARD COTTER: Is there still an objection
12 open?

13 MR. DUCHESNE: There is still an objection
14 open, I think?

15 MS. TUCKER: Is it like phone a friend for a
16 lifeline?

17 MR. DUCHESNE: I'm thinking yes. I'd like
18 to buy a vowel.

19 MS. BENSINGER: The objection -- you were
20 just asking a clarifying question, not objecting to
21 the question.

22 MS. TOURANGEAU: Correct.

23 MR. DUCHESNE: Okay. And --

24 MS. BENSINGER: If -- if you understand the
25 question --

1 EDWARD COTTER: Yes, I do.

2 MS. BENSINGER: -- you can answer it.

3 EDWARD COTTER: So our total temporary
4 impact from high tide line through the end of the
5 pipeline is 631,000 square feet.

6 MS. TUCKER: And that is an area that's 100
7 feet wide and how many feet long?

8 EDWARD COTTER: The length of pipeline.

9 MS. TUCKER: Which is?

10 MS. TOURANGEAU: It varies in width though.

11 EDWARD COTTER: Looking at this chart in
12 front of me, I would say 6,425 feet.

13 MS. TUCKER: Okay. And along that -- the
14 area from the low water mark out to the tip of the
15 intake, what studies has Nordic done or evaluated and
16 considered regarding the presence of methane in the
17 holocene mud?

18 EDWARD COTTER: We through our design
19 contract with Cianbro and Woodard and Curran received
20 a study that was conducted by Applied Technology and
21 Management out of Florida. They are a coastal design
22 firm that is quite qualified to evaluate situations
23 such as this. They were -- they provided several
24 technical memos to us that were then used by our
25 design team to develop the design of the pipeline

1 including anchoring and excavation methodology and
2 installation methodology so far. That included
3 several sediment reviews. It included some of the
4 technical -- or some of the systems that were
5 mentioned by Ms. Ransom before including the core
6 sample -- review of the core samples, the bathymetry
7 studies, the reflector studies. The reports --

8 MS. TUCKER: I'm sorry, just a point of
9 clarification. Are you talking about the core
10 sampling that was not done along the proposed route
11 that was done along the prior route?

12 EDWARD COTTER: The core sampling that was
13 done throughout the region of the alternatives
14 analysis so that we could understand the entire area
15 where all of the alternatives were being -- were
16 being considered. Holocene mud, I -- I keep hearing
17 this and had a long discussion with ATM about this.
18 Holocene mud is a technical term basically meaning
19 new mud. It's since the last ice age. Other than
20 that, there is nothing particularly noteworthy about
21 it. It's common. It's in D.C., it's in Boston
22 Harbor, it's in Florida, it's all up and down the
23 east coast. This material it's more important to
24 understand the mechanical and physical properties of
25 it. So we have a study that has shown that it's

1 mostly 50 percent fines and 50 percent sands. It's
2 an extremely common material. It has its own
3 challenges for construction and for installation of
4 pipelines, but it's something that is done hundreds
5 of times up and down the east coast. Our design team
6 feels very comfortable that this particular location
7 and system provides no special challenges. There are
8 challenges with marine construction just like
9 everywhere else, but they're very comfortable that
10 this particular spot is very standard and they
11 understand the physics and the situation behind it.
12 Relative to the methane, yes, those were looked at.
13 The pockmarks were looked at. We have studies that
14 show that those pockmarks are considered inactive
15 now. There have been no changes in many, many years
16 and for that reason we feel that the pockmarks even
17 though we don't get into the pockmark range we feel
18 that they are stable and inactive.

19 MS. TUCKER: What report do you base that
20 statement on? Isn't it true that the methane
21 deposits in Penobscot --

22 EDWARD COTTER: Hold on, let me answer that
23 question.

24 MR. DUCHESNE: Let him answer the first
25 question, if we may.

1 MS. TUCKER: Sure.

2 MS. TOURANGEAU: It's in your report. I'm
3 looking at Nordic Exhibit 38, which is his report in
4 the section on the pockmarks --

5 EDWARD COTTER: Thank you.

6 MS. TOURANGEAU: -- and it references the
7 report. I'm sorry for kind of interjecting, but
8 these materials came in late and so we're just
9 looking for a little bit of flexibility.

10 MR. DUCHESNE: Absolutely. Yes, you may
11 have it.

12 EDWARD COTTER: So we are looking at a
13 report that was noted in Exhibit 38 and it was
14 labeled as Andrews 2010 and the line that I think is
15 most relevant to this question, the report concludes
16 overall the combined data from our geotechnical
17 surveys provide no compelling evidence for especially
18 active methane production in the shallow sub-sea
19 floor of Belfast Bay, thus, these pockmarks may be
20 inactive.

21 MS. TUCKER: Did you review Dr. Kelley's
22 report that he submitted when the Corps of Engineers
23 and the MaineDOT were attempting to get a permit to
24 dump dredge spoils at one of the pockmarks in western
25 Penobscot Bay? It was attached as, I believe, our

1 Exhibit Number 4.

2 EDWARD COTTER: This is relative to the
3 Searsport -- proposed Searsport dredge project?

4 MS. TUCKER: Yes, it was.

5 EDWARD COTTER: Yes, I did.

6 MS. TUCKER: And isn't it true that Dr.
7 Kelley who has studied these pockmarks more over 30
8 years said that these are very active methane and
9 unstable.

10 EDWARD COTTER: No, the way I read it was
11 that he witnessed upwelling in these pockmarks, which
12 has to do with tidal currents and the flow of water
13 over and around them and because of the Searsport
14 dredge project included a lot of fines it was his
15 assessment as I read it that the upwelling caused by
16 current of the bottom flow around these would cause
17 those fines to be become resuspended and then end up
18 being pulled out of the pockmark.

19 MS. TUCKER: Excellent point. So based on
20 those complex currents that causes scouring in the
21 pockmarks, isn't it also true that that same complex
22 current is going to cause scouring around the
23 infrastructure holding the pipelines and resuspend
24 the sediment all along the length of the pipeline?

25 EDWARD COTTER: No, ATM looked at a scour

1 analysis of the pipeline and they found that in the
2 area of our pipeline given the small -- relative
3 small diameter of the pipeline and the structures on
4 the sea floor there are not going to additional
5 current that would support sea scour in this area.

6 MS. TUCKER: And did ATM actually do this
7 testing here or from Florida based on modeling?

8 EDWARD COTTER: They did analysis based on
9 reports from the location including our dive survey,
10 our current studies and so forth.

11 MS. TUCKER: So it's your position that
12 there won't be any scouring around the feet of the
13 infrastructure resuspending sediments in the holocene
14 mud?

15 EDWARD COTTER: It's our position that any
16 scour would be insignificant.

17 MS. TUCKER: And where in your documents is
18 the report that concludes that after study?

19 EDWARD COTTER: I don't believe that was in
20 our application. I believe we submitted a design
21 that was based on those recommendations.

22 MS. TUCKER: You've also mentioned that you
23 base this on sediment testing, but you concur that
24 there has been no sediment core samples taken along
25 the third route that's currently before this Board?

1 EDWARD COTTER: We have the -- the boring
2 locations are provided and we feel that they provide
3 adequate coverage in the areas of all of the analyses
4 and they're within -- as Ms. Ransom said, several of
5 them are within 1 to 200 feet of the proposed -- the
6 preferred pipeline.

7 MS. TUCKER: Of core samples that were
8 tested for mercury or grab samples that were taken to
9 look for biotic?

10 EDWARD COTTER: Core samples that were taken
11 for in this case I'm talking about physical
12 properties.

13 MS. TUCKER: Can you point that out on your
14 chart because the only ones I see that were taken
15 that were core samples were taken are along the
16 second route and not along the existing pipeline
17 route being requested.

18 EDWARD COTTER: The B series of cores were
19 taken relatively closely to the preferred pipeline
20 route.

21 MS. BENSINGER: B what?

22 EDWARD COTTER: I think it would B-3. Yeah,
23 B-3 in particular. So I'm looking at B-3, which is
24 on the figure that we've been discussing before and
25 that showed -- showed sediment samples including --

1 MS. TUCKER: Can you just point it out on
2 there?

3 EDWARD COTTER: Yeah, do you have the --

4 ELIZABETH RANSOM: Yeah, so this sample,
5 this sample, this sample are all on the pipeline
6 route.

7 MS. BENSINGER: Okay. We need to have the
8 testimony on the record and the court reporter needs
9 to be able to hear you, Ms. Ransom.

10 ELIZABETH RANSOM: Sorry.

11 MS. BENSINGER: Thank you.

12 ELIZABETH RANSOM: So the -- the samples
13 that are directly on the pipeline route, and I
14 apologize, I have glasses, it's fine print, I'm going
15 to do my best, but there are two samples with an A
16 designation near shoreline.

17 MS. TUCKER: And that would be in the
18 intertidal zone, correct?

19 ELIZABETH RANSOM: That's correct. And then
20 there are two samples that are further out, A-10 and
21 11 that are also on the pipeline route.

22 MS. TUCKER: And those are grab samples only
23 looking for biotic, correct?

24 ELIZABETH RANSOM: I believe that's correct.
25 And then there is Sample B-3, which I mentioned prior

1 is within 200 feet of the pipeline that's currently
2 proposed. That's just the north --

3 MS. TUCKER: And what is the level of
4 mercury found in Sample B-3?

5 ELIZABETH RANSOM: It was non-detect. And
6 then there is another sample just to the south of the
7 pipeline route, I would say within 50 feet. I don't
8 have an exact scale, you know, fine point scale on
9 this map, but that would be A-9. And so as Ed was
10 discussing some of the parameters that were submitted
11 to ATM or some of the samples that were submitted to
12 ATM include Samples A-7, A-6, you know, going down
13 through, A-12, there were a number of samples
14 submitted for that geotechnical evaluation to
15 evaluate pipeline routes.

16 MS. TUCKER: The only samples I'm aware of
17 that you took core samples are -- there are core
18 samples, one was a foot-and-a-half deep, one was 4
19 1/2 feet deep, you composited those two and then you
20 had one that was 6 1/2 feet deep and that's the one
21 where you found 267 nanograms per gram after
22 compositing, am I right on that?

23 ELIZABETH RANSOM: Not if we're talking
24 about geotechnical samples, no. So in addition --

25 MS. TUCKER: Just core samples. Core

1 samples.

2 ELIZABETH RANSOM: Yes, so there were core
3 samples submitted for chemistry to evaluate the
4 sediment for disposal options, but there were also
5 samples submitted for geotechnical parameters looking
6 at crane size and evaluating the amount of fines
7 versus sands to help the design contractors with the
8 design of an armoring and anchoring system for the
9 pipeline itself. So those are separate and distinct
10 and I think that those samples in that dataset, I
11 believe, is in Exhibit 38 that Mr. Cotter submitted.

12 MR. DUCHESNE: If I may butt in just long
13 enough for timekeeping. And I just want to make sure
14 that everyone is aware that you've had to shuffle a
15 lot of paper, handle a lot of reports, take up
16 additional time that was due to Ms. Tucker's
17 questions, so we're allowing extra time. It won't be
18 unlimited. We're looking for maybe another 10
19 minutes of potential questioning and I just want to
20 make sure that Ms. Tucker is aware of that if she has
21 any questions for the rest of the panel you don't
22 short change yourself.

23 MS. TUCKER: I will shift to the others. I
24 think we've covered what we need to here. Regarding
25 the Normandeau work, isn't it true that Normandeau

1 was debarred from doing any work for the federal
2 government in 1993 because of their failure to
3 properly identify wetlands on Sears Island and their
4 debarment was roughly five years long?

5 ADELE FIORILLO: I was not employed at
6 Normandeau at that time, however, I understand that
7 that is the case.

8 MS. TUCKER: Thank you. You're a fisheries
9 biologist; is that correct?

10 TYLER PARENT: That's correct.

11 MS. TUCKER: And you -- you testified that
12 you did a diver tow on September 20, 2018 and based
13 on that you found that there would be minimal impacts
14 on lobsters or you found no lobsters or you found no
15 lobsters. I believe in Exhibit 38 from Mr. Cotter it
16 actually says there were no lobsters seen.

17 TYLER PARENT: That is correct and we have
18 video evidence supporting that as well because we --
19 we did tow a video camera in addition to the divers.

20 MS. TUCKER: And what was your route for the
21 video camera? Was it on Route 3 for the pipeline?

22 TYLER PARENT: I cannot remember exactly
23 which of the three.

24 ELIZABETH RANSOM: Actually, there were
25 multiple camera tows and the camera tows kind of

1 spanned a V window at the time. We were trying to
2 cover the entire, excuse me, we were trying to cover
3 the entire area of the potential routes with the
4 camera tows, so it was multiple tows --

5 TYLER PARENT: Right.

6 ELIZABETH RANSOM: -- deliberately spread
7 across the proposed project area.

8 TYLER PARENT: To characterize the broader
9 area.

10 MS. TUCKER: And you found no lobsters in
11 that area on any of those tows?

12 TYLER PARENT: I was not personally under
13 water that day, however, that is what I was told.

14 MS. TUCKER: And what was the visibility
15 under water that day?

16 TYLER PARENT: From the camera tows it is
17 plenty to see the substrate, the vegetation and any
18 aquatic organisms.

19 MS. TUCKER: And did you study the -- any
20 impacts if mercury is disturbed on the impact of
21 lobsters and crabs in this area?

22 TYLER PARENT: So the -- my -- the way --
23 where I come in is I am told what is the projected
24 impact in this case a potential rise in mercury or
25 lack thereof and from that information I can then

1 make a distinction. However, the concentrations of
2 mercury found in the soil from our samples are then
3 compared to that of the previous studies further
4 upstream in the Penobscot watershed suggests that it
5 would take a lot more than that to biomagnify to a
6 detectable level in the organisms you're referencing.

7 MS. TUCKER: So did -- what are the studies
8 that you base that on?

9 TYLER PARENT: The -- mercury is not part of
10 my direct testimony, however, it is my understanding
11 that it would have to be higher in order to
12 biomagnify to those detectable levels.

13 MS. TUCKER: And, again, what -- what
14 literature or report or study do you base that
15 conclusion on?

16 TYLER PARENT: I am not referencing anything
17 at this moment.

18 MS. TUCKER: What are the impacts of
19 turbidity during your study?

20 TYLER PARENT: The impacts of turbidity are
21 intended to be minimal by all of the various
22 mitigation measures that Cianbro intends to apply
23 during the in-water work.

24 MS. TUCKER: Did you study the -- the
25 impacts on the lobster fishery from the dredge done

1 previously about 15 years ago in Belfast Harbor?

2 TYLER PARENT: I did not reference that
3 specifically, however, if you read through my
4 testimony there is some clearly referenced language
5 there that includes how fish are impacted by changes
6 in turbidity levels. That being said, the entire
7 plan is to make sure that that doesn't happen.

8 MS. TUCKER: And so you base your conclusion
9 that there will be only a problem for six months
10 based on -- you figure it will be, but you haven't
11 done a single study to come to that conclusion and
12 you haven't looked at any of the prior history of the
13 decade long decline in lobsters after the Belfast
14 Harbor dredge?

15 TYLER PARENT: So like I said, we're not
16 necessarily referencing specific turbidity studies
17 from within Belfast Bay, however, there is a lot of
18 peer reviewed literature on the impact to finfish and
19 shellfish from increased level of turbidity. And
20 like I said, all of that already being out there
21 we -- the entire plan is to make sure that we don't
22 have significant rises in turbidity and the in-water
23 work window is -- is based around the minimum level
24 of biological activity in the area after which we
25 won't be stirring the sediment anymore.

1 MS. TUCKER: Well, that's also a conclusion,
2 but how do you know you're not going to? You're --
3 you've just dug up tens of thousands of cubic yards
4 of material and stuck it next to the hole, then you
5 shoved it back in the hole and --

6 LAUREN WALSH: So I think I can speak to
7 some of the turbidity mitigation measures if that's
8 your question.

9 MS. TUCKER: Yeah, if -- first if we
10 establish what -- what is your expertise in that
11 area? Do you have a prior history of studying the
12 effects of holocene mud with mercury and methane in
13 it?

14 LAUREN WALSH: Are you asking the question
15 about turbidity protected measures during
16 construction or are you asking about scientific
17 studies?

18 MS. TUCKER: I'm talking scientific studies
19 of the impacts of this type of soil, this type of
20 methane deposits, this level of mercury.

21 LAUREN WALSH: Scientific studies, no, I do
22 not have a background of the scientific studies of
23 mercury or...

24 MS. TUCKER: Then I don't see where it would
25 be really helpful, so I don't think I need to ask

1 that question of you. Have you studied the impacts
2 of this proposed dredge on the -- from a fisheries
3 biologies perspective on the scallops and the mussel
4 float mussels that are off of Northport?

5 TYLER PARENT: It's my understanding that
6 there are no commercial shellfish harvesting
7 operations in place within the project area and so
8 I -- I am not sure --

9 MS. TUCKER: And who told you that?

10 TYLER PARENT: The DMR biologist that I was
11 emailing with.

12 MS. TUCKER: What was that name?

13 TYLER PARENT: I don't have it at the moment
14 nor was it referenced in my testimony because it's
15 not required. I consulted with the Department of
16 Marine Resources.

17 MS. TUCKER: Would it surprise you to know
18 there is an existing aquaculture facility within less
19 than a half-a-mile where this outfall is going to be
20 off of Northport?

21 TYLER PARENT: I -- I was specifically told
22 within the project area it is a no -- it is closed to
23 shellfish harvest.

24 MS. TUCKER: Would it surprise you that that
25 mussel float appears on all of the navigational

1 charts for this area and has for almost a decade?

2 TYLER PARENT: I do not know about that
3 particular operation that you're referencing.

4 MS. TUCKER: And do you know how many
5 scallop fishermen fish in this area?

6 TYLER PARENT: I was told by the Department
7 of Marine Resources that it is not a concern for any
8 commercial shellfish operations at this time. And,
9 I'm not sure, stop me here, but recently the
10 Department of Marine Resources released two different
11 reports which assessed essentially the same things
12 we're looking at here. They happened to pare it down
13 to just the federally listed finfish species as well
14 as those shellfish in the area and their concluding
15 statement was essentially that they do not anticipate
16 any significant impacts to fisheries broadly in the
17 area as well as -- the only thing that they mentioned
18 was that they might want to add the pipeline to a
19 navigational chart, but it is the opinion of the
20 Department of Marine Resources that no significant
21 impact will happen from this project.

22 MS. TUCKER: Isn't it true that the last two
23 sentences of the Denis-Marc Nault submission
24 specifically said that additional sediment testing
25 was needed?

1 TYLER PARENT: Yes. No, you're -- you are
2 quoting it correctly.

3 MS. TUCKER: And -- and isn't it true that
4 that report also only talks about the impacts from
5 the construction and ignores any impacts that may
6 occur during construction to the existing crab
7 fishery in that area?

8 TYLER PARENT: It's very clear that they are
9 not worried about fisheries and, you know, they --
10 they pare it down to that at the very end and after
11 talking about the individual fisheries potentially
12 impacted in the area. It is my opinion as well as
13 that of the Department of Marine Resources that no
14 significant impact will occur from this study.

15 MS. TUCKER: And isn't true that that report
16 also and the reason we objected to it is that it
17 fails to consider the impact long-term on the lobster
18 fishery?

19 TYLER PARENT: What impacts do you refer to?

20 MS. TUCKER: From -- from the impact of
21 dredged spoils disposal in this area, from the impact
22 of the lost fishing grounds from the placement of
23 these pipes, from the impact of the long-term effects
24 of mercury resuspension.

25 TYLER PARENT: I'm going to go ahead and let

1 Ed Cotter answer this one.

2 EDWARD COTTER: I think the report refers to
3 no anticipated impact from the construction. They
4 talk about any impacts of the physical pipeline
5 installation and being on the sea bed. They do not
6 get into discharge, which, of course, we're not
7 getting into here either.

8 MS. TUCKER: Isn't it true that it also
9 doesn't consider the impact of that pipeline
10 reconfiguration new installation method on the safety
11 of lobstermen that they could get their gear
12 entangled in it during storms and be severely injured
13 by an entanglement?

14 EDWARD COTTER: I would say it does consider
15 that and --

16 MS. TUCKER: Where?

17 EDWARD COTTER: -- and it -- it makes
18 recommendations that the pipeline be marked because
19 it will, in fact, most likely require fishermen to
20 stay clear and this is a small loss of fishing area
21 noted of 149,000 square feet in that area.

22 MS. TUCKER: And how that number was
23 calculated, 149,000 square feet?

24 EDWARD COTTER: I -- I can't give you an
25 exact answer because it's not in the memo, but based

1 on the -- my inference of the paragraphs around it
2 it's a width of clearance that they anticipate would
3 be recommended around the pipeline by the length of
4 the pipeline.

5 MS. TUCKER: And what is that width?

6 EDWARD COTTER: They don't identify that.

7 MS. TUCKER: They meaning DMR?

8 EDWARD COTTER: Correct.

9 MS. TUCKER: And is it your -- is it your
10 understanding that where a lobsterman places his
11 traps is where his traps stay during a storm?

12 EDWARD COTTER: I'm sorry, the -- Ms.
13 Ransom just pointed it out. It is in there further
14 down. It's 40 feet wide by the length of the exposed
15 pipe.

16 MS. TUCKER: So what you're saying is 40
17 feet wide and the length of the pipeline is where no
18 fishing can occur?

19 EDWARD COTTER: I am reading a letter from
20 DMR to the DEP.

21 MR. DUCHESNE: And just for timekeeping
22 measures, we are planning to break at 12:30 which is
23 15 seconds away, so.

24 MS. TUCKER: Great.

25 MR. DUCHESNE: If you can focus on whatever

1 is most important to you in the next question or two.

2 MS. TUCKER: Anyone can answer this. Isn't
3 it true that heat is a pollutant under 33 USC Section
4 1692?

5 TYLER PARENT: I don't have direct reference
6 to what you're referencing there, but I can speak to
7 a little bit of what the level of their thermal
8 discharge would do to the various migratory fish in
9 the area and that impact would be very minimal if
10 detectable at all because although the water may be
11 different in temperature, and I'll remind you that it
12 may be hotter or colder than the surrounding water
13 depending on the time of year, it will quickly
14 disperse as designed by their discharge at which
15 point it is not a thermal barrier to where these fish
16 are migrating. And I'll remind you that -- that
17 there is a dam on the Little River so they're not
18 necessarily going to be able to get there anyway and
19 the highest concentration of fish that would be
20 moving through this area are going to the Penobscot
21 River at large and moving up that way. And
22 encountering a small area, and it really is
23 relatively small compared to the area of Belfast Bay
24 and Greater Penobscot Bay, is not going to stop a
25 fish from getting to where it needs to go and nature

1 will take its course after that.

2 MS. TUCKER: And you base this on what study
3 that you've done, that your employer has done, that
4 Nordic has done or the DMR even did?

5 TYLER PARENT: I -- it's not in my
6 testimony, but Normandeau has conducted studies on
7 whether, for example, Atlantic salmon will continue
8 their migratory route if encountered with a thermal
9 plume and they found no significant difference in the
10 rate of travel or the route choice based on that
11 thermal plume in this particular study.

12 MS. TUCKER: And what about the effect on
13 lobsters?

14 MR. DUCHESNE: This does seem to be a good
15 place to wrap up. Thank you so much. I appreciate
16 everybody's willingness to allow a little extra room
17 given the circumstances of having to distribute
18 information in additional reports that had just come
19 in. We will take a break for lunch and you will
20 need -- the panel will need to be back for
21 cross-examination after lunch, so we'll finish this
22 panel after the break. How long is the break? We
23 shall reconvene at -- it's a 40 minute break, so
24 we'll reconvene at 10 minutes past 1 o'clock. So
25 1:10 we'll get going again.

1 (Luncheon recess.)

2 MR. DUCHESNE: So we can continue with our
3 cross-examination. And for anyone to just joined us,
4 we are continuing with our cross-examination of the
5 panel provided by Nordic on wetland, streams and
6 coastal. The baton now passes to Upstream Watch for
7 cross-examination on earlier testimony.

8 MS. RACINE: Good afternoon, everyone. It
9 is afternoon now, I believe. Ms. Ransom, you were
10 asked by Nordic in June of 2017 to assist with the
11 site selection process; is that right?

12 ELIZABETH RANSOM: Yes, that's correct.

13 MS. RACINE: And I think I heard you say
14 that you looked at 534 potential sites from
15 Washington D.C. up to the Canadian border.

16 ELIZABETH RANSOM: A point of clarification,
17 those 534 sites were actually all of Maine. We
18 actually looked at thousands of sites between D.C.
19 and the Canadian border.

20 MS. RACINE: Okay. So that was the cored
21 down group.

22 ELIZABETH RANSOM: Yes.

23 MS. RACINE: Okay. But because of -- so, in
24 other words, was that partially because of market? I
25 think you discussed that a little bit about how the

1 market for the salmon played into your consideration.
2 Was that how you got from the thousands to 534
3 because you were already looking at the market or?

4 ELIZABETH RANSOM: The -- the primary driver
5 to get us to a more narrowed list was actually water
6 temperature and water cleanliness. So if you look at
7 temperatures from buoy data, Dr. Pettigrew referred
8 earlier to the wonderful system of marine buoys that
9 are out there, there is a readily available dataset
10 for water temperatures and the seasonal variance of
11 water temperature along the coastline and so we were
12 looking for an area where the temperature variation
13 would be within a particular range that would allow
14 them to use that water with a minimal amount of
15 energy expenditures for heating and cooling.

16 MS. RACINE: And are you talking about the
17 intake pipe?

18 ELIZABETH RANSOM: Yes. That's correct.
19 Yes.

20 MS. RACINE: Okay. And at the preference
21 though is for the intake pipe to be further out, to
22 be at a further -- at a deeper -- deeper in the water
23 and you're talking about turbidity and also a bit
24 about temperature, I would imagine those play into
25 that.

1 ELIZABETH RANSOM: So in -- in regards to
2 temperature it's helpful if that can be fairly
3 constant and fairly cool because that's the range
4 that the salmon prefer, so depending on where you are
5 on the coastline that will dictate how far out it is.
6 So, for example, a place like Eggemoggin Reach you
7 get deep pretty rapidly offshore whereas there are
8 other places where you might have to go quite a
9 distance because of the flat topography.

10 MS. RACINE: And was the -- and the intake
11 pipe, was it out as far as was ideal in this
12 situation as projected or would it have been deeper
13 would have been more ideal? I think you were saying
14 deeper is always more ideal in terms of temperature
15 and turbidity.

16 ELIZABETH RANSOM: If you get to a certain
17 depth and that, again, will vary where you are on the
18 coast --

19 MS. RACINE: Right.

20 ELIZABETH RANSOM: -- but within a certain
21 perspective there is not substantial gains by going
22 deeper. You know, you get to a concern point where
23 seasonally don't see much variance and so --

24 MS. RACINE: Is there a minimum depth
25 though?

1 ELIZABETH RANSOM: I couldn't say there is a
2 minimum depth, no.

3 MS. RACINE: Okay.

4 ELIZABETH RANSOM: You know, again, it's
5 location specific.

6 MS. RACINE: Okay. And you mentioned that
7 you did about 40 site visits.

8 ELIZABETH RANSOM: Yes.

9 MS. RACINE: Okay. And --

10 ELIZABETH RANSOM: Either I did or a member
11 of my staff.

12 MS. RACINE: Sorry. Members of your staff,
13 yes. Sorry, when I say, the collective...

14 ELIZABETH RANSOM: Yes.

15 MS. RACINE: I imagine 40 of just you would
16 be -- that would be quite a lot of time. Actually,
17 though I do have a question, how long did those 40
18 site visits take?

19 ELIZABETH RANSOM: I'm not sure I could give
20 you an exact time frame for the site visits, but I do
21 know our site selection process would have spanned
22 six to eight months.

23 MS. RACINE: Six to eight months and it
24 started in June of 2017?

25 ELIZABETH RANSOM: Yes.

1 MS. RACINE: Okay. And during those site
2 visits you said -- I think I heard you this morning
3 say that you did an environmental and an operational
4 assessment, but that you specifically did not look at
5 any wetlands delineation when you were doing those
6 that initial assessments?

7 ELIZABETH RANSOM: We certainly looked for
8 sites that would be more constructible in the sense
9 of, you know, if it's an area that was obviously very
10 wet. It was less preferable than a site that had
11 high and dry land, but the actual wetlands
12 delineation for the project wasn't done until we were
13 closer to a selection point.

14 MS. RACINE: Closer to a selection or once
15 you actually make the selection?

16 ELIZABETH RANSOM: I -- I think until we've
17 gone through a full alternatives analysis you haven't
18 actually, you know, physically made a selection, so I
19 would say it was early in the narrowing down of those
20 four alternatives.

21 MS. RACINE: So you didn't actually select
22 Belfast until you did the subsequent alternatives
23 analysis and that's where you do the different
24 modules for four different -- so Belfast wasn't
25 selected before you did that?

1 ELIZABETH RANSOM: No, Belfast -- I'm sorry.
2 Belfast was certainly selected before we went on to
3 the next step of looking at the site layout and how
4 those interplay with the wetlands on site.

5 MS. RACINE: Okay. So you -- you select
6 Belfast then you do the wetlands delineation for the
7 alternatives analysis?

8 ELIZABETH RANSOM: Yeah.

9 MS. RACINE: Okay. And I think I heard Miss
10 Fiorillo -- did I pronounce your name correctly?

11 ADELE FIORILLO: Yes.

12 MS. RACINE: Okay. That this site you
13 estimated about less than 10 percent of wetlands and
14 that's, I think you said, quote, pretty good. I
15 heard you say this morning.

16 ADELE FIORILLO: I am not sure that I said,
17 quote, pretty good. I said that the site is 54 acres
18 and of that 54 acres less than 10 percent are covered
19 by wetlands and that it would be in my opinion
20 difficult to find a site that met all of the project
21 needs, fresh water, salt water, size of the parcel
22 without having significant wetlands on the site.

23 MS. RACINE: And in terms of wetlands on
24 this site compared to just talking about those
25 alternative sites, the other I believe there is one,

1 mid-coast, northern and southern, and I know you
2 don't do wetlands delineation until later on, but is
3 there any comparison in terms of wetlands for those
4 other three sites?

5 ELIZABETH RANSOM: I can tell you
6 specifically that one of them contains over 90
7 percent wetlands.

8 MS. RACINE: Okay. One of them does. What
9 about the other two?

10 ELIZABETH RANSOM: I can tell you in pretty
11 rough terms on one of them it's pretty similar,
12 perhaps in the 10 to 15 percent range. I really
13 couldn't recall on the other one.

14 MS. RACINE: Okay. Would any of those sites
15 be considered what's called a brownfield site?

16 ELIZABETH RANSOM: None of the four sites
17 that made it into the detailed alternatives analysis
18 would be considered brownfield sites. However, I can
19 tell you that as one of the State of Maine's leading
20 brownfields contractors, whose -- we've done as a
21 company over 200 projects in 721 communities in Maine
22 over the last few years alone. We are extremely
23 familiar with the both benefits and challenges of
24 developing in a brownfields area and we were not able
25 to find a site that met Nordic's criteria and could

1 be developed in a practical manner for this
2 project.

3 MS. RACINE: So brownfield sites made it
4 into that top 40?

5 ELIZABETH RANSOM: Ah, no, they made it into
6 the top 40 --

7 MS. RACINE: Okay.

8 ELIZABETH RANSOM: -- but just not down to
9 the final ones written about in the alternatives
10 analysis.

11 MS. RACINE: Got it. When we're talking
12 about Belfast, mid-coast, northern, southern
13 alternatives --

14 ELIZABETH RANSOM: Exactly.

15 MS. RACINE: -- that are otherwise
16 identified. Okay. And I understand that you used a
17 scoring matrix, I believe, in Table 22 that's
18 attached to your direct testimony to depict how you
19 scored those sites with Belfast; is that correct?

20 ELIZABETH RANSOM: Yes, we did.

21 MS. RACINE: Okay. And I'm just taking a
22 look at this table here and for those who don't have
23 it in front of them, I believe that it's on a scoring
24 system of 5; is that correct?

25 ELIZABETH RANSOM: Yeah. If you could give

1 me a minute to actually get to my alternatives
2 analysis that would be helpful.

3 MS. RACINE: Yeah, please.

4 ELIZABETH RANSOM: Yes, go ahead.

5 MS. RACINE: Okay. And 5 is the best. Can
6 you get at zero? I am just curious. I don't know.

7 ELIZABETH RANSOM: I would say that really
8 you can get a zero. So, for example, there are
9 certain criteria that if it failed that criteria it
10 really makes it impossible to do the project. So,
11 for, example if there was no access to seawater, if
12 there was no access to fresh water you would score
13 zero.

14 MS. RACINE: That makes sense. Okay. So
15 we're on a 0 to 5 scale. And looking on the
16 left-hand column here there is several different
17 criteria and one is access to abundant clean and
18 cold, fresh water and it looks like Belfast got the
19 best score, a number 5. And I don't know if you were
20 here yesterday and we were talking about water
21 supply, but it's my understanding that the initial
22 applications were seeking 1,200 gallons per minute of
23 fresh water from the ground in terms of groundwater
24 and we now know that that's more limited to 455
25 gallons per minute. When you were making this score,

1 access to abundant clean and cold water was the
2 assumption that the full 1,200 gallons per minute
3 could be obtained?

4 ELIZABETH RANSOM: So a point of
5 clarification, the application has only ever had 455
6 gallons per minute in the application material for
7 the -- for the groundwater well. So the -- the
8 initial studies did look at a potential for higher
9 rate of intake from wells, but the actual application
10 submittal from May included 455 GPM. But to speak to
11 your point, I think, you know, to go beyond and
12 actually answer your question --

13 MS. RACINE: I just do want to clarify that
14 one point, I'm looking at MEPDES permit application
15 and that's in October 2018. I'm looking at Form 2D,
16 Question 3B, Attachment 1 and I see this nice flow
17 chart here and it -- it seems to contemplate fresh
18 water from ground water wells 1,200 gallons per
19 minute, so given that you are doing this analysis six
20 to eight months after June 2017 and this is dated
21 late fall of 2018, I'm just wondering if when you
22 were making this assessment about access to abundant
23 clean and cold, fresh water if it was based on that
24 assumption.

25 ELIZABETH RANSOM: No, our assumptions were

1 really based more broadly than that. So in looking
2 at the Maine coastline one of the things that you'll
3 note is that a fair bit of it is these rocky
4 headlands that, you know, the bedrock here is not
5 super giving of groundwater and yet the -- some of
6 the river systems that cut into the ocean if we were
7 to try and develop the project in those areas we
8 might find a sand and gravel deposit or something
9 that is going to provide the fresh water, but then we
10 had challenges with the geotechnical material. So
11 when we were looking at the favorability of fresh
12 water development, we were already looking at the
13 fact that Belfast had a community supply that could
14 perhaps provide surplus we were also looking at the
15 reservoir. So right from our very first contact with
16 Belfast Water District, we were looking at the fact
17 that there was a redundancy of water available for
18 this site and that's what's reflected in that 5.

19 MS. RACINE: So, yeah, reflected in this 5
20 it says clean and cold, fresh water, are you equating
21 the surface water from the reservoir with the
22 groundwater?

23 ELIZABETH RANSOM: In the sense that it can
24 be used as fresh water source for the fish, yes. I
25 think we heard testimony yesterday to say that

1 obviously there are different treatment technologies
2 that would need to be applied and therefore
3 preferences, but yes.

4 MS. RACINE: I was just wondering why it got
5 a 5.

6 ELIZABETH RANSOM: Yup. It -- it's pretty
7 good for the State of Maine on a seacoast property,
8 yup.

9 MS. RACINE: And then there was another
10 category, ground conditions favorable to construction
11 and Belfast scored a 4 out of 5. I think we now know
12 that and we've heard, you know, over the course of
13 this hearing so far that you're going to have to
14 remove a lot of the soil, so just kind of --

15 ELIZABETH RANSOM: Yeah, I can expand on
16 that.

17 MS. RACINE: Yeah.

18 ELIZABETH RANSOM: So part of the soil is
19 going off, so it -- it varies across the site as to
20 how much would be removed, but it's, I believe, on
21 the order of 14 feet and some of that is -- it's
22 pretty typical when you're doing something that's not
23 slab on grade. A number of us are maybe familiar
24 with our local shopping mall is built on a concrete
25 slab, you don't necessarily have infrastructure

1 that's going underneath that slab. In this case, we
2 have large fish tanks with support structure beneath
3 them and some of that is to maintain the systems that
4 keep the tanks with clean, fresh water the fish. And
5 there is also a substantial height to these tanks and
6 heights to these buildings and of course air handling
7 material and so forth. So in order to meet height
8 requirements there was a certain assumption that you
9 might have to put some of this material subgrade so
10 as to not make the buildings too tall and so some of
11 that material is not just coming off because we
12 prefer to surround that substructure material with
13 things like gravel and things of known size, but it's
14 also coming off to help with the height restrictions.
15 There is a place where we actually are digging a lot
16 more than that and that's down where the pump station
17 is because we need to be able to have it low enough
18 to pump the material uphill. So, you know, the score
19 is reflective of the fact that there is bedrock near
20 the surface as opposed to weighting down because we
21 want these tanks to be on something firm and I think
22 we -- what I talked about a moment ago when we were
23 looking at water sources, a lot of our sort of
24 flatter portions of the coastline have this very
25 thick mud or silt deposit that's less suitable for

1 siting these big, heavy tanks of water.

2 MS. RACINE: No, I get why you're doing it,
3 I'm just saying the fact that you're going to have to
4 take all of the soil and take it elsewhere and it
5 still scores a 4 out of 5 for ground conditions
6 favorable to construction, I just -- it seems like
7 that's a very high score considering that that's
8 going to be quite the effort.

9 ELIZABETH RANSOM: It's all relative to
10 what's here on the coastal portion of Maine.
11 Obviously, if I were constructing this in the, you
12 know, Utah desert the soils might be different, but
13 it's relative to what's here.

14 MS. RACINE: I mean, could we conclude that
15 the site was selected first and then this analysis
16 came later?

17 ELIZABETH RANSOM: No. I think that would
18 be inaccurate.

19 MS. RACINE: Okay. Oh, and about actually
20 soil and excavating, you had mentioned the marine
21 sediment being taken away and can you tell us where
22 it's going, the marine sediment?

23 ELIZABETH RANSOM: I don't think that's been
24 fully decided, but I -- I know it is a landfillable
25 material there are a couple of ones that would be

1 under typical consideration.

2 MS. RACINE: Are they nearby?

3 ELIZABETH RANSOM: Reasonably, yeah.

4 MS. RACINE: How far?

5 ELIZABETH RANSOM: Uh, Crossroads and
6 Juniper Ridge are driving distance.

7 LAUREN WALSH: Maybe an hour,
8 hour-and-a-half.

9 MS. RACINE: An hour, hour-and-a-half.
10 Easily traversable by truck?

11 ELIZABETH RANSOM: Yes.

12 MS. RACINE: And is that the same place the
13 soil is going?

14 ELIZABETH RANSOM: I think Ed could probably
15 speak to where the...

16 EDWARD COTTER: As having soils on the site
17 that are relatively clean, we haven't found any
18 concerns regarding hazardous materials. We have a
19 lot of options for material right now. There is
20 gravel pits in the Waldo County area. There is other
21 areas that are receiving material right now. As was
22 testified to the city, we'd like to keep those
23 options open because we like to have a lot of
24 bidders, but we have reached out to several
25 facilities and there is a lot of interest in taking

1 this material in.

2 MS. RACINE: Mr. Cotter, when did you first
3 have your -- when was your first conversation with
4 the city council here?

5 EDWARD COTTER: Probably shortly after I
6 joined on with Nordic back in October of 2018.

7 MS. RACINE: Not until 2018.

8 EDWARD COTTER: That's when I joined the
9 company.

10 MS. RACINE: Okay. Miss Fiorillo, I
11 understand that the fresh water wetland boundaries in
12 the plans were delineated according to the 1987 U.S.
13 Army Corps of Engineers Wetlands Delineation Manual
14 and the Regional Supplement; is that correct?

15 ADELE FIORILLO: Yes, that's correct.

16 MS. RACINE: And who actually did that
17 initial delineation? Was it you personally or
18 somebody --

19 ADELE FIORILLO: No, it wasn't myself
20 personally. All of wetland delineations were done by
21 wetland scientists within Normandeau staff.

22 MS. RACINE: And Normandeau then performed
23 an initial review of the wetlands on May 3, 4, 2018
24 and then also July 24, August 27, also 2018, and then
25 May 2019, does that sound accurate?

1 ADELE FIORILLO: Let's see. Yes, we did a
2 number of studies between May 2018 and February 2019
3 actually when it comes to wetland delineations,
4 vernal pools surveys and stream assessments.

5 MS. RACINE: And it's Nordic Exhibit 8, the
6 May 8, 2019 Natural Resources report that it was your
7 sort of initial published --

8 ADELE FIORILLO: That's right.

9 MS. RACINE: Okay. -- version of what you
10 found?

11 ADELE FIORILLO: It's been supplemented
12 since.

13 MS. RACINE: Yes, I'm glad you brought that
14 up. So in that initial report, it summarized the
15 wetlands that you identified on the site; is that
16 right?

17 ADELE FIORILLO: Yup.

18 MS. RACINE: And you assigned a W for
19 wetlands that's labeled 1 through 18; is that correct?

20 ADELE FIORILLO: Yes.

21 MS. RACINE: And then sometimes there is an
22 asterisk next to the W and that number, right?

23 ADELE FIORILLO: Um...

24 MS. RACINE: It's to indicate a wetland of
25 special significance?

1 ADELE FIORILLO: Yes, correct.

2 MS. RACINE: Okay.

3 ADELE FIORILLO: A table. On a table. Yes.

4 MS. RACINE: That's how you --

5 ADELE FIORILLO: Yes.

6 MS. RACINE: Okay. And in some form --

7 fashion you indicated wetlands of special

8 significance?

9 ADELE FIORILLO: Yes.

10 MS. RACINE: And that's a defined term,
11 correct? The Department has rules, Chapter 310, I
12 believe, in the regulations and wetlands of special
13 significance is a defined term that has some...

14 ADELE FIORILLO: Right. By definition
15 wetlands of special significance are areas of
16 wetlands within 25 feet of a NRPA stream.

17 MS. RACINE: So it meets that definition?

18 ADELE FIORILLO: Yes.

19 MS. RACINE: Yes. And, actually, since the
20 completion of that natural resources report there
21 were some further wetlands delineation, I understand.
22 I believe there were some comments from the DEP back
23 to Nordic that Normandeau went back out but also had
24 a peer review?

25 ADELE FIORILLO: That's correct.

1 MS. RACINE: Okay. And after Normandeau
2 went back out and -- in conjunction with that peer
3 review there was some changed designations to -- from
4 drainages to streams; is that correct?

5 ADELE FIORILLO: That's right.

6 MS. RACINE: And there was also an added
7 wetland, Number 19?

8 ADELE FIORILLO: Yes.

9 MS. RACINE: And Wetland 19 is also a
10 wetland of special significance?

11 ADELE FIORILLO: Yes, that's correct.

12 MS. RACINE: And a couple designations were
13 changed, I believe. I think Wetland Number 1 and
14 Wetland Number 15, which had been previously
15 identified were then wetlands of special
16 significance.

17 ADELE FIORILLO: Well, there was some
18 confusion, I think, on the part of the Department.
19 One of the things I want to make clear is that we
20 were delineating different parcels on this property.
21 So we initiated it with the original water district
22 site and than the Perkins property was added and the
23 Eckrote property was added so we've extended
24 boundaries and connected to areas that weren't
25 previously connected.

1 MS. RACINE: But you did change the
2 designation for those two to indicate they were
3 wetlands of special significance?

4 ADELE FIORILLO: For 15 and 19.

5 MS. RACINE: And 1.

6 ADELE FIORILLO: And 1.

7 MS. RACINE: Okay.

8 ADELE FIORILLO: Yup.

9 MS. RACINE: And I'm just going to take a
10 step back. Nordic is -- is doing this to get a
11 Natural Resources Protection Act permit because it's
12 proposing to conduct a certain type of activity that
13 is on or near wetlands; is that correct?

14 ADELE FIORILLO: No, it's on or near a fresh
15 water source and a salt water source.

16 MS. RACINE: Fresh water. Okay. And it's a
17 Tier 3 individual permit?

18 ADELE FIORILLO: Yes, that's correct. I --
19 I didn't complete the permit application.

20 MS. RACINE: Oh, okay. All right. Well, if
21 somebody else wants to -- it's a Tier 3 individual
22 permit?

23 ADELE FIORILLO: Yes.

24 MS. RACINE: Okay. So I just want to go
25 back to the wetlands of special significance because

1 in the rules there are some additional restrictions
2 that apply specifically if the wetlands have that
3 characterization and one of them -- so -- so part of
4 the job of the Board will be to look at the impacts
5 of the project, but there are some things that are
6 just outright not permitted if you're talking about
7 wetlands of special significance and that is
8 activities that are going to involve threatened or
9 endangered species, does that sound correct?

10 ADELE FIORILLO: Yes. We -- there are no
11 threatened or endangered species on the our project
12 site, however.

13 MS. RACINE: I thought that all of Maine's
14 eight bat species were listed. Am I mistaken?

15 ADELE FIORILLO: That's true, but they're
16 not a wetland species.

17 MS. RACINE: But they are an endangered
18 species?

19 ADELE FIORILLO: Yes.

20 MS. RACINE: Okay. So the northern
21 long-eared bat, which is an endangered species is on
22 the property and the property has wetlands of special
23 significance.

24 ADELE FIORILLO: Is that a statement or --
25 I'm sorry.

1 MS. RACINE: Yeah, I'm just trying to
2 understand. So we've identified wetlands of special
3 significance. If there are wetlands of special
4 significance there are some particular rules that
5 need to be followed in particular with regards to
6 endangered species. I understand that the long-eared
7 bat is an endangered species and was on the list of
8 eight bats that have been identified as on the site.

9 MS. BENSINGER: Can you please pose a
10 question?

11 MS. RACINE: So my question is can she
12 confirm that?

13 ADELE FIORILLO: We didn't do a species
14 specific survey for bats, but we did look at the
15 habitat and assumed that all of Maine's species of
16 bats would be present and based on that we
17 recommended and the project conformed to time of year
18 restrictions that would prevent impacts to the bat
19 species.

20 MS. RACINE: And, in fact, there is not an
21 out-and-out prohibition against doing something to
22 the site, but what the -- what the rule contemplates
23 is that your're not to disturb the species and you're
24 also supposed to make sure that the overall project
25 will not affect the continued use or habitation of

1 the site. Does that sound correct to you, if you
2 know?

3 ADELE FIORILLO: So what we did was we used
4 both the U.S. Fish and Wildlife 4D guidelines and the
5 Mass Division of Inland and Fish and Wildlife sort of
6 consultation and they agreed that if we conformed to
7 the time of year restriction that we would not have
8 that impact.

9 MS. RACINE: Yes, I believe there will be
10 tree removal in the winter; is that correct?

11 ADELE FIORILLO: Yes.

12 MS. RACINE: And bats are migratory?

13 ADELE FIORILLO: Correct.

14 MS. RACINE: Smart -- smart animal in winter
15 in Maine. And so the proposal is to remove the
16 habitat in winter while the bats are gone and when
17 they come back they won't have that habitat anymore.

18 ADELE FIORILLO: Well, there are plenty of
19 forested habitat for them to --

20 MS. RACINE: But not at that site, not the
21 application of the site that we're talking about.

22 ADELE FIORILLO: That's correct. One thing
23 to note is that the bats have been listed as
24 threatened because Fish and Wildlife had looked at
25 listing them as endangered but it's not due to loss

1 of habitats, but they're in that position it's
2 actually due to white nose syndrome.

3 MS. RACINE: I thought I looked at the Maine
4 site this morning and they were endangered as of
5 October 2015, but if you want to correct me,
6 that's -- that's fine. I thought specifically the
7 long-eared bat was on the endangered list.

8 ADELE FIORILLO: Let me just check my notes
9 here.

10 MS. RACINE: Well, what I will say is that
11 the -- the rule I'm citing applies to threatened or
12 endangered, so --

13 MS. TOURANGEAU: Ms. Racine, could you
14 provide that rule, please, or at least a citation to
15 me so that I can see what you're looking at?

16 MS. RACINE: So it's in Chapter 310.

17 MS. TOURANGEAU: I've got that. And I'm
18 looking at wetlands of special significance, which is
19 Section 4.

20 MS. RACINE: Yeah.

21 MS. TOURANGEAU: And freshwater wetlands
22 is -- special significance is 4A.

23 MS. RACINE: Yeah, I can find it for you.
24 Do you want me to...

25 MS. TOURANGEAU: Yes, please.

1 MS. RACINE: Sure. So we are in 5D(2)A and
2 B.

3 MS. TOURANGEAU: All right. So what she's
4 talking about is no unreasonable impacts. This is
5 one and then this is two.

6 ADELE FIORILLO: Okay. So restate your
7 question, please.

8 MS. RACINE: So actually, I think you've
9 answered. I just -- I can confirm that you have
10 ceded that tree removal in the winter will avoid any
11 impacts to all of the bat species.

12 ADELE FIORILLO: Correct.

13 MS. RACINE: And we established that bats
14 are migratory.

15 ADELE FIORILLO: Yes.

16 MS. RACINE: And that the long-eared bat,
17 which is either threatened or endangered.

18 ADELE FIORILLO: Yeah, you're correct that
19 it's -- it's threatened in the state, but federally
20 it's -- I mean, endangered in the state and
21 threatened by the federal.

22 MS. RACINE: Okay.

23 ADELE FIORILLO: Yup.

24 MS. RACINE: I'm going to move on to vernal
25 pools. You -- you stated in your pre-filed direct

1 that there were no vernal pools on the site; is that
2 correct?

3 ADELE FIORILLO: Yes.

4 MS. RACINE: And you looked for vernal pools
5 in May 2018, am I correct about that?

6 ADELE FIORILLO: Yes.

7 MS. RACINE: You didn't look for vernal
8 pools any other time besides May 2019; is that
9 correct?

10 ADELE FIORILLO: Well, Maine -- Maine
11 requires two visits to a site if potential vernal
12 pools are found the first visit. We didn't find any,
13 so.

14 MS. RACINE: So it was just that May.

15 ADELE FIORILLO: Yeah, May 1, 3 and 4.

16 MS. RACINE: So you didn't look in a
17 different season, for example.

18 ADELE FIORILLO: Well, we were actually out
19 on the site doing all kinds of wetland related
20 assessments up to nine days over the course of two
21 years.

22 MS. RACINE: Some of those dates were in
23 July, right?

24 ADELE FIORILLO: Yes.

25 MS. RACINE: Did you ever -- do you -- if

1 you recall, were you ever there after a major rain
2 event?

3 ADELE FIORILLO: Oh, yes.

4 MS. RACINE: Okay. Well, which time was
5 that?

6 ADELE FIORILLO: That happened -- actually,
7 that happened during one of the DEP site visits the
8 day after a major rain event which is what resulted
9 in some of the wetland boundary changes.

10 MS. RACINE: Still no vernal pools though.

11 ADELE FIORILLO: No vernal pools.

12 MS. RACINE: I also wanted to ask you about
13 your survey of birds. You used eBird; is that right?

14 ADELE FIORILLO: Yes.

15 MS. RACINE: And eBird is essentially a
16 database that allows for a compilation of bird
17 sightings and observations by individual bird
18 watchers?

19 ADELE FIORILLO: Correct.

20 MS. RACINE: And based on eBird records, you
21 note that there are eight species of special concern
22 on the site. Paragraph 11 of your pre-filed
23 testimony.

24 ADELE FIORILLO: Okay. Wait a second.

25 MS. RACINE: Sure.

1 ADELE FIORILLO: Let me get there. Yeah, I
2 don't have 11 on my... Too many pages here. Let me
3 see. And I'm not -- I'm sorry, I'm not finding my...

4 MR. DUCHESNE: Number 11 of your submitted
5 testimony.

6 ADELE FIORILLO: Let me pull it up on my
7 computer because I don't have it in front of me.

8 MS. RACINE: Thank you.

9 ADELE FIORILLO: I just have a summary in my
10 paperwork here.

11 MS. RACINE: Well, let me ask you this, you
12 didn't conduct a project specific avian survey; is
13 that correct?

14 ADELE FIORILLO: Um...

15 MS. RACINE: Or any on-site --

16 ADELE FIORILLO: We do do site visits, yes.

17 MS. RACINE: Specifically?

18 ADELE FIORILLO: To assess habitat for bird
19 use.

20 MS. RACINE: In addition to the eBird
21 records.

22 ADELE FIORILLO: Yes.

23 MS. RACINE: And what did you conclude?

24 ADELE FIORILLO: Okay. So here we go. So
25 the conclusion was that terrestrial species likely to

1 use the on-site habitats based on the habitat
2 preference of certain avian species, eight were
3 listed as special concern and five of greatest
4 conservation need in the Maine Wildlife Action Plan.

5 MS. RACINE: I'm sorry, I thought that
6 was -- you derived that -- when you said it was
7 likely I thought you derived that from the eBird
8 records, but if you observed it personally, please
9 correct me.

10 ADELE FIORILLO: Yeah, we did do habitat
11 preferences, direct observations.

12 MS. RACINE: So those observations -- and
13 are those direct observations stated in that
14 testimony or?

15 ADELE FIORILLO: Yes.

16 MS. RACINE: So you said likely to use, did
17 you likely -- but if you directly observed.

18 ADELE FIORILLO: We directly observed the
19 habitat.

20 MS. RACINE: The habitat, okay, but not
21 doing a specific catalogue of --

22 ADELE FIORILLO: That's right.

23 MS. RACINE: -- the birds there. Okay.

24 ADELE FIORILLO: That's right.

25 MS. RACINE: And instead of eBird, did you

1 consider using a Maine Birding Trail Guide?

2 ADELE FIORILLO: No.

3 MS. RACINE: And you also concluded the area
4 where the Little River empties into the bay is a low
5 valued habitat for inland waterfowl and wading birds;
6 is that correct?

7 ADELE FIORILLO: Yes.

8 MS. RACINE: Have you ever surveyed the
9 wading birds in the flats where the Little River
10 enters the bay adjacent to where the pipes are
11 proposed to go?

12 ADELE FIORILLO: We did. We did go out to
13 the entrance of the Little River into the bay and
14 also the bay and did a one day habitat -- or a one
15 day bird survey.

16 MS. RACINE: A one day survey.

17 ADELE FIORILLO: Yes.

18 MS. RACINE: Would you be surprised to learn
19 that the area is frequently teaming with waterfowl?

20 MS. TOURANGEAU: Objection. That's
21 testimony.

22 MS. RACINE: She can...

23 MR. DUCHESNE: Could you rephrase the
24 question. What -- first is what did they observe on
25 their one visit and clarify when that visit was?

1 MS. RACINE: What did you observe on your
2 one day visit?

3 ADELE FIORILLO: It was at low tide and so
4 we looked at the substrate because the tidal wading
5 bird habitat is associated with the feeding habitat
6 that provides for the waterfowl and the wading birds
7 and based on what's out there there is some
8 intertidal mudflat, but it's minimal, the eel grass,
9 mussel beds and those kinds of things that they can
10 forage for when invertebrates are not present.

11 MS. RACINE: What is the date of this visit?

12 ADELE FIORILLO: There were two dates.
13 Let's see. December 12, 2018 and 26 March 2019.

14 MS. RACINE: Is it conceivable that there
15 waterfowl in that area that --

16 ADELE FIORILLO: Oh, of course, yes.

17 MS. RACINE: Okay. You acknowledge that, I
18 believe, some of the streams will be permanently
19 impacted and some will be filled as a result of this
20 project.

21 ADELE FIORILLO: Some?

22 MS. RACINE: Some of the streams.

23 ADELE FIORILLO: The streams, yes.

24 MS. RACINE: And you also indicated that
25 Reservoir Number 1 would actually benefit from a

1 reduced sediment load.

2 ADELE FIORILLO: Correct.

3 MS. RACINE: Is one -- in your opinion, is
4 one of the impacts of the removal of these streams
5 would be reduced groundwater recharge if you're
6 restricting the flow of the stream?

7 ADELE FIORILLO: Based on our assessment the
8 streams don't intercept groundwater. It's all
9 surface flow.

10 MS. RACINE: All surface flow.

11 ADELE FIORILLO: Right.

12 MS. RACINE: Okay. So it will have no
13 affect whatsoever.

14 ADELE FIORILLO: Right.

15 MS. RACINE: Miss Walsh, the mats that you
16 described during your testimony on the subsurface,
17 were those disclosed to the Bureau of Parks and Lands
18 when Nordic applied for a submerged land lease?

19 MS. TOURANGEAU: Objection. That's outside
20 the scope of this application process. You can
21 answer, but.

22 MR. DUCHESNE: Any advice because I wasn't
23 paying full attention.

24 (Laughter.)

25 MR. DUCHESNE: Oh, did that come out of me?

1 (Laughter.)

2 MS. BENSINGER: So you objected that it was
3 outside the scope of her direct?

4 MS. TOURANGEAU: Of all of her testimony.

5 MS. BENSINGER: All of her testimony.

6 MS. TOURANGEAU: Yeah.

7 MR. DUCHESNE: Yes, I would agree.

8 MS. RACINE: I wouldn't say all of her
9 testimony since she did specifically speak to the
10 mats on the subsurface. If the witness -- if the
11 witness knows they can say whether they were involved
12 in that process.

13 MS. BENSINGER: But what -- but what is
14 before the Bureau of Parks and Lands isn't an issue
15 for this Board.

16 MS. RACINE: Just -- just wondering at what
17 point those mats were introduced into this process.

18 MS. BENSINGER: That would be a more
19 appropriate question.

20 MS. RACINE: If you know, at what point were
21 the mats introduced into this process, which is
22 subject to many different permits in that location?

23 LAUREN WALSH: As we were going through the
24 design process --

25 MR. DUCHESNE: Microphone.

1 LAUREN WALSH: Sorry. As we were going
2 through the design process of the pipeline route and
3 the pipe line itself the mats were introduced as a
4 construction measure, I would say in early fall of
5 2019.

6 MS. RACINE: Okay. Not until 2019?

7 LAUREN WALSH: That's my understanding, yes.

8 MS. RACINE: Okay. And, Mr. Parent, I just
9 have a question for you. I think at the end of your
10 direct, and I can get the citation, you speak about,
11 as we've turned on a little bit earlier today, the --
12 that you don't have concerns about some of the water
13 because of the filtration system. You do speak about
14 the filtration system as a component of your
15 testimony; is that correct?

16 TYLER PARENT: Are you asking if I have
17 concerns about the discharge water?

18 MS. RACINE: I think both. I think you
19 spoke to both, am I right? Yeah.

20 TYLER PARENT: Would you mind rephrasing or
21 restating your question?

22 MS. RACINE: In other words, your testimony
23 does speak to your assessment of the efficacy in your
24 opinion of the filtration system.

25 MS. TOURANGEAU: I'm going to object because

1 Mr. Parent will be appearing again on the discharge
2 permitting part and I think we're supposed to keep
3 those separate.

4 MR. DUCHESNE: Yes, I would agree with that
5 and I'll sustain that.

6 MS. RACINE: Okay. Well, then we will meet
7 again.

8 (Laughter.)

9 MR. DUCHESNE: It's not your last chance.

10 MS. RACINE: Thank you very much.

11 MR. DUCHESNE: I believe Miss Daniels has a
12 couple of questions that she would like to ask. And
13 we will limit it to two questions. And the only
14 reason I limit it to two is because we are about two
15 hours behind in our schedule at this point, so. You
16 may proceed.

17 MS. DANIELS: Ms. Fiorillo, I had another
18 question about habitat.

19 ADELE FIORILLO: Okay.

20 MS. DANIELS: Are you familiar bobolinks?

21 ADELE FIORILLO: Somewhat yes.

22 MS. DANIELS: Yeah. Well, having lived on
23 the Perkins Road there are many, many bobolinks
24 there. Do you feel as though this project might
25 disturb or prohibit habitation on this site?

1 ADELE FIORILLO: We never observed any
2 bobolinks while we were out there on the site. One
3 thing I do know is, you know, certainly the wet
4 meadows and the grassy areas are conducive to their
5 nesting. They do prefer areas that are larger in
6 acreage and I have a feeling that if you combine
7 what's across Perkins Road and what is on the project
8 site it might be a large enough area for them. I --
9 I think that the most limiting factor is from what I
10 understand is the annual mowing regime.

11 MS. DANIELS: So I've lived for three years
12 300 feet from the line where this project is proposed
13 and we would often have multiple, multiple nests of
14 Bobolinks behind our house and out into that project
15 field.

16 MR. DUCHESNE: That's a little bit of
17 testimony, so if you could just go right to the
18 question.

19 MS. DANIELS: Absolutely.

20 MR. DUCHESNE: Thank you.

21 MS. DANIELS: Are you aware that bobolinks
22 are on the -- are a threatened -- a threatened
23 species?

24 ADELE FIORILLO: I think you are correct,
25 but let me just check.

1 ADELE FIORILLO: I guess I'll take your word
2 for it.

3 MR. DUCHESNE: Yeah, thank you very much.
4 Sorry. It was two questions. We are well behind
5 schedule and there is a chance the subject will come
6 up again. Yes, we have DEP Board questions. I will
7 go to Ms. Callahan first.

8 MS. CALLAHAN: Hello. I have several
9 questions, so I'm going to start from the beginning
10 and start with Ms. Ransom. So your discussion of
11 alternatives included details about site selection
12 and building layout, but I'd also like you to go into
13 a bit more descriptive detail as to the minimization
14 strategies that were considered to reduce the overall
15 impact to natural resources.

16 ELIZABETH RANSOM: Sure. Absolutely. So in
17 the initial site layout there were a number of
18 efforts to minimize impacts by centralizing the
19 building location. So you'll note that, you know, we
20 have two very large buildings. The grow-out modules
21 always are quite big, but by sort of pushing those
22 together and putting a lot of the supporting
23 infrastructure between those buildings we were trying
24 to minimize impacts to the fact that there were kind
25 of some larger -- there is a larger stream that's

1 essentially on the eastern border of the site, so we
2 did some things with the actual physical arrangement
3 of the larger structures, the buildings, to move them
4 out of areas that we're trying to protect and enhance
5 like Stream 9, the eastern most stream.

6 And we also looked at ways to minimize the
7 other infrastructure on the project site itself. So
8 original configurations, for example, had an area
9 that was, you know, sort of a potential turn-around
10 area for vehicles or patio space around the office
11 building and we looked at ways to reduce those so
12 that they were moved further from wetland resource
13 areas and out of the wetland resource areas. So --
14 so the first step was to reduce by way of modifying
15 the layout and also constraining the size of
16 different things like driveways. You know, is it
17 easier for trucks and parking and so forth if you
18 have ample paved area? Yes, but by reducing that we
19 can also reduce impacts to wetlands.

20 Then we also looked at ways in which we
21 could provide enhancements. So I know Adele talked
22 about right now there is a kind of channelized ditch
23 for part of Stream 9. It's a, you know, mowed grass
24 lawn and when we went on a site visit and observed
25 this and so we looked at ways to make that better.

1 We also did some things with some culverts
2 that are on the Eckrote property, which are right now
3 they're sort of hung. The result of that is that as
4 stormwater comes through the culverts on periods of
5 high water there is increased speed, there is not
6 vegetation there to stabilize and you end up with an
7 ongoing impact and so the project is looking to take
8 things like that and turn it into an open-bottomed,
9 natural bottom stream with an archway, a span, so
10 that water can pass naturally and naturally enhance
11 some of the wetlands where they're remaining intact.

12 So I don't know if I fully answered your
13 question, but we -- we looked for both ways to reduce
14 impacts as well as ways to enhance what is remaining.

15 MS. CALLAHAN: All right. Thank you. So,
16 yeah, you were just sort of -- you blended into the
17 compensation plan and I actually do have some
18 questions about that. You've mentioned the methods
19 that you plan to do, but I'd like for you to provide
20 a little bit more detail how the compensation plan
21 applies to each resource type and then also how and
22 when would each of the components be implemented.

23 ELIZABETH RANSOM: So some of what the work
24 entails -- so I think I just mentioned Stream 9.
25 So -- so some of that work is riparian buffer to

1 this -- to this route.

2 MR. DUCHESNE: We're just discussing it
3 would be helpful if we could get that map up that we
4 displayed yesterday.

5 EDWARD COTTER: Sure.

6 MR. DUCHESNE: If that's readily accessible
7 and easy to put up that might help.

8 ELIZABETH RANSOM: I can -- I can pause for
9 a minute while he...

10 MS. TOURANGEAU: Do you want her to pause or
11 do you want her to keep going for time?

12 MR. DUCHESNE: Yeah, I think -- I think we
13 can keep going.

14 MR. LIVESAY: I think it would help too, I
15 just happened to flip to this, but it may be helpful,
16 Tab 14 in the pre-filed direct testimony contains
17 the -- the map.

18 MS. BENSINGER: Exhibit 14?

19 MR. LIVESAY: Yeah. And it's labeled map
20 compensation plan. I don't know if this would be
21 relevant.

22 ELIZABETH RANSOM: Yeah, it should help.

23 MR. DUCHESNE: I would like the Commissioner
24 to note just how helpful Mr. Livesay was.

25 MR. LIVESAY: That's what I'm here for. I'm

1 here for the rest of the afternoon.

2 ELIZABETH RANSOM: So certain -- certain
3 resources are -- have water flow more times than --
4 more often, have a bit more habitat to them and
5 therefore -- so that eastern stream, the Stream 9
6 that we're talking about, it's continuous not only on
7 the project site, but it also extends beyond Perkins
8 Road so it -- it provides a valuable corridor
9 potentially for wildlife and so we looked at the
10 ability to enhance that as part of the project and
11 provide additional riparian buffer. So some of that
12 work will need to take place quite soon because it's
13 area that we will be needing to stabilize slopes. So
14 one of the things that -- referring to your question
15 on schedule is where we have a disruption to an area
16 through the construction process the desire is to
17 stabilize -- restabilize that area quickly so that we
18 don't have issues with erosion and sedimentation
19 control. So as the -- as the construction proceeds,
20 I think you heard either Adele or Lauren refer to
21 restore in place. So, for example, with the pipeline
22 construction as you go through the coastal marsh area
23 you're basically lifting that valuable top layer up
24 and moving it aside, getting your pipeline lain and
25 then you're putting that back, that's -- that's a

1 fairly immediate process in the scope of the
2 construction schedule.

3 So, you know, some of the other things
4 are -- plan to occur on land that is actually staying
5 with the Belfast Water District and -- or, excuse me,
6 the City of Belfast. So certain -- a small amount of
7 the restoration projects are actually going to go on
8 in that 250 foot shoreland zone and Adele described
9 earlier some of that is -- is trail related. There
10 is a highly valued trail system that the community
11 enjoys along the Little River and Lower Reservoir and
12 so the plan is to work to do some smaller bits of
13 slope stabilization, rebridging and enhancements to
14 some of the stream crossings along that trail.
15 That's not dependent on our construction per se. It
16 doesn't -- it doesn't have to follow a particular
17 point in our construction sequence to be done.

18 MS. CALLAHAN: Thank you. Let me backtrack
19 just a little bit on that question. So it's helpful
20 to know more details along the stream, but I want to
21 know a little bit more about what each of the items
22 of -- in the plan are associated with for the
23 resources. For example, the rebridging is associated
24 with which type of resource and the preservation that
25 is associated with which type of resource? Does that

1 make sense?

2 ELIZABETH RANSOM: I think so. Between
3 Adele and I, I think we can get where you're going
4 with this. So -- so for Stream 3, which is the one
5 on the furthest kind of west portion of the site.

6 MS. BENSINGER: Can you use the pointer
7 perhaps on the plan for me?

8 ELIZABETH RANSOM: There you go. Stream 3.
9 There are native plantings -- well, there will be
10 bridge replacement and then there is native plantings
11 that will be done on the western side. And then on
12 the eastern side we're -- we're looking at primarily
13 slope stabilization, so we're not creating new
14 wetlands. We are looking at stabilizing what's there
15 now and we are looking at ways to improve the
16 pedestrian traffic in there so that it remains in
17 good condition in the future.

18 For Stream 5 it's looking at 165 1/2 square
19 feet of streambed protection, again, putting in a new
20 bridge so that instead of people walking through the
21 stream they are walking over the stream.

22 Stream 6, we are also looking at streambed
23 protection and also doing some revegetation along the
24 banks with native plantings to improve the -- the
25 side banks.

1 We -- I had already talked about Stream 9
2 with the riparian buffer restoration.

3 We also have a drainage on the Eckrote
4 property that is heavily culverted that we plan to
5 also improve. It's going to take those three sort of
6 hung culverts -- culverts and we're going to
7 stabilize the slopes at the plunge pool with native
8 plantings and, as I said, we're going to create a
9 span to replace those culverts so that the stream can
10 actually or the drainage can actually flow.

11 MR. DUCHESNE: Dr. Hopeck. Are you done?

12 MS. CALLAHAN: Nope.

13 MR. DUCHESNE: Oh, keep rolling.

14 MS. CALLAHAN: I have more.

15 ADELE FIORILLO: Just to add comment about
16 Stream 5. There is currently a concrete and an
17 aluminum pipe in that location that's failed, so we
18 are going to remove that and restore the streambed on
19 Stream 5.

20 MS. CALLAHAN: In the application there is a
21 proposal for monitoring within Streams 3, 5 and 6.
22 If a permit were to be granted, how would the
23 downstream portion of Streams 3, 5 and 6 be monitored
24 to ensure a natural flow regime?

25 ELIZABETH RANSOM: So I think what you're

1 referring to is in our water resources monitoring
2 plan as well as in the current letters.

3 MS. CALLAHAN: Yes.

4 ELIZABETH RANSOM: We propose to put
5 something like a weir or a permanent structure in
6 that we can get fairly continuous data to confirm
7 that water is indeed still continuing to flow through
8 those streams and that the flow regime is mirroring
9 what it has had historically.

10 MS. CALLAHAN: Okay. And you -- and then I
11 have a couple more questions and I think that Ms.
12 Fiorillo can probably answer these. It was mentioned
13 in the beginning that there are invasive species at
14 the proposed site. Would you please clarify what
15 those species are?

16 ADELE FIORILLO: Endangered species?

17 ELIZABETH RANSOM: Invasive.

18 ADELE FIORILLO: Oh, I'm sorry, invasive
19 species. I know there is a lot of glossy buckthorn
20 out there. In the wooded portions the meadow portion
21 is dominated by Calamagrostis to the facultative
22 grass species. It's kind of used for, you know, soil
23 stabilization in the agriculture business. I think
24 it's more naturalized than native -- ah, invasive,
25 but it's not entirely native either. Let me see if

1 can I come up with a list. Those are the two that
2 come to mind quickly. I'm looking at our wetland
3 delineation report. Part of our natural resources
4 report.

5 ELIZABETH RANSOM: While she's scanning, the
6 natural resources report is an attachment to the NRPA
7 application for those that are looking for it.

8 MS. TOURANGEAU: It's also Nordic Exhibit 8.

9 MS. BENSINGER: B did you say?

10 MS. TOURANGEAU: 8.

11 MS. BENSINGER: Okay.

12 ADELE FIORILLO: So in the wetlands for the
13 most part in the forested areas we have red maple,
14 white pine, hemlock, red spruce. The pine and spruce
15 are typically not wetland species, but they are known
16 to be found in wetlands in the northeast. Let me
17 just find some of the shrubs. Along Stream 9 in
18 the -- in the areas that have shrub cover, again,
19 glossy buckthorn was one of them. In the meadow, cow
20 vetch. Sorry, I don't have a complete list. I'm
21 scanning through paragraphs here. I guess those are
22 the ones that I can come up with quickly.

23 MS. CALLAHAN: Yeah, that's good. I just
24 wanted to get maybe some representative species that
25 are out there --

1 ADELE FIORILLO: Okay.

2 MS. CALLAHAN: -- that you observed. So I
3 have one last question. During the review, the
4 Department requested that Nordic conduct a
5 qualitative evaluation of the biological and physical
6 compensation of on-site streams. That was completed
7 in the record, but I'd like for to you describe the
8 scoring mechanism that you chose for this evaluation
9 and its result. And then also, it's a two-parter,
10 explain how those numerical values that came from
11 that evaluation correlate to reasonableness in
12 particular of the proposed impacts to streams.

13 ADELE FIORILLO: Okay. Yeah, so based on
14 the Department's recommendation we use the EPA method
15 of qualified habitat evaluation index and what that
16 does is it includes a number of different parameters
17 that you assess. It might be under the pile I gave
18 you. Yup. So what we do is we went to the NRPA
19 streams on the site and we looked at substrate, we
20 looked at in-stream cover, in other words, what the
21 canopy is over the stream. We looked at channel
22 morphology, did it have cut banks, did it have cobble
23 or silt, what the substrate was. We looked a little
24 bit more broadly at the riparian zone, in other
25 words, the zone of vegetation that would be

1 influenced by water in the channel. We looked at if
2 there were any pools within the channel, areas of
3 water that would pond up or if there were any
4 riffles, areas where water would overflow -- flow
5 over a colony substrate and that's important because
6 it aerates the water and we also looked at the stream
7 gradient and the scoring process assigns numbers to
8 each of those parameters. They're called metrics.
9 And those metrics are designed to assess what's
10 important to aquatic life. And so we looked at all
11 those metrics and when they sum they provide an index
12 that can range in negative to positive with a maximum
13 score to each metric and the higher the cumulative
14 score the better the habitat quality and the score
15 can be as high as 100. And the cumulative score of
16 greater than 70 is considered excellent while scores
17 of less than 30 are considered very poor. And all of
18 ours scored well under 30. I think the highest score
19 we had was 18 and that was on Stream 9.

20 MS. CALLAHAN: So with those scores can you
21 explain how that correlates to reasonableness of the
22 impacts that are proposed to the on-site streams?

23 ADELE FIORILLO: Well, it indicates that the
24 streams are very low quality and have very low
25 opportunity for aquatic life, so it's -- it's not

1 unreasonable -- it's not a large impact as in terms
2 of aquatic habitat is concerned.

3 ELIZABETH RANSOM: I think I'd also -- I
4 mean, I'd like to add also when I was speaking
5 earlier about compensation part of the reason for
6 selecting Stream 9 as an area for compensation and
7 improvement and enhancement and preservation was the
8 fact that it was the highest scoring stream out of
9 the valuation that Normandeau conducted and it's not
10 unreasonable to impact the streams that are scoring
11 so low. So in terms of meeting NRPA's guidelines
12 relative to demonstrating no unreasonable adverse
13 impact the QHEI that Normandeau provided was our
14 mechanism pathway for understanding the values that
15 the different streams provide and where we want to
16 enhance and preserve versus, you know, juggle
17 buildings and so forth.

18 MS. CALLAHAN: Thank you.

19 ADELE FIORILLO: Just a quick correction.
20 So the scoring -- the low score was 18, I'm sorry,
21 the highest score was 42 and that was Stream 9.

22 MS. CALLAHAN: Thank you. I'm done.

23 MR. DUCHESNE: Great. And I would also like
24 to say I appreciate the questions because it gets to
25 the heart of one that I was maybe going to get to and

1 that is the appropriateness of the compensation
2 package being offered when the stream we are
3 preserving is right between the driveway and where
4 the water treatment facility is going to do -- go and
5 so I'm going to wonder probably when we get to more
6 deliberative sessions whether that is a sufficient
7 amount and I appreciate you leading us into that
8 direction.

9 I think Dr. Hopeck had his hand up prior to
10 Ms. Hallowell. You guys can fight it out.

11 DR. HOPECK: Two quick questions. First,
12 the new information that came in this morning is
13 there information in there that's specific to whether
14 the substrate in the subtidal zone is capable of
15 supporting the years or the other supporting
16 mechanisms for the pipeline or whether that is stable
17 or unstable?

18 MS. BENSINGER: Mr. Hopeck, I -- you
19 probably don't know this, but you're probably
20 referring to Exhibits 38 and 39 --

21 DR. HOPECK: Yes.

22 MS. BENSINGER: -- of Nordic.

23 DR. HOPECK: That's correct.

24 MS. BENSINGER: Just clarifying for the
25 record.

1 EDWARD COTTER: The substrate was
2 investigated not only for the Vibracore samples, but
3 also during the -- using the echo-sounding techniques
4 to understand what was under there. The -- the
5 situation that we have with the pipeline is actually
6 that it's buoyant, so supporting the pipeline is not
7 as big of a concern as actually holding it down from
8 floating away or being moved by the tidal and wave
9 forces. So the anchoring system that you see that's
10 proposed either using piles or helical anchors is
11 again more targeted towards lateral and uplift forces
12 and those are both designed for that soil type. We
13 expect that that soil type is anywhere from 4 to 10
14 meters thick. Below that is a better more competent
15 sand, which if we encounter that that's a good thing,
16 but we are designing based on that layer of soft 50
17 percent sand, 50 percent fine materials.

18 DR. HOPECK: Okay. So that anchoring will
19 be discussed more fully or is discussed more fully in
20 those exhibits?

21 EDWARD COTTER: It is.

22 DR. HOPECK: Okay.

23 EDWARD COTTER: At least the -- the analysis
24 that got us to the design is so that the results of
25 the analysis. In other words, we talked about -- let

1 me open it up. So in there we've got the multi-beam
2 bathymmetry collection. We talk about the wind/wave
3 generation. We talk about Vibracore and sediment
4 analysis including the results. And then we talk
5 about the seismic analysis, which is the
6 echo-sounding that gives us an idea of how thick
7 certain layers are and what to expect below that.
8 The anchor design is -- is touched on in the original
9 application, the NRPA application.

10 DR. HOPECK: Okay. And then it has come up
11 and I suspect mostly we've got the right group of
12 people to answer this. In the original geotechnical
13 application, the original geotechnical report in the
14 February 27, 2019 report notes that the structural
15 loads, tolerable sediment amounts, grading and
16 drainage plans were not finalized when this report
17 was prepared. So a two-parter, have those been
18 finalized and whether they have been or not are you
19 anticipating any additional geotechnical work with
20 regard to this geotechnical report to the site?

21 EDWARD COTTER: The report -- the
22 geotechnical report that was prepared by Ransom is
23 considered final on current information that we have.
24 You want to tell your part?

25 ELIZABETH RANSOM: Yeah, I'll say one more

1 thing about that. We commonly put that into all our
2 geotechnical reports because it's been our experience
3 that as construction projects proceed it's not
4 uncommon to find something that putting borings
5 throughout the site you can't prepare for and so
6 should there be a need for a design change we want it
7 to be clear that we have a pathway toward getting
8 additional information if it should be needed. So
9 that -- that wasn't meant to imply that we were not
10 considering that to be a final report for the permit
11 process, it's just meant to imply that should
12 something be encountered in the future, we'd like an
13 opportunity to come back and -- and re-evaluate that
14 specific portion of the site for additional
15 geotechnic information if it's warranted.

16 DR. HOPECK: And certainly we, you know,
17 from our standpoint we see that all of the time and
18 that's the case we often get something that says
19 draft report and it raises the question it's okay.

20 ELIZABETH RANSOM: Yeah. We didn't call it
21 draft report, but we do intend it to be as
22 comprehensive as possible. It's just we know that
23 conditions can change when you start construction.

24 DR. HOPECK: Yeah. And we recognize that as
25 long as it's clear on both sides.

1 ELIZABETH RANSOM: Yeah. I wanted to point
2 that out.

3 EDWARD COTTER: The other thing to note is,
4 you know, with subsurface conditions obviously
5 we're -- we're making our calculations based on
6 information known as part of the quality control
7 plan. We intend to fully analyze current conditions
8 against anticipated at all times and bring in
9 resources to look at those and make sure that nothing
10 has changed in our design as we go along.

11 MR. DUCHESNE: Miss Hallowell.

12 MS. HALLOWELL: Thank you. My question is
13 around Ms. Walsh's testimony. So you gave us a -- a
14 good summary of how construction will occur in the
15 intertidal area. I was hoping you could elaborate on
16 how that relates to the subtidal work, maybe
17 summarize what the subtidal work is and in sequence
18 where do you start? You said you were starting from
19 the deep end of the intertidal area and working
20 landward, how does that relate to the subtidal
21 construction?

22 LAUREN WALSH: So as far as the subtidal
23 work, the -- the intertidal work would start from the
24 deep end and work in. The subtidal work would be in
25 a similar fashion working from that outside point

1 back to the intertidal intersect. It is subsurface
2 excavation work. The material would be excavated
3 using a long-reach excavator and a closed bucket up
4 onto a barge whether it be a -- possibly a jack-up
5 barge may be used at that point in time because it
6 would be floating. That material then also would be
7 put back in, so it would be a very similar sequence
8 to the intertidal zone. Trench boxes would not be
9 used at that point. The excavation is less also
10 because as we mentioned that pipe is kind of -- is
11 not as deep as you get out there. It's not buried as
12 deep as it is towards the intertidal -- portions of
13 the intertidal area.

14 MS. HALLOWELL: So do you start at the
15 subtidal and work your way back or are you
16 leap-frogging as you go?

17 LAUREN WALSH: No, you're going to start
18 from the furthest point out and work your way back.
19 That's what in the plan right now. That could
20 change, but that's the way it is right now.

21 EDWARD COTTER: I think one thing to point
22 out too is that the schedule is driven by the window
23 of operations within the subtidal area so that that
24 operation will drive our schedule and the other areas
25 that might be intertidal or upland work would be

1 phased around that October to April time window,
2 which is less -- which is not flexible.

3 LAUREN WALSH: I think conceivably we could
4 probably have two places going at the same time and
5 connect depending -- depending on work schedule.

6 MS. HALLOWELL: Okay. And one final
7 question, the material that's removed from the
8 excavation and put on the barges, how does that get
9 transported away? Is it the barge that's takes it
10 away --

11 LAUREN WALSH: Yes.

12 MS. HALLOWELL: -- is it put on put on dump
13 trucks and --

14 LAUREN WALSH: The barge will transport it
15 to land and then it will be transported to a truck
16 and then to the disposal facility.

17 MS. HALLOWELL: So the barge will motor to
18 an existing landing somewhere and then it will be
19 transferred to a truck. You're not going to take it
20 back up the access path?

21 LAUREN WALSH: No. No. Because that access
22 pad will be removed as we do the intertidal work.

23 MS. HALLOWELL: Okay. Thank you.

24 MR. DUCHESNE: Other questions from -- yes,
25 Mr. Miller -- Martin.

1 MR. MARTIN: So we have received --
2 obviously we heard quite a bit last night about
3 public concerns, some of them were regarding
4 brownfield site as a possible alternative. Could you
5 just discuss what -- for what reasons potentially if
6 a brownfield site is inappropriate for your project?
7 And I think there are other projects that have been
8 proposed that are indeed on brownfields, can you
9 describe what is it about your project that might be
10 different from those that would make a brownfield
11 inappropriate and a greenfield appropriate?

12 ELIZABETH RANSOM: I'll start and I'll pass
13 it down. I think it's kind of a combined response.
14 So as -- as somebody whose company who does a lot of
15 work on brownfields, I will say that, you know, we
16 obviously looked at some of the benefits that results
17 from working on a site that -- where there might be
18 already existing infrastructure such as a pipeline
19 might already exist. There might be things that
20 actually make that quite desirable. But the
21 downsides to a brownfield site is a lot of our sites
22 -- a lot of our brownfield sites still have existing
23 legacy contamination issues. So when you're trying
24 to provide a clean water source, a fresh water
25 source, if you're trying to derive that source from a

1 property that has existing contamination that's
2 pretty much a non-starter. So it -- it has to be a
3 brownfield site that somehow also has access to an
4 abundant source of -- of clean water both on the
5 fresh and the seawater side. And that's quite hard
6 in Maine because of the fact we've got a long history
7 of mills and -- and things that have damaged both our
8 fresh water and our coastal resource.

9 So that's a piece of it, but it also speaks
10 to a little bit sort of timing. All of the
11 brownfields projects follow a time line through a
12 regulatory process where there are, you know, steps
13 to looking at the study of what exactly is impacted
14 and then how do we go about cleaning that up, so
15 there is also a time line here that has to dovetail
16 with Nordic's desire to be kind of be up and running
17 in a couple of years. So part of it -- and then the
18 other piece is logistically physical location and
19 land mass, you know, if -- and then there is also
20 cost. You know, a lot of these existing brownfield
21 sites have structures that would need to be removed
22 and that comes at a -- in some cases a considerable
23 expense because of things like asbestos and lead and
24 so forth in the building. So there is a lot to the
25 consideration of a brownfield versus a greenfield.

1 And one is not inherently better than the other, but
2 it has to meet the project's needs and in this case
3 we didn't find something that did that. And I think
4 Ed can...

5 EDWARD COTTER: Nordic Aquafarms has -- has
6 always been interested in considering brownfield
7 sites because as Ms. Ransom mentioned it does bring
8 some advantages along with the challenges that it --
9 it might have. In this case, we did initially
10 consider brownfield sites but the priorities for this
11 project made it such that the brownfields that were
12 considered could not supply those or meet those
13 requirements and would not make the job in our
14 analysis a success, so we had to unfortunately keep
15 looking for other options. The project that we're
16 looking at today on this site provided us the
17 requirements. It also has its own challenges and
18 expenses. It's not that this was a cheaper, easier
19 alternative by any means, but we felt that it was the
20 best opportunity for us to have a successful project
21 and meet the requirements that we set forth in the
22 alternatives analysis.

23 MR. MARTIN: Thank you. Moving on to stream
24 enhancements. I think Beth covered the scoring
25 system pretty adequately in her questions. I guess

1 my question is whether adequate measures are in place
2 to provide protections on any stream enhancements. I
3 believe you've mentioned some regarding Stream 9, I'm
4 just wondering whether adequate measures have been
5 proposed or are in the works for, I guess, the other
6 kind of minor ones that you've been handling along
7 the way.

8 ELIZABETH RANSOM: So there are -- there is
9 a monitoring program that not only covers water --
10 water resources but also monitoring of the plants in
11 the restoration area. So in the water resources
12 monitoring plan we -- we speak of the need for
13 continuing site visits to make sure that areas of
14 stabilization that the plantings actually survive.
15 It's not uncommon to have certain things not take the
16 way you anticipate, so in terms of, you know, ongoing
17 checks on whether or not the restoration is
18 successful that has been added to the plan.

19 MR. MARTIN: Thank you. One more question
20 regarding streams. We've had plenty of talk about
21 the soil quality and how this surface run-off coming
22 into these streams is obviously in these
23 circumstances that is being removed. Can you
24 describe where this water is coming from? You
25 obviously already previously described in Beth's

1 questions the weirs and monitoring of that stream
2 flow. Can you mention or describe where that water
3 is now coming from and what measures you have in
4 place to provide that water to the stream?

5 ELIZABETH RANSOM: So some of the water that
6 flows into the streams actually originate off-site
7 and flows at the site itself and so as you kind of
8 allude to the, you know, the construction will
9 obviously disrupt that natural pattern and so we have
10 a series of foundation drains that will be collecting
11 groundwater as it is intercepted at the site and we
12 also have a stormwater system that collects the
13 stormwater as it comes at the site. The stormwater
14 is handled through stormwater treatment. I know we
15 have people on a panel later that will speak about
16 that. And then the foundation groundwater will be
17 capturing and being able to be used to rewet things
18 as needed to -- to make sure that those streams
19 remain flowing.

20 MR. MARTIN: Thank you. Regarding -- I
21 don't want to go deeply into any sort of Corps
22 requirements -- Army Corps requirements. Your
23 position obviously is that you're going to be
24 following sold waste regulations for the Department.
25 In the event that a permit is granted, are you

1 planning to test the material prior to disturbing
2 material as -- for landfill standards?

3 EDWARD COTTER: Right now we have
4 preliminary analysis done. We do need to do more
5 physical analysis and -- and testing to that material
6 prior to final design as far as helical anchor depths
7 and other anchor requirements. When taking that
8 material, we're -- we're certainly willing to do
9 environmental testing of that material as well. It's
10 not -- we -- I think we would need guidance from the
11 Department because it would be in excess of current
12 requirements. Once the material is removed then we
13 fall under the Chapter 400 requirements, which are
14 quite clear and we can follow those for sampling of
15 disposal material.

16 MR. MARTIN: Thank you. My last question is
17 regarding the anchoring, which you mentioned somewhat
18 already. I guess some of this material come in
19 earlier this week, so my question would be related to
20 is there any other, I guess, relevant information for
21 the Department and the Board in making such a
22 finding -- that would be relevant in making such a
23 finding one way or another regarding soil stability
24 for the anchors that might not be in the exhibits.
25 Is there anything more that we should be reading in

1 making those sort of determinations?

2 EDWARD COTTER: I think in looking at Nordic
3 Exhibit 38 it's -- hopefully I've made it relatively
4 apparent that the soil structure and material is well
5 understood and as I mentioned earlier it is not
6 uncommon to this area. It's a very common situation.
7 The material has -- it is relatively soft. It also
8 has the advantage of being relatively cohesive.
9 Sometimes you end up with soft silt that has no
10 cohesion and that's even more of a difficult
11 challenge. Here we have a material that has some
12 cohesion to it and therefore lends itself well to the
13 anchoring system that we're proposing.

14 MR. MARTIN: Thank you. That's all I have.

15 MR. DUCHESNE: Great. Questions from the
16 Board? Yes, Mr. Pelletier.

17 MR. PELLETIER: This should be simple. If
18 you -- one quick question for Ms. Fiorilla. Can you
19 hear me? One quick question for Ms. Fiorilla.

20 ADELE FIORILLO: Yes.

21 MR. PELLETIER: In terms of when you were
22 evaluating the streams and they were examining the
23 streams for the most part they apparently were except
24 for Number 9, but when I look at the methods that you
25 were using they were -- they talk about stream

1 morphology, you know, how it looked and everything
2 like that, but I don't really see anything in there
3 about evaluating whether there were presence of
4 invertebrates or anything like this and I know
5 perhaps you're not going to do the study where
6 you're -- some high quality streams you're going to
7 be looking for certain higher waters that like a lot
8 of oxygen, but still when you're looking at streams
9 you're going to want to look for some invertebrates.
10 Was any of that work done?

11 ADELE FIORILLO: When we did do the
12 qualitative habitat evaluation we did look for
13 aquatic organisms. We did find some snails. We
14 didn't really find anything beyond that. I know the
15 DEP actually went out there and looked at some
16 streams as well and I think they found some aquatic
17 organisms, but they're very low abundance.

18 MR. PELLETIER: And I would expect it would,
19 but I just wondered if you knew what they were like,
20 you know, just trichoptera or anything like this. I
21 would maybe expect some of these in there, but.

22 ADELE FIORILLO: Yeah, I don't think the
23 water regime is sufficient enough for those species.

24 MR. PELLETIER: Yup. And maybe you can't
25 answer this but maybe Mr. Cotter might, but just

1 because of the presence of the invasives out there
2 and because of the public comment that we heard last
3 night about so many people walking back and forth out
4 there it might be good consideration to have, you
5 know, an invasive species plan for that in the longer
6 term not just for, you know, the glossy buckthorn but
7 other species that could get developed, but it's just
8 a consideration and a suggestion.

9 EDWARD COTTER: So you're -- you're making a
10 just a suggestion of -- of monitoring for other
11 invasives?

12 MR. PELLETIER: Yeah, monitoring control.
13 It's not a big area. 250 feet, you know, for the
14 length that you've got it, but because it's right on
15 the water.

16 EDWARD COTTER: Well, I will point out that
17 that shoreland zone is intended to be handed over to
18 the city. We are planning on making improvements to
19 it prior to that, so I'd certainly like to work with
20 the city on the long-term plan for -- and also any
21 land trust that might take part in that -- take part
22 in that maintaining of that land.

23 MR. PELLETIER: All right. It's just a
24 suggestion, but. And then this is one I'm really
25 reluctant to bring up, but I will anyway is the

1 question about temperature again for Mr. Parent. You
2 talked about the fact that you had detected about a
3 .3 centigrade difference at I think you said 200 feet
4 out and that was part of the questions about
5 temperatures and I'm assuming that's, you know, there
6 is a lot of fluctuations here, but you came up with a
7 number for a distance. How did you do that?

8 TYLER PARENT: I would not be the best one
9 to answer that. Nathan Dill who you'll hear from --

10 MR. PELLETIER: Okay. Thank you.

11 TYLER PARENT: -- another time, but yes.

12 MR. PELLETIER: Thank you.

13 MR. DUCHESNE: Mr. Sanford.

14 MR. SANFORD: So this goes to understanding
15 the -- the modeling and the monitoring in terms of
16 the range of -- or predicting impact. So what's the
17 life of the project on average?

18 EDWARD COTTER: The construction project?

19 MR. SANFORD: No, the overall. Because
20 let's say like if environmental conditions change and
21 it's a 20 year thing then we're looking at how might
22 they change over 20 years, so what's the average that
23 you think of for something to have a reasonable
24 return on investment and so forth?

25 EDWARD COTTER: We -- depending on the

1 infrastructure that we're talking about or the entire
2 project, we expect this project to be viable well
3 past 30 years up to 50 years or more.

4 MR. SANFORD: Okay.

5 EDWARD COTTER: And even at that point based
6 on maintenance and replacement of technology, we --
7 we see no reason that concrete tanks won't still be a
8 viable infrastructure well past that.

9 MR. SANFORD: And for you and Miss Ransom,
10 are the -- the samples referenced in Table 4 of
11 Nordic Example 38 the same reference in Figure 18-1,
12 Section 18, Page 12 of Exhibit 7?

13 ELIZABETH RANSOM: I believe that they're
14 either the same list or a subset. So hang on just a
15 minute while we look at that. So the table reference
16 in Exhibit 38 that you're referring to is...

17 MR. PELLETIER: Yup, this one right here.

18 ELIZABETH RANSOM: -- Table 4?

19 MR. SANFORD: Yes.

20 ELIZABETH RANSOM: And then, I'm sorry, the
21 other table reference you made?

22 MR. SANFORD: This one right here. In your
23 report.

24 ELIZABETH RANSOM: So that map is a subset
25 of the samples, but, yes, it's the same number and

1 scheme.

2 MR. SANFORD: So that might explain if it's
3 a subset because the maximum depth here is 79 inches,
4 which is 200 centimeters, but it sounds like we heard
5 some questions in reference relating to deeper.

6 ELIZABETH RANSOM: So the -- the samples
7 that were selected for chemical analyses to evaluate
8 not only mercury but other metals and organic
9 compounds and so forth were not the exact same depth
10 ranges as these particular samples because once you
11 take a core and, you know, remove that to be taken to
12 a lab you kind of have to take a different range
13 because that volume of the soil is already gone.
14 Does that make sense?

15 MR. SANFORD: Well --

16 ELIZABETH RANSOM: So if they're co-located
17 but they're not necessarily the same depth range.

18 MR. SANFORD: So did you use 4 inch aluminum
19 agricultural tubing to do your core sampling?

20 ELIZABETH RANSOM: That may be a question
21 for Normandeau.

22 ADELE FIORILLO: Yeah, we -- we did use 4
23 inch diameter Vibracore, but I believe we used a
24 composite -- plastic composite for those samples.

25 MR. SANFORD: Okay. And so you cut those in

1 half and -- and did you take --

2 ADELE FIORILLO: Then they were extracted
3 out in a column.

4 MR. SANFORD: You extract them out in a
5 column?

6 ADELE FIORILLO: Yes.

7 MR. SANFORD: Do you put a polymer or
8 something to solidify them to pull them out or do
9 you --

10 ADELE FIORILLO: No, because -- well, the
11 samples that we took were multipurpose. One, they
12 were to collect sediment for drain size analysis and
13 for chemical analysis but also assist the benthic
14 community, so.

15 MR. SANFORD: Yeah, that's a little bit
16 where I'm going at. Like in terms of -- did you get
17 a stratigraphic profile from those?

18 ADELE FIORILLO: Yes, what we did is we had
19 engineers on board when we collected the samples so
20 they could categorize the layering for their purpose
21 for structural assessments.

22 MR. SANFORD: Is that layering, is that
23 something you have available that you could make
24 available to the DEP?

25 ADELE FIORILLO: I believe they put together

1 data sheets, the engineers did.

2 MR. SANFORD: Okay. Because one of the
3 things that's helpful to us in understanding is
4 environmental history. It goes to things like, for
5 example, if you picked up the 1938 hurricane with
6 sand deposits in that, so looking at those layers
7 they can tell us somewhat of what's happened in that
8 bay in addition to looking for metals and other
9 things.

10 MS. BENSINGER: Is that information you have
11 that was not submitted to the Department to date?

12 ELIZABETH RANSOM: I'd have to look. It's
13 possible that that's actually in as an appendix to
14 one of the existing reports, but I'm -- I mean,
15 sitting here right now, I can't tell you. If it's
16 not --

17 MS. BENSINGER: Okay.

18 ELIZABETH RANSOM: -- I'm sure that could be
19 supplied.

20 MS. BENSINGER: Ms. Tourangeau, can you make
21 a note of that and get back to us before by the end
22 of the hearing as to whether that is in the record
23 and if it is not we could leave the record open for
24 the submission of that information and allow the
25 parties an opportunity to file written comment on it

1 afterwards. So maybe Ms. Bertocci can keep a list.
2 There may be one or two other things that we may find
3 ourselves in that position.

4 MS. TOURANGEAU: Can you -- one of you that
5 understands this better than I do give me a like a
6 couple word description of what exactly you're
7 looking for? I'm thinking Vibracore, core, profile
8 logs.

9 ELIZABETH RANSOM: It's essentially like a
10 boring log.

11 MS. TOURANGEAU: Okay. Thank you. Sorry.

12 ELIZABETH RANSOM: It's okay.

13 MS. TOURANGEAU: It's not a boring log.

14 ELIZABETH RANSOM: It's not boring.

15 MR. SANFORD: This is very interesting.

16 MS. BENSINGER: Thank you.

17 MR. SANFORD: Did you do any Vibracoring in
18 the wetland areas?

19 ADELE FIORILLO: No, all of the Vibracore
20 work was done off-shore in the intertidal and
21 subtidal.

22 MR. SANFORD: Okay. Because that would go
23 towards like how old those wetlands were or their
24 dynamic history or any of that.

25 ADELE FIORILLO: No, we did not. We did do

1 soil profiles with a hand auger in the wetland and we
2 completed Army Corps data sheets that provided core
3 profiles.

4 MR. SANFORD: Did you -- in your assessment
5 of those wetlands, did you use the Adamus technique
6 for value and function like Army Corps type?

7 ADELE FIORILLO: We used the highway
8 methodology method from the Army Corps. The highway
9 methodology --

10 MR. SANFORD: Okay.

11 ADELE FIORILLO: -- which is a generally
12 accepted functions and values assessment.

13 MR. SANFORD: Okay. Thank you.

14 MR. DUCHESNE: Mr. Draper.

15 MR. DRAPER: Hopefully I get close enough.
16 So this is for Miss Ransom and I apologize if you've
17 already answered this, but I may have missed it in
18 some of the confusion. Could you just take minute
19 and describe after you went through your site
20 selection process and narrowed it to the four sites
21 that were more -- more in-depth of an analysis was
22 completed on, can you -- can you talk a little bit
23 more about what the on-site work that was done in
24 each one of those four sites? And I'm not --
25 specific to each one, but I'm assuming there was a

1 similar level of effort for each four of those. Can
2 you describe a little bit about the field work that
3 was done on-site for those analyses?

4 ELIZABETH RANSOM: Most of the on-site work
5 honestly was focused on the Belfast property because,
6 yeah, it -- certain things became very clear on some
7 of the other properties as to why they weren't going
8 to ultimately score highly. So, for example, there
9 are things -- I think I mentioned one of the sites
10 had an extremely high proportion of the site that was
11 wetland area and the environmental impacts associated
12 with developing a property like that would be quite
13 challenging. So you didn't necessarily need to go
14 through a lot of engineering or geotechnical work to
15 establish that.

16 I will say obviously with regard to the
17 alternatives for the pipeline there was additional,
18 you know, obviously a fair bit of additional work
19 that went into establishing why one is more
20 preferable to the other. For example, I spoke about
21 the Tozier Road option. We had a resounding amount
22 of discussion over whether or not that was going to
23 be feasible because there is a height of land that
24 increases to the north and so you needed to
25 ultimately be able to pump the water uphill before

1 having to come back down to the treatment plant and
2 that was going to involve putting a pump station
3 off-site in that neighborhood which would -- excuse
4 me, wouldn't be permitted. So, you know, depending
5 on the alternative being considered it was a variable
6 level of alternative specific work that was done.

7 MR. DRAPER: Thank you.

8 MR. DUCHESNE: More or -- we go to Ms.
9 Lessard.

10 MS. LESSARD: Thank you. When was the
11 decision made to raise the pipeline up off the sea
12 floor?

13 ELIZABETH RANSOM: I'm not sure I could give
14 you a specific date, but it was fairly recent because
15 in July I think we received -- well, two things,
16 we -- we understood that the permanent impact
17 calculation for laying pipe on the surface was quite
18 large and we needed to do something to reduce the
19 overall impacts of the project and that was a
20 construction methodology that could be undertaken to
21 substantially reduce the environmental impacts of the
22 project.

23 MS. LESSARD: What -- and I'm sure it's in
24 there, but what is the elevation off the sea floor?

25 ELIZABETH RANSOM: I want to say it's on the

1 order of a foot, yeah, give or take.

2 MS. LESSARD: I'm sorry, I didn't...

3 ELIZABETH RANSOM: One foot give or take.
4 One foot off the ground.

5 MS. LESSARD: Has there been additional -- I
6 was looking at a marine DMR report that reviewed that
7 was dated January 20 that still referred to it as
8 a -- being located on the sea floor and I'm confused
9 as to...

10 EDWARD COTTER: The design does include
11 concrete collars at approximately 15 foot spacing,
12 which do rest on the sea floor and that might be what
13 it was referring to. But I think also when you talk
14 with a 35 or so foot water column, something which is
15 a foot off the ground will still be considered on the
16 bottom. That -- that was my reading of it, but it
17 might also be just that the anchors rest on the
18 ground and it also is anchored to the sea floor as
19 well.

20 MS. LESSARD: But it was still considered at
21 a foot to be considered on the sea floor it would
22 still have the same cumulative impact as if it was on
23 the -- in reading it -- I had to read it that it was
24 on the sea floor because otherwise lifting it a foot
25 doesn't make any difference to your impacts.

1 TYLER PARENT: Providing just a little bit
2 of space for aquatic organisms to move underneath it
3 between the collars does reduce the square footage of
4 equipment that is touching the sea floor which then
5 would allow those organisms to move freely
6 underneath.

7 EDWARD COTTER: The current impact
8 statements do include the square footage of those
9 anchors which are physically touching the sea floor,
10 so in that way it is on the sea floor.

11 MS. LESSARD: I can't ask the Department if
12 they've gotten any more updated information, but I
13 hope that someone does as we go through this because
14 it's -- that memo doesn't match what I -- or doesn't
15 feel to me like it matches what I am hearing.

16 ELIZABETH RANSOM: I can try to clarify a
17 little bit. And I don't know, maybe this helps and
18 maybe this doesn't, but if the table here is the sea
19 floor and I have a bed of pipe that is suspended
20 above the sea floor and then my glasses here are
21 serving to be those little anchor points and you can
22 see that my -- my glasses, in fact, touch. The DMR
23 is noting that there are still things that touch the
24 sea floor and those are considered permanent impacts,
25 but this area underneath my glasses case here is no

1 longer a permanent impact because it allows the
2 passage of things like lobsters and shellfish and so
3 they are considering -- I believe their -- their text
4 if you read through it also speaks to the elevation,
5 not just the -- the contact points, so they are
6 noting that the new design involves those both a
7 raised portion and a permanently impacting touching
8 portion. Does that -- I don't know if that helps at
9 all.

10 MS. LESSARD: No, I -- I understand what
11 you've said you're going to do. What I didn't
12 understand was DMRs review of that in terms of their
13 written commentary describing what that was. Another
14 question, the -- Ms. Walsh, you mentioned that dredge
15 material was going on a barge --

16 LAUREN WALSH: Mmm Hmm.

17 MS. LESSARD: -- and then going where?
18 Where will it be trucked from?

19 LAUREN WALSH: So we have not settled on
20 the -- the point of landing of those barges as of
21 yet. Some of the options we -- we've looked at our,
22 you know, Cianbro's facility in Brewer, that's -- an
23 option like that, it will be an option like that that
24 has the ability to easily load that material from the
25 barge to trucks.

1 MS. LESSARD: So Brewer may be an option?

2 LAUREN WALSH: Brewer could be an option,
3 yes.

4 MS. LESSARD: And the second one was in
5 regard to -- or actually the third. All of the
6 material is getting excavated on the site?

7 LAUREN WALSH: Yes.

8 MS. LESSARD: Mr. Cotter, I think, may be
9 the one that talked about this, but you mentioned
10 that there were gravel pits in the area that may --
11 but it was my understanding that this material is a
12 clay base or something that will...

13 EDWARD COTTER: Yeah, that -- during that
14 statement I was referring to upland soils.

15 MS. LESSARD: And that's part of the natural
16 resource impact of what we're talking about here is
17 the amount that's going to being excavated upland as
18 well?

19 EDWARD COTTER: (Witness indicating yes.)

20 MS. LESSARD: So that's why I was asking
21 where that was --

22 MS. BENSINGER: Please don't nod.

23 EDWARD COTTER: Yes. I caught that. Yeah,
24 the -- at that point, we are talking about excavation
25 on the site for building footprints which is when I

1 was talking about that. Cianbro would be evaluating
2 options for disposal of the marine sediments.

3 MS. LESSARD: Okay.

4 EDWARD COTTER: I guess I would note that
5 several -- many of the same options are still
6 available because once that material is de-watered it
7 will be basically the same material although it may
8 be different physical characteristics.

9 MS. LESSARD: Okay.

10 MR. DUCHESNE: Mr. Parker.

11 MR. PARKER: The question I guess is for
12 Mr. Cotter or Elizabeth, either one. It seems to me
13 that the question we just discussed is sort of
14 schematics. We're talking a 36 inch discharge pipe
15 that's going have wrap around collars that are going
16 to sit on the bottom and every so often the collar
17 will be further anchored by piles. I don't know how
18 you could put a collar around a 36 inch pipe that
19 didn't take up a foot or so of room at the about the
20 bottom. So if that collar is sitting on the bottom
21 the pipe has no choice but to be somewhat off the
22 bottom or you're going to have to sink your collars
23 in. So it seems to me with a 36 inch pipe if you're
24 going to use up to 12 inches for the thickness of the
25 collar it's pretty understandable that pipe is going

1 to basically sit on the bottom but there will be a
2 gap or a space underneath it. And I don't know if
3 it's designed for any particular use underneath it or
4 just a physical constraint because that's how the
5 construction is built.

6 ELIZABETH RANSOM: I think part of the
7 design of having that physical space underneath is to
8 have an improved environmental scenario. So it's --
9 it's specifically so that species that aren't able to
10 swim over have ability to use habitat underneath the
11 pipe.

12 MR. PARKER: Okay. But I think that is a
13 benefit of what you're doing. I really question
14 whether it was a design consideration because DMR
15 didn't consider it a design consideration. They
16 consider the pipe sitting on bottom, so this may be a
17 benefit of how it's being anchored.

18 EDWARD COTTER: Right. So this was --

19 MR. PARKER: And you want to argue that it
20 environmentally lets the lobsters and creatures crawl
21 back and forth through, but I don't think DMR gave
22 much credit to that. I think they basically said
23 this is how you're physically going to build it and
24 this is what's going to go down there and they
25 consider it and on the bottom pipe.

1 EDWARD COTTER: They -- the design was --
2 was reviewed with staff and the recommendation from
3 staff was that we do lift this pipe up off the
4 bottom, which was done during the summer of 2019. So
5 the -- as far as I know the design that DMR has
6 reviewed the latest, which is in front of you today
7 which shows that the pipes are off the bottom.
8 Whether or not they will recognize that, I'm not
9 sure. But, yes, we -- we do believe that the lifting
10 the pipes off the bottom with a concrete collar is a
11 benefit for the marine ecosystem, which is why that
12 was done.

13 MR. PARKER: I think your argument there may
14 be a benefit, may be good, but if you didn't lift it
15 off the bottom of the collars you'd have to
16 counter-sink your collars which you're going to
17 disturb more bottom, so it's a 6 and two 3s from that
18 point of view, but I think there may be a benefit to
19 it, but I question whether the DMR really was
20 concerned about that pipe being on bottom or just
21 physically looking at it as being on bottom.

22 MR. DUCHESNE: Great. Thank you.
23 Ms. Bertocci, I believe, has a question.

24 MS. BERTOCCI: Yes. My question, I believe,
25 is for Miss Walsh. And I'm wondering about

1 construction in the subtidal area and the -- both the
2 intake and the discharge pipes are going to be
3 subsurface -- the sub- -- below the substrate for
4 some length before they transition to sitting on the
5 sea floor and I am not clear how you are backfilling
6 that excavation below water in such a way as to
7 control turbidity. How are you -- could you explain
8 how you're going to backfill that trench in the
9 subtidal area?

10 LAUREN WALSH: Sure. So you're -- you're
11 asking about the portion of the trench below water --

12 MS. BERTOCCI: Yes.

13 LAUREN WALSH: -- that is partially buried.

14 MS. BERTOCCI: Right.

15 LAUREN WALSH: So, yeah, so that transition
16 there is going to be a section of the pipe, both pipe
17 -- all three, that are partially buried below water.
18 Very carefully I guess would be my frank answer.
19 Slowly you'd excavate that material with a closed
20 dredge bucket --

21 MS. BERTOCCI: And you -- go ahead.

22 LAUREN WALSH: -- up onto the barge. Then
23 you put your pipe in. There will be divers who will
24 be connecting everything below grade or, you know,
25 under water. The stone will be placed as well and

1 then you'd put your material back over. Whatever is
2 excess as far as excess excavated material would be
3 shipped back to land.

4 MS. BERTOCCI: And so some of that excavated
5 material that you're putting back into the trench
6 is -- is more than just gravel. Some of it is going
7 to be sort of loose soil materials.

8 LAUREN WALSH: It will be the material that
9 we excavate from the trench, some of that will go
10 back in, yes.

11 MS. BERTOCCI: And could you explain how you
12 control turbidity if you're taking this material and
13 going back down through some depth of water?

14 LAUREN WALSH: So the water fills the water
15 column. So we have a turbidity curtain around that
16 area. It would be -- that curtain would be
17 positioned according to the area that we're working
18 on, so according the tide's direction of the flow at
19 the time, very specific to the environmental
20 conditions of that particular day. We also --
21 that -- at that point, we'd have a turbidity
22 monitoring program. With the exposure to the water
23 column we would either be metered monitoring for
24 outside of that area as well as visually monitoring.
25 If there were, we used the term escapee earlier, so

1 if there is some escapee of turbidity we'd stop and
2 let that turbidity subside, monitor how far it went
3 and then mitigate our measure, so we might add an
4 additional turbidity curtain. There are different
5 types of turbidity curtains that you can install, so
6 it would be really dependent on the conditions at the
7 time and the type of material that we were working
8 in.

9 MS. BERTOCCI: And so --

10 LAUREN WALSH: Some of that -- some of
11 that -- the material that we'll be working in, some
12 of that would be determined with the additional
13 borings that we would do before we got there.

14 MS. BERTOCCI: And so what about the maximum
15 depth of water you would be doing this? Is it 30
16 feet at the deepest point when you start to
17 transition from subgrade to sea floor?

18 LAUREN WALSH: I would have to look that up.
19 I'm going to say about 30 feet of water. I'm not
20 finding it immediately, but I think it's about 30
21 feet of water on average.

22 MS. BERTOCCI: Great.

23 MR. DUCHESNE: I have good news and bad
24 news. The good news is I don't expect to ask a whole
25 lot of questions during these proceedings. The bad

1 news is they're all right now.

2 So we heard a lot from the public about
3 wildlife impacts and we haven't really delved very
4 deeply into it. Most of these will go to
5 Ms. Fiorillo. I sense that Ms. -- you're very
6 comfortable with wetland science issues, maybe not so
7 comfortable with the wildlife impacts part of the
8 statement, so if you need to phone a friend, feel
9 free.

10 ADELE FIORILLO: Yeah, that's correct. A
11 lot of the wildlife work was done by Dr. Sarah Burnam
12 -- Barnum, a member of Normandeau staff.

13 MR. DUCHESNE: Oh, perfect. That's good to
14 know. For instance, on hibernating bats, I think you
15 agreed twice earlier that all migrating -- all of the
16 -- all Maine's bats migrate out.

17 ADELE FIORILLO: Mmm Hmm.

18 MR. DUCHESNE: In reality, I -- would you
19 like to amend that statement inasmuch as I think
20 little brown bats, big brown bats, at least one other
21 the species of bat, some of the bats hibernate in our
22 attic over the winter actually don't migrate out.
23 Would that be your understanding?

24 ADELE FIORILLO: At the -- our assessment
25 basically said that the cover on the site and other

1 the forested portions of the area do provide good
2 summer roosting habitat for those species that roost
3 in trees and that's the eastern red, the hoary, the
4 silver and -- and there are others that are special
5 concern.

6 MR. DUCHESNE: Right. Mmm Hmm.

7 ADELE FIORILLO: And the northern long-eared
8 bat, which, again, we had talked about was state
9 endangered and federally threatened roost under loose
10 bark and tree trunk crevices and hollows. And
11 structures on-site and nearby provide potential
12 summer roosting habitat for the little brown. And
13 then the forest edges near the reservoir are good for
14 feeding areas for those species, particularly the
15 small-footed bat. But there is really -- she's
16 really silent on other than tree removal in winter
17 will avoid any impact to species present there, so.

18 MR. DUCHESNE: Unless there were bats
19 actually hibernating in tree trunks there might be
20 some minimal impact there, but, again, we don't know
21 because as I understand it you assume that the
22 conditions are right for them to be there but did not
23 actually look.

24 ADELE FIORILLO: In that they're migratory
25 species as well, yes.

1 MR. DUCHESNE: Right. Great. Also, on the
2 subject on Paragraph 9 of your testimony, reptiles
3 and amphibians, you said you made an attempt to
4 assess the presence of observing reptiles and
5 amphibians but the seasonal conditions weren't
6 suitable and you made that one attempt and never
7 rescheduled, never tried again, just...

8 ADELE FIORILLO: Yeah, you know, that
9 statement was then followed by the stream assessment,
10 which we did -- we did look at further for reptiles
11 and amphibians. But the Maine impetus for our
12 observations of reptiles and amphibians is there were
13 no vernal pools on the site which provides primary
14 habitat for those species.

15 MR. DUCHESNE: Yup. Mmm Hmm.

16 ADELE FIORILLO: And then we looked at the
17 habitat and we looked at the known distributions of
18 those invertebrate species, the reptiles and
19 amphibians, and, you know, they tend to have very
20 specific habitats, things like bogs and fens or
21 larger streams and rivers and those habitats are not
22 present so, that's...

23 MR. DUCHESNE: Yup. Good. I think was
24 willing to accept that because I sort of came to the
25 same conclusions. I just wanted to see if that was

1 the basis behind your argument. On Paragraph 10 on
2 the next page you said no project-specific avian
3 survey was conducted, but you relied rather heavily
4 on eBird reports.

5 ADELE FIORILLO: That's right.

6 MR. DUCHESNE: Did you do that or was it
7 your partner who was --

8 ADELE FIORILLO: That was Sarah.

9 MR. DUCHESNE: Okay. Good. Well, then I
10 won't put you too far on the spot. But in the
11 testimony or in your report rather, which is Appendix
12 8 from the Nordic pre-filed -- from the Nordic
13 reports. Two links to eBird were provided, so I took
14 the liberty of looking at them to see who my experts
15 were on this and there were five checklists for the
16 Little River hike, so when the -- the testimony says
17 we're relying on these eBird reports to know what's
18 there and there is only five reports I'm wondering
19 who filed those reports. It turns out most of them
20 are people I know and guided, so I can eliminate a
21 little bit. Two of them are from Connecticut. They
22 have property over in Liberty and the summer
23 sometimes. They've been out with me on tours many
24 times. He's worked with power tools all his life so
25 he could not hear a bird sitting on his shoulder

1 MS. BENSINGER: Is there a question?

2 MR. DUCHESNE: Yes. And so I'm getting to
3 my question. I'm trying to assess how reliable the
4 report is when it comes to determining what the
5 wildlife impacts to birds are there.

6 ADELE FIORILLO: Yeah, so basically what we
7 did with that is we relied heavily on eBird reports
8 from both the Little River hiking trail and the
9 Perkins Road fields. They date back to 2013, so we
10 have a pretty long-term observation period there.
11 And than we also looked at the habitat on both the --
12 along the Little River hiking trail and -- and the
13 hay field on Perkins Road and came to the conclusion
14 that the habitat on the project site as far as the
15 forested areas is very similar to that of the hiking
16 trial and the -- and the grasslands on the project
17 site are very similar to the grasslands on Perkins
18 Road. So based on those two observations, we have
19 assumed that those birds that are seen in the eBird
20 reports for both sites can also possibly be on the
21 project site.

22 MR. DUCHESNE: Yes, and I guess my problem
23 with the methodology is that I'd like you to address
24 so that would be in the form of a question, 36 out of
25 45 visits there listed by eBird in your source

1 happened outside of the singing season when you can
2 most determine what's there. I think 13 of them were
3 in the dead of winter when there are no songbirds
4 there. In fact, I think many of the visits there are
5 to see if there is a wintering type species, snow
6 buntings were just one of those, for instance, so
7 many of the reports were not during the time period
8 where it would actually tell us anything. So would
9 you like to revisit that methodology to see if it
10 would -- could use some improvement?

11 ADELE FIORILLO: Well, I guess I'm not
12 qualified to answer that question. I have full
13 confidence in Dr. Barnum that she has a sense of the
14 appropriate habitat on the site and the appropriate
15 species list that would be present there.

16 MR. DUCHESNE: Mmm Hmm. So probably if it's
17 brought up to Dr. Barnum that bobolinks, for
18 instance, probably would not use the site that's
19 going to be developed. I've certainly seen sites
20 much smaller footprints than that where bobolinks are
21 present and I think the testimony earlier was correct
22 that with the adjacent habitat there they probably do
23 use the area. So, again, to confirm, you never
24 actually took a look to see what birds were there.
25 It's pretty much relying on eBird reports?

1 ADELE FIORILLO: And habitat assessment.

2 MR. DUCHESNE: And habitat assessment.

3 Okay. Great. Skipping to 12, tidal waterfowl and
4 wading bird habitat, I think you just said recently
5 or a little while ago that you did make visits, you
6 checked there and I think it was in December or
7 January?

8 ADELE FIORILLO: We did one in December and
9 one in March.

10 MR. DUCHESNE: Okay.

11 ADELE FIORILLO: Yes.

12 MR. DUCHESNE: Considering all of the wading
13 birds are in Florida at the time, would you have
14 expected to see any there?

15 ADELE FIORILLO: No. And as I said, we
16 looked at the area during the low tide to assess the
17 habitat there and the feeding and foraging grounds
18 and based on that -- we certainly don't say that
19 there won't be any there, but we did say that the
20 feeding habitat that provides for those wading birds
21 would be generally within the intertidal mudflats,
22 that there is not -- and based on the benthic survey
23 as well there is not a lot of invertebrates within
24 the intertidal mudflats. There is no eel grass,
25 there is no mussel beds, so the resources are

1 limited, however, we didn't say that they wouldn't be
2 present. Of course there is certainly potential that
3 they would be. And our conclusion is that, you know,
4 the work that's going to be done out there is going
5 to be done in the November -- April to November time
6 frame and it's going to be temporary and these
7 species have plenty of mudflat out there to work and
8 if they want to shift their location or, you know,
9 continue to use that location they still can.

10 MR. DUCHESNE: Mmm Hmm. This question may
11 be a little more for Mr. Parent, but related to that
12 I think it says in the testimony and what you just
13 said there are no known mussel beds there, when we
14 did the site visit there was a flock of 50 common
15 eiders out there right at the entrance of the Little
16 River. Their primary food is mussels. So can you
17 qualify a little bit more how you know there is no
18 mussels in the area at least in that section?

19 TYLER PARENT: We are not --

20 MR. DUCHESNE: Yes.

21 TYLER PARENT: We're are not claiming that
22 the site is completely free of mussels, however, it
23 is not going to have a fisheries impact. And
24 fisheries in this case is defined as taking an
25 aquatic organism for harvest. And so there is some

1 livelihood that there could be some shellfish in the
2 area, however it is not a current resource that is
3 currently being utilized.

4 MR. DUCHESNE: Great. Thank you, that
5 helps. Again, this one is for Mr. Parent. One thing
6 I can't get my arms around is there is not a lot of
7 disturbance to fisheries in your testimony, but the
8 one concern might be winter flounder. I don't know
9 whether winter flounder are spread evenly along the
10 entire Maine coast or if there are certain places
11 where they tend to gather and breed. Do you have any
12 information whether this is a good area, bad area or
13 is there no such information available?

14 TYLER PARENT: The habitat is theoretically
15 suitable for winter flounder and spawning, however,
16 the area of impact does not represent a very
17 significant portion of the available habitat even
18 within the Belfast Bay and so the understanding is
19 that that would be an example species where they
20 could be present during the construction window,
21 however, things like the stop/start technique would
22 allow those individuals to vacate the area
23 voluntarily and then resume normal habitation of the
24 area post-construction.

25 MR. DUCHESNE: Great. Thank you. I believe

1 we can go down to Ms. Bensinger next.

2 MS. BENSINGER: Thank you. I have a
3 follow-up question on the Presiding Officer's
4 questions about the site visit looking for reptiles
5 and amphibians. What was the day of that site visit?

6 ADELE FIORILLO: Let's see. We did the 27th
7 and 28th of August.

8 MS. BENSINGER: Okay. And you said because
9 of the season -- the seasonal conditions during the
10 site visit were not suitable for observing reptiles
11 or amphibians?

12 ADELE FIORILLO: Well, and, again, you know,
13 the natural resources report where that statement was
14 made was followed up by the -- the habitat assessment
15 by the streams which was -- that was completed in
16 August, so that's when we did further search for
17 invertebrates and aquatic species.

18 MS. BENSINGER: So you did another site
19 visit looking for reptiles and amphibians?

20 ADELE FIORILLO: When we did the streams.

21 MS. BENSINGER: When you did the streams.
22 And that was in a different season?

23 ADELE FIORILLO: That was in August, yes.

24 MS. BENSINGER: So they were both in August?

25 ADELE FIORILLO: No, the reptiles and

1 amphibians survey was March and December.

2 MS. BENSINGER: Okay. I have a few
3 questions for Ms. Ransom. Your summary today focused
4 on how the three other finalist alternative sites
5 suited Nordic's needs for practicability generally,
6 which is one of the assets of determining whether
7 something is a reasonable alternative in an
8 alternatives analysis. Can you describe for the
9 other three alternative sites the stream and fresh
10 water wetland impacts that would have been involved
11 with those three sites if they had been chosen?

12 ELIZABETH RANSOM: I think I spoke a little
13 bit to at least one of these earlier. One of them
14 had a portion of the site that was developed and a
15 portion of the site that wasn't. The -- the project
16 would have needed to utilize, you know, the majority
17 of that land and the undeveloped portion was nearly
18 90 percent or so wetland, so that in my mind makes
19 that environment --

20 MS. BENSINGER: And which site was that?

21 ELIZABETH RANSOM: That would be the one
22 north of Belfast.

23 MS. BENSINGER: And did you specify in the
24 alternatives analysis the location of that site?

25 ELIZABETH RANSOM: No, we refer to the sites

1 as north of the project site, south of the project
2 site and in the mid-coast area. And the reason for
3 that is we don't want to jeopardize somebody else's
4 potential, you know, future ability to do something
5 with those -- the land value of those sites. It's
6 not up to me to, you know.

7 MS. BENSINGER: Do you provide --

8 ELIZABETH RANSOM: A mapping.

9 MS. BENSINGER: -- a mapping of those other
10 sites?

11 ELIZABETH RANSOM: Yes, we did. We have a
12 mapping that shows the location of the sites, yup.

13 MS. BENSINGER: Okay. And the other two
14 sites?

15 ELIZABETH RANSOM: So the -- the one to the
16 south of the project site, one of the challenges
17 associated with that, I believe there would be
18 difficulty with obtaining the sufficient quantity of
19 fresh water. So while it had good seawater access, a
20 fresh water resource was a bit more of an unknown.
21 There were some former activities on the site that
22 made reuse perhaps difficult just to, you know, site
23 preparation level.

24 MS. BENSINGER: Yup, I -- I understand those
25 are factors that go to the appealability and the

1 practicability of the site from Nordic's use
2 perspective, but what about the environmental impacts
3 of the proposed project on that site in terms of
4 streams and wetlands?

5 ELIZABETH RANSOM: I'm sorry, yeah, I
6 understand. So that particular one also may have
7 experienced difficulty relative to wetland and
8 ecological impacts. There had been an area of former
9 quarrying associated with that property and so there
10 is ponded water and a habitat that would likely be
11 associated with some of that land. So in terms of
12 ecological impacts that might also have been
13 challenging. And then the northernmost location from
14 an ecological perspective, the way that was
15 configured the topography and the distance to getting
16 to seawater would have increased the footprint of
17 things like the pipeline, which generally, again,
18 leads for more adverse ecological impact, so.

19 MS. BENSINGER: Thank you. I guess my next
20 question is for Miss Fiorillo. You described that
21 the silt would be cleared up in the streams and -- as
22 part of your compensation and mitigation, how would
23 that be done?

24 ADELE FIORILLO: Well, part of the answer
25 goes to the stormwater management plan Elizabeth had

1 mentioned. The -- the source of this water comes
2 from off-site but then gathers into these stream
3 channels that has a silty -- predominantly silty
4 substrate, there are some cobble areas but
5 predominantly silty, and that flows down slope
6 towards the reservoir and enters into the reservoir.
7 The -- the stormwater management plan is going to be
8 intercepting and -- and bringing that water around
9 the project site to the -- the base of that 250 foot
10 boundary where we're going to put those weirs in and
11 so that will essentially stop that erosion that
12 occurs from the upper slopes down to the release
13 point.

14 MS. BENSINGER: When you did the test well
15 pumping, those streams weren't used to discharge any
16 of the water that was pumped from the test wells,
17 were they?

18 ELIZABETH RANSOM: When the testing was done
19 we discharged the water to a -- what was referred to
20 as a sediment bag. Basically it's a structure that
21 slows down the flow of that water so that you're not
22 just causing additional erosion and so that is on
23 land that, you know, on flat ground and that allows
24 the reduction of both sediments that may be in the
25 water pumping to be captured as well as it slows down

1 the force of the water so that that doesn't cause
2 additional erosion.

3 MS. BENSINGER: But the test well pumping,
4 the water was discharged into the streams?

5 ELIZABETH RANSOM: It was discharged to a
6 sediment bag on land. We actually worked with a
7 member of the Department who came actually out to the
8 site to assist us with understanding how to deal with
9 the water that would be needed during those pump
10 tests.

11 MS. BENSINGER: And ultimately though where
12 it did go?

13 ELIZABETH RANSOM: Some of it went
14 through -- depending on which one we're talking
15 about, one of those wells was an open field and that
16 water -- some of it saturated into the ground
17 surrounding the bag itself. In other areas where we
18 were closer to streams I'm sure that some of it
19 ultimately did flow towards streams.

20 MS. BENSINGER: Your assessment of the
21 streams as silty, did it occur after those test well
22 pumps or before?

23 ELIZABETH RANSOM: The streams have been
24 assessed throughout the project duration, so before
25 test wells and after.

1 MS. BENSINGER: Okay.

2 ELIZABETH RANSOM: And it's been a silty
3 bottom stream since, you know, probably since the
4 origination of the stream itself.

5 MS. BENSINGER: Okay. Thank you. And maybe
6 you've already said this before, this is for Miss
7 Fiorillo, how long would the construction period be
8 in total for installing the pipelines from the high
9 water mark all the way out to the end? Is that a six
10 month period or what's the entire --

11 ADELE FIORILLO: I'm not familiar with the
12 construction plan.

13 EDWARD COTTER: The schedule is based,
14 again, in that area on the appropriate window for
15 construction. Right now, we are targeting October
16 and it's a four -- starting in October it's a four
17 month window.

18 MS. BENSINGER: In your view, this may be
19 Mr. Parent or Ms. Fiorillo, how long would it take
20 for the intertidal area that would be disturbed to
21 return to its previous state and functions after
22 construction is complete?

23 ADELE FIORILLO: I don't know that I can
24 give you a specific time frame, but based on the
25 characteristics of the sediments, I mean, there is a

1 lot of, you know, sand and silt out there so -- and
2 the same material is going to be added. It's a
3 fairly low energy system indicated by the these small
4 particle sediments, so I expect them to settle out
5 and remain in place fairly quickly.

6 MS. BENSINGER: What -- what do you mean by
7 fairly quickly?

8 TYLER PARENT: It will be split into two
9 categories and that's one when you have a sentinel
10 organism that isn't actually leaving the area the
11 then post-construction they could theoretically the
12 very next year if they -- we can use winter flounder
13 as an example, if an individual winter flounder is
14 displaced by construction during one year it can come
15 back the next year or even still have success that
16 same year in a different area within Belfast Bay.
17 However, something that does not necessarily move has
18 a better chance of being impacted and then it would
19 take a slightly longer period of time and so we may
20 be talking about the next year and having just a few
21 individuals having trouble having reproductive
22 success in a single year. However, there is
23 documentation, and I don't know that it was in this
24 particular testimony, but it is definitely in
25 something that we submitted so far, significant

1 documentation on typical -- when sediment is removed
2 how long does it take an organism of various types to
3 recolonize an area and start successfully reproducing
4 and I don't think it's in this particular document,
5 however, it is common.

6 MS. BENSINGER: Okay. And one last
7 question, how far apart are the three pipes? I am
8 sure it's somewhere, I just haven't seen it.

9 LAUREN WALSH: So the trench width itself is
10 about 15 feet, so those -- the two intake pipes are
11 30 inches a piece, the discharges pipe is 36 inches a
12 piece -- 36 inches and you've got the stone in
13 between, so.

14 MS. BENSINGER: Thank you.

15 MR. DUCHESNE: I believe -- I believe
16 Mr. Sanford has a question and we'll review some of
17 the audience questions and review how much time we
18 have.

19 MR. SANFORD: This is kind of a general one,
20 but I think it's -- and it might be silly, but I
21 think it's important for the background. For the
22 panel, did your background research for the area of
23 potential effect for this project uncover any lists
24 of underground storage tanks, spills, Phase 1 or 2
25 environmental assessments or anything like that?

1 ELIZABETH RANSOM: I'm glad you asked. So
2 we did, in fact, conduct the most typical standard
3 that people refer to as the ASTM standard for
4 environmental due diligence and we looked at the --
5 the state has databases that you can look at in terms
6 of what's happened in the area, where there might be
7 releases at nearby gasoline stations and things like
8 that. We also looked at the site history for the
9 property itself and what we encountered -- we also
10 during some of our well testing and well
11 installations we looked at, hey, we've got -- while
12 we're pumping this groundwater let's make sure we run
13 some tests. So we were able to document that the
14 groundwater is quite clean. What we did note is that
15 the Belfast Water District building being quite old
16 and having a structure behind it that's quite old
17 it's quite conceivable that the paint is -- has got
18 some lead-based paints in it that would, you know, as
19 they reuse and rehabilitate the building would need
20 to be addressed if disturbed. The other thing we
21 noted is that there is a small area behind the
22 building where we've done some soil testing where
23 there is evidence of historical use of coal and other
24 fuels where we note that there is, you know, some
25 compounds in the ground that would be associated with

1 the former historic use of burning coal. But, yeah,
2 otherwise it's a very environmentally friendly site
3 in that regard.

4 MR. DUCHESNE: Great. Thank you. There are
5 submitted questions from the audience, I've reviewed
6 them and a lot of them have now been covered by some
7 of the questions by the Board and we're two hours
8 behind or three hours -- well, depending on where you
9 figure in lunch, but we are well behind now, so I do
10 think we need to move on. But the questions did get
11 the Board's attention, so thank you for that. We'll
12 go to redirect and recross. So redirect.

13 MS. TOURANGEAU: I will be quick. As quick
14 as can I with -- I have eight questions, maybe nine.
15 I hope that will be helpful. Ed, while I'm trying to
16 get this microphone situated, would you pull up the
17 plan that shows the pipeline? Thank you. And my
18 first question is for you. At what point on the
19 pipeline is it completely -- like can you show me the
20 part that's completely buried with the pointer from
21 where it's buried entirely?

22 EDWARD COTTER: So we start -- I'll start
23 from the pump station on the western side of Route 1
24 and it's buried there. It's buried through the
25 Eckrote property, through the intertidal and then

1 this point right here -- actually, let me look at a
2 version I can read a little better because I don't
3 have my glasses on.

4 MS. TOURANGEAU: You can go up there. I
5 don't know if you can see the markings.

6 EDWARD COTTER: I've got the drawing right
7 here.

8 MS. TOURANGEAU: Okay. Sorry.

9 EDWARD COTTER: So I'm glad I looked. This
10 location right here is the discharge point. I'm
11 sorry, it's right here, the discharge. That's
12 roughly where it exits the soil. So at the 30 foot
13 contour as was testified earlier is where we exit the
14 soil and become a bottom resting pipe.

15 MS. TOURANGEAU: And is there a transition
16 period where it's coming out of the bottom?

17 EDWARD COTTER: Yes.

18 MS. TOURANGEAU: Roughly how long is that?

19 EDWARD COTTER: So it's from station 3200 to
20 36, 3700, depending on exactly where you're looking
21 at, about 5 to 600 feet.

22 MS. TOURANGEAU: Gotcha. So from -- and
23 where you were at the discharge is -- so it's
24 entirely buried to station 3200?

25 EDWARD COTTER: Yes.

1 MS. TOURANGEAU: And then it's transitioning
2 from station 3200 to 3600 and then it's concrete
3 collars and helical, sorry if I get it wrong, and/or
4 guidepost anchors depending on bottom conditions and
5 collars until you get out to either the discharge or
6 the intake locations?

7 EDWARD COTTER: Correct.

8 MS. TOURANGEAU: All right. Did the
9 original anchoring design include rock mattresses
10 over the piping from the transition area at station
11 3200 to terminus?

12 EDWARD COTTER: It did. It looked at rock
13 anchors as a way of anchoring and potential
14 protection as needed.

15 MS. TOURANGEAU: Mmm Hmm. And those were
16 eliminated in order to reduce impact under the
17 Natural Resources Protection Act?

18 EDWARD COTTER: They were.

19 MS. TOURANGEAU: Moving on. Elizabeth --
20 Ms. Ransom, sorry. Did the study area for the
21 pipeline alternatives include testing of sediments?

22 ELIZABETH RANSOM: Yes, it did. In the
23 project area we tested sediments.

24 MS. TOURANGEAU: Was the Army Corps of
25 Engineers method used for those samples?

1 ELIZABETH RANSOM: Yes.

2 MS. TOURANGEAU: Will sediments be further
3 analyzed for disposal?

4 ELIZABETH RANSOM: Yes.

5 MS. TOURANGEAU: Would all -- any test
6 samples that were taken within the project area be
7 relevant to determining mercury levels that will --
8 may be encountered during construction of the piping?

9 ELIZABETH RANSOM: Yes.

10 MS. TOURANGEAU: How big is the overall
11 project area roughly? In the --

12 ELIZABETH RANSOM: In the width direction
13 we're looking at hundreds of feet.

14 MS. TOURANGEAU: Right. Is that large or
15 small kind of in the context of determining metals
16 concentrations from historic contamination?

17 ELIZABETH RANSOM: I am not fully
18 understanding your question, I'm sorry.

19 MS. TOURANGEAU: Is -- would you expect a
20 significant disparity between samples in a project
21 areas that's a few hundred feet for metals
22 contamination that's historic?

23 ELIZABETH RANSOM: So in historic release
24 you would expect that a lot of that trending of data
25 has -- has already occurred, so you'll be able

1 to with abundant samples see the high areas versus
2 the low areas, but there is certainly going to be
3 variability from, you know, some degree of
4 variability from place to place.

5 MS. TOURANGEAU: Were the samples that you
6 took consistent with those that were taken in the
7 PRMS, was there significant disparity?

8 ELIZABETH RANSOM: I believe they were
9 consistent with the historical record for the area.

10 MS. TOURANGEAU: Was there significant
11 disparity?

12 ELIZABETH RANSOM: No, there was not.

13 MS. TOURANGEAU: Mr. Parent, is there a
14 thermal anomaly that will impact the fisheries?

15 TYLER PARENT: That will impact the
16 fisheries, no.

17 MS. TOURANGEAU: If lobster were present in
18 the project area, would mercury levels in sediment
19 need to be significantly higher to result in
20 concerning levels in lobster meat?

21 TYLER PARENT: They would need to be higher
22 than those samples tested in order to biomagnify to
23 the point of the action level within the tissue of
24 the lobsters.

25 MS. TOURANGEAU: Thank you. Mr. Cotter,

1 what additional geotechnical work will be done prior
2 to or as part of construction?

3 EDWARD COTTER: Additional samples will be
4 taken along the pipeline route to ensure a full
5 understanding of the physical properties of the soils
6 and to finalize the anchoring design.

7 MS. TOURANGEAU: Thank you. Ms. Mattson --
8 Ms. Fiorillo. She was recently married. Did the
9 WOSS contain threatened or endangered species? Did
10 the wetlands of special significance themselves
11 contain --

12 ADELE FIORILLO: No.

13 MS. TOURANGEAU: -- threatened or endangered
14 species?

15 ADELE FIORILLO: No.

16 MS. TOURANGEAU: What is long-eared bat
17 habitat?

18 ADELE FIORILLO: Yeah, long-eared bat
19 habitat is... Hang on. I have Sarah's text here. I
20 should not have unstapled my papers is what I should
21 not have done. Okay. Here we go. For the northern
22 long-eared bat, loose bark and tree trunk crevices
23 and hollows.

24 MS. TOURANGEAU: Is that consistent with the
25 type of species that you would expect to see in a

1 WOSS -- in a wetland of special significance?

2 ADELE FIORILLO: No.

3 MS. TOURANGEAU: Thank you.

4 MR. DUCHESNE: Great. We have recross.

5 MS. RACINE: No.

6 MR. DUCHESNE: Okay. Great. Thank you. So
7 I believe we are done with this panel. Great. Okay.
8 We're going to take a five minute break. When we get
9 back we're going to be talking about scheduling
10 because we're...

11 (Break.)

12 MR. DUCHESNE: So before we begin the
13 proceedings once again Ms. Bensinger would like to
14 discuss schedule a little bit.

15 MS. BENSINGER: Hi. We really appreciate
16 all of the parties cooperation and are trying to be
17 flexible and we knew this was always an issue and
18 some days they move more quickly, some days they move
19 more slowly. It's important that the Board and the
20 Department staff get all of their questions answered
21 and the parties get to ask the questions they have as
22 well.

23 So we are considerably behind schedule.
24 We've been talking about some possible juggling this
25 afternoon. We're going to see how the next two --

1 what we have coming right now, we have Mr. Perkins
2 GMRI opening statement summary and questions, then we
3 have MGL. We're going to see how those two items
4 go -- those two parties go and see where we are. We
5 understand that Dr. Podolsky would be available on
6 Thursday, so we might do some juggling with the
7 following three items and we're just going to see how
8 it goes and we'll let you know after the next two
9 items. We probably won't have much in the way of
10 time for questions from members of the public.
11 Questioning during the daytime is generally for the
12 parties, the intervenors and the intervenors have
13 worked hard to represent their respective interests,
14 so the questions from the public are only allowed as
15 time permits and at this point we're probably not
16 going to have time for any or maybe just a few just
17 to let people know. So I won't take up any more
18 time.

19 MR. DUCHESNE: Yes. And I would say if you
20 want to submit questions understanding we may not get
21 to them it still may be valuable to us and if we do
22 have time or if we see one that's pertinent that we
23 didn't ask it would still be valuable, so I think you
24 can submit them but understand we may not have time
25 to get to them.

1 With that said, I believe we can go to Gulf
2 of Maine Research Institute, Perkins.

3 DONALD PERKINS: Thank you very much.
4 Presiding Officer Duchesne, members of the Board,
5 Commissioner Reid, Department staff, the Attorney
6 General's Office, thank you for having me here today.

7 My name is Don Perkins. I serve as
8 President and Chief Executive Officer at the Gulf of
9 Maine Research Institute in Portland, Maine and I've
10 done that since 1995. I would note personally that I
11 was born in Waterville. I spent six years of my life
12 working on Penobscot Bay. In the warm six months I
13 met my wife here. I -- this is my favorite place to
14 be on the water and so I care very deeply about the
15 bay, about the health of the bay and -- and as
16 everybody else in this room does.

17 In the course of my professional work, I've
18 served on the Gulf of Maine Lobster Foundation Board
19 of Directors, the Maine Lobsters -- the Maine
20 Legislature's Task Force on the Development of
21 Aquaculture. I chaired the Friends of Casco Bay
22 Board for a number of years. I served on the Gulf of
23 Maine Council on Marine Environment. I was involved
24 in the early days of the Gulf of Maine Ocean
25 Observing System Board of Directors that Dr.

1 Pettigrew described earlier today. And I've served
2 on the Maine Department of Marine Resources Advisory
3 Council, so I come into this discussion looking at
4 the array of fisheries involved, both wild and
5 farmed, the communities involved with a great deal of
6 respect.

7 I also have a business background. I
8 formerly worked in the finance area working with
9 Native American Tribes, so I have a sense of
10 specialty finance markets akin to what Nordic will be
11 financing its activities in. And I also ran a
12 diagnostics company that used radioactive isotope
13 iodines, so I have an understanding of what it takes
14 to manufacture a company that -- that has risk for
15 the environment and how you do that with a demanding
16 regulatory framework. And while those are outside of
17 the specifics of today, I come at this looking at the
18 big picture point of view of who is this company,
19 what are they setting out to do, how well are they
20 going to be managed, et cetera, and I'll speak to
21 that as we go.

22 At GMRI, I work with a team of 70 staff.
23 They're interdisciplinary oceanographers,
24 ecologists -- ecologists, modelers, regulatory
25 experts in the fisheries side, aquaculture experts,

1 wild fishery management experts. And so I -- I look
2 at the suite of issues here not just narrowly as a
3 chemistry issue or a biology issue but how do
4 these -- how do these questions play out in the way
5 these resources get managed and the way they get
6 used.

7 Last, I would note that our organization is
8 independent, we're non-profit and we have nothing
9 institutionally at stake here today ourselves. We
10 are here because, as you all well know, this is
11 really a watershed regulatory suite of hearings
12 that's going to set the stage for regulating the
13 evolution of the RAS industry over the next several
14 years.

15 Over the last five years since 2015 because
16 of our expertise, the various RAS companies have come
17 to us when they first come into the state, so we saw
18 Emergent Holdings, which then turned into Whole
19 Oceans, we saw Nordic, we saw Kingfish. We've met
20 them as they've come into the state as they've tried
21 to understand the landscape. Having watched the
22 aquaculture industry since the late 1980s I've
23 watched this development with great interest. I've
24 watched the evolution of the industry in the trade
25 journals and -- and I was intrigued to see that

1 industry show up here. I've gotten to know the
2 management of each well. I was asked by the Maine
3 Venture Fund to help them assess the risks and
4 opportunities related to Whole Oceans, so I've been
5 very involved in looking at the details of these
6 businesses.

7 And the thing that has impressed me about
8 the Nordic approach is that, as you've heard, they
9 really have taken the best practice approach in the
10 areas that are not -- where there is not a strong or
11 clear precedent in terms of how to manage certain
12 issues. They brought a team around them of Nordic of
13 Woodard and Curran of Cianbro related to the marine
14 work that -- that I think is an outstanding team.
15 I've known these organizations for 20 to 30 years.
16 We've worked very closely -- I've worked closely with
17 Cianbro on one very complicated industrial project
18 back in the early '90s and then about seven years ago
19 on a marine construction project for us. So I have a
20 lot of respect for the people at work here.

21 And, you know, the nature of this hearing
22 process is -- is that the parties pick at each other
23 and try to expose each other's weaknesses. I think
24 that -- that we all understand that and I will just
25 note that these are each outstanding companies and --

1 and my focus on the marine side really boils down to
2 how well was this pipe -- piping system designed and
3 how well will the construction process be executed by
4 Cianbro and that really gets at the essence of the
5 marine risk.

6 So with that, I will turn my attention to
7 the specific matters at hand. I am going to address
8 the intertidal impact, the subtidal impact, the
9 mercury issue and I have a comment briefly at the end
10 about monitoring. And the things I'm going to focus
11 on are really what are the practical issues here.
12 We've heard a lot about the details of core samples
13 and the presence of mercury. We hear lots of
14 details, but how does it really hold together as this
15 project gets executed and at the end of the day what
16 are the impacts, if any, to the wildlife, the
17 fisheries and the humans.

18 So let me shift first to the intertidal
19 zone. This is fairly straightforward. The
20 intertidal zone is mudflats with some cobble. It's
21 not -- it's not a particularly productive intertidal
22 zone. There is very little algae there. When I
23 looked at the impact, I looked at the area that runs
24 roughly 2,500 feet north and south of the
25 construction site, which reaches from the east end of

1 Hazeltine Road to the northeast, south to Browns
2 Head. As you've heard, the construction work will be
3 done between the first of November and the first of
4 April. That is -- October to April, that's a six
5 month window. It's a four month -- four months of
6 work including down time during that window and I
7 think what's become evident by now is the proponents
8 picked a season that's optimal for getting the work
9 done while minimizing its impact on species of
10 concern. Migratory fish have gone south or
11 off-shore. Lobsters, a substantial portion of the
12 lobsters have migrated into the depths of Penobscot
13 Bay and some of them have gone further out into the
14 Gulf of Maine, so it really is the optimal time to do
15 this work at a time when these species are least
16 present. As we heard earlier, the wading birds have
17 gone south. I also noted eider ducks -- I've noted
18 eider ducks in the vicinity, which obviously
19 indicates there that are mussels somewhere there. I
20 also noted that in the video examination of the
21 bottom there was not any significant evidence of
22 mussels and so in the construction corridor I am not
23 concerned about impact on feed for species of
24 concern. And I think the bottom line is that we're
25 only talking about less than 2 percent of that

1 intertidal area. It's going to be worked on
2 off-season by a company that I've watched work with
3 best practices. If you look at Cianbro's safety
4 record, I've watched them work on the water with
5 incredible discipline and I just think that you
6 couldn't have picked a better company to get this
7 done and get this work done responsibility. Based on
8 all that, I don't see any significant impact
9 happening in intertidal zone given the temporary
10 nature of the work there.

11 That then takes us to subtidal zone and,
12 again, as you've heard earlier the subtidal area is
13 relatively low energy. It's a mud bottom. There is
14 small cobble in the area surveyed. In the video
15 survey there is not an indication of much vegetation.
16 Same -- same principles hold on the seasonality.
17 Lobsters will -- winter flounder may be present and
18 spawning as was noted previously, but they're mobile,
19 they can get out of the way. And it's a very, very
20 small portion of Belfast Bay that's being worked on.
21 If you look at the area of the bay, the area that's
22 being worked on is -- it's about 7/100 of a percent
23 of the bay, so it's just -- it's a very, very small
24 part of the bottom of this bay. There is not -- as
25 we've heard, this area is not open to harvesting

1 shellfish. To my -- to my knowledge, there is not
2 significant scallop landings in the bay. So that,
3 again, the fishery impact in the winter is -- is
4 minimal.

5 You've heard that Cianbro is going to
6 conduct this work with silt curtains. You've heard
7 that the -- the pipe is either going to be buried or
8 suspended above the bottom to address the earlier
9 concerns of the pipe ending and serving as a barrier
10 to bottom dwelling organisms, so, you know, when you
11 look at the overall design of this project, I think
12 the long-term impact is negligible.

13 So that then takes me to the question of
14 mercury, the concern about mercury. We all know
15 about the history up the river due to HoltraChem.
16 Everybody at this point is very familiar with --
17 everybody in this room knows where Verona Island is.
18 We've all looked at the various core samples. And I
19 think the practical points here are the following,
20 that the salinity gradient has done us the first work
21 of keeping the mercury sediment largely entrained up
22 in the river. Secondly, the mercury that has moved
23 out the river has tended to move out as you've all
24 seen to the west side of Islesboro. And so the
25 presence of mercury as we've all heard in Belfast Bay

1 is typical for bays up and down the coast. It's not
2 at a level for concern of toxicity or of impact on
3 lobster's food, et cetera. So in a very small area
4 bottom you heard previously how Cianbro is going to
5 excavate this area. They're going to do it with
6 care, best practice. They're going to do it within
7 the silt curtains. Given -- given the evidence
8 generated by the Penobscot River Mercury Study over
9 the years and the cores taken, the samples taken by
10 Normandeau, from my point of view there is no
11 evidence of hot spots and so the mercury issue has
12 been understandably raised because it's a -- it's a
13 visible issue, it gets the public concerned, it's a
14 source of legitimate concern, but practically
15 speaking, I don't think that there is a significant
16 risk of a substantial amount of mercury being brought
17 out into the water column. The primary species of
18 concern, lobsters will be largely gone as that
19 happens. If -- if mercury contaminated sediment does
20 come up and get suspended it will settle back down in
21 a relatively short amount of time and so that the,
22 you know, the risk to these organisms, the toxicity
23 of risk to these organisms, the bioaccumulation risks
24 I think are very low. And they have been -- they
25 obviously have been the source of a lot of public

1 contention, but I think that these issues have been
2 well characterized and I think that Cianbro
3 operationally will manage them well.

4 The last thing I want to turn to briefly,
5 again, from an operating point of view is I -- from
6 my point of view, again, you look at who are the
7 people that have been hired to work on this project.
8 My experience with the -- with the Nordic staff, with
9 the various engineers, construction company, they
10 have all been talented, dedicated people. As I've
11 asked for information from Nordic, from Ransom, from
12 Woodard and Curran, they have been totally
13 transparent with me as I've tried to understand the
14 details of what they're working on. And so I think
15 we're going to see a well executed project and so
16 that then brings us to the monitoring once the
17 project is operational. And we're not at that stage
18 yet obviously in this process, but when you do get to
19 that stage I would encourage attention to higher
20 frequency of reporting during changes. So when the
21 scale of the operation is scaling up if operations
22 approach a threshold for some reason if there is a
23 change in ownership, if there are significant changes
24 then I would simply urge the Department to make sure
25 that you have visibility into monitoring data at a

1 significant frequency to just understand what's
2 happening during those periods of change.

3 So with that, I'll wrap-up and take any
4 questions, I guess.

5 MR. DUCHESNE: Yes, I believe we're going to
6 go to Nordic for cross, but Ms. Tucker has her hand
7 up. Can you state your question?

8 MS. TUCKER: I -- I would like to ask -- I
9 apologize, I didn't ask for this witness because he's
10 got his degree in anthropology and MBA, so I didn't
11 think it was going to be relevant, but now since he's
12 discussing the mercury as though he's got a
13 scientific background I'd like to ask questions.

14 MR. DUCHESNE: Well, as we have been doing,
15 I can permit a limited number of questions and -- but
16 two -- two questions, but we will go to cross, I
17 believe, from Nordic first. Thank you.

18 MS. HOWE: Mr. Perkins, do you think the
19 construction of this project will harm Maine's
20 lobsters?

21 DONALD PERKINS: I do not.

22 MS. HOWE: Why not?

23 DONALD PERKINS: I think the project has
24 been planned to be executed during the season when
25 lobsters are -- tend to move into deeper water and

1 move off-shore and hence the interaction with this
2 project with lobsters will be minimal.

3 MS. HOWE: Okay. And what percentage of the
4 intertidal zone will the construction corridor
5 temporarily impact?

6 DONALD PERKINS: By my calculation, I think
7 it's about 1.9 -- well, a little less than 2 percent.

8 MS. HOWE: Okay. And from a habitat and
9 ecological point of view, is that insignificant?

10 DONALD PERKINS: I think it is
11 insignificant. I think that organisms in that area
12 that there is plenty of other similar habitat to be
13 relied on.

14 MS. HOWE: Okay. And what percentage of the
15 transition and subtidal zones of Belfast Bay will the
16 construction corridor temporarily impact?

17 DONALD PERKINS: By my calculation about
18 7/100 of a percent.

19 MS. HOWE: And what about permanently
20 impact?

21 DONALD PERKINS: Well, I think that -- I
22 think permanent impact is a -- what I said in my --
23 in my filed testimony was 9/10,000 of a percent, but
24 I want to underscore that I was defining that as a
25 footprint issue and I would rather say that if we're

1 thinking about permanent to be conservative let's
2 stay with that 7/100 of a percent --

3 MS. HOWE: Okay.

4 DONALD PERKINS: -- and I would just note
5 that that -- that quantity is a very, very small
6 portion of the bottom.

7 MS. HOWE: Okay. And, again, from the
8 habitat and ecological function point of view, are
9 both of those insignificant?

10 DONALD PERKINS: Yes.

11 MS. HOWE: And then lastly, can you just
12 briefly describe or characterize how your experience
13 so far has been with Nordic?

14 DONALD PERKINS: Yeah. Again, as I said
15 previously, I -- I met Nordic when they first came
16 to -- into the state. I've interacted with them off
17 and on to learn more about the project. Equally
18 important, I've been interacting with people at
19 Ransom, people at Woodard and Curran and what not
20 and, as I said, my experience has been that they have
21 been transparent and provided with me with any
22 information that I asked for.

23 MS. HOWE: Great. Thank you. That's all I
24 have.

25 MR. DUCHESNE: Okay. Thank you. As you're

1 coming up with your two questions in mind, I would
2 like to point out in the pre-filed testimony, Page 5
3 of his testimony was all about mercury. So it may be
4 that you missed the opportunity to let us know ahead
5 of time, but that's why I'm going to feel comfortable
6 limiting it to two questions.

7 MS. TUCKER: Thank you. Isn't it true that
8 your expertise and your background is just in
9 anthropology and with an MBA in business so you have
10 no expertise to be able to evaluate the impacts on
11 the lobster fishery of this mercury or really
12 legitimately evaluate the impacts of this -- of the
13 PRMS or the presence or adequacy of the sediment
14 testing done today?

15 DONALD PERKINS: No, that's absolutely
16 untrue. My academic degrees were in anthropology and
17 in business. Over the course of the last 25 years, I
18 established and have grown the Marine Research
19 Institute that's known internationally. I have 70
20 people working with me who each in their own way are
21 extraordinary and my job is to -- has been to learn
22 the various fields of science at play, to draw
23 relevant information and make sense of -- of
24 variability, uncertainty and what not. Secondly, I
25 spent four years in the late '80s, early '90s as a

1 co-founder of Friends of Casco Bay. It was an all
2 volunteer organization that had deep concern about
3 questions like we have at play here today. And
4 without staff, we as volunteers read permit
5 applications like this one here. We got involved in
6 permit issues and what not, so your contention is
7 untrue.

8 MS. TUCKER: So based on your vast
9 experience with this issue you noted that there is a
10 salinity curtain that keeps the mercury out of the
11 bay that's noted in the PRMS except that Nordic is
12 proposing anywhere from a 15, depending upon which
13 article you read, or a 33 percent amount of fresh
14 water being -- in the water being discharged at 7.7
15 million gallons per day into the bay, so isn't that
16 going to change the salinity and potentially impact
17 the salinity curtain that so far protected the bay
18 somewhat?

19 DONALD PERKINS: Okay. So the first thing
20 is that you -- the way you quoted me at the beginning
21 was saying that the salinity curtain prevented
22 mercury from coming down the bay and it did not
23 absolutely prevent mercury. As we know, there is
24 presence of mercury down -- down the bay. Secondly,
25 the fact that Nordic will be pumping fresh water into

1 the bay I do not think will substantially impact the
2 mercury risk because the disturbance is going to
3 happen before Nordic is operational. So the issue is
4 that -- of concern here is that the bottom is going
5 to be excavated during the construction period and
6 then it's going to be put back and Nordic won't be
7 operational until two years later and so I don't see
8 the relevance of your point of their -- of their
9 fresh water effluent.

10 MR. DUCHESNE: Great. Thank you. And we
11 can go to Board questions now and staff questions. I
12 beg your pardon. Ms. Racine.

13 MS. RACINE: And mindful of brevity, I
14 just -- actually have just one question.

15 MR. DUCHESNE: Oh, please do. Go right
16 ahead.

17 MS. RACINE: Thank you.

18 MR. DUCHESNE: I misspoke.

19 MS. RACINE: Dr. Perkins, if you know --

20 DONALD PERKINS: Ma'am, Mr. Perkins.

21 MS. RACINE: Mr. Perkins, I'm sorry. We'll
22 keep a record of how many times I make that error
23 during the course of this hearing. Mr. Perkins, if
24 you know, is there a publicly available list of GMRI
25 donors with amounts?

1 DONALD PERKINS: There is numerous donor
2 lists, yes.

3 MS. RACINE: And they're publicly available?

4 DONALD PERKINS: Yes.

5 MS. RACINE: Where could we find that?

6 DONALD PERKINS: They're on our website.

7 MS. RACINE: Okay. Thanks very much.

8 MR. DUCHESNE: Great. And now we can go to
9 DEP and DEP questions. Yes, Mr. Draper.

10 MR. DRAPER: Very brief. The name of your
11 organization is the Gulf of Maine Research Institute,
12 but I just want to make sure I clearly understand
13 what you're presenting here today is not based on any
14 research that your organization has done. This is a
15 review of existing research and work that's been done
16 by Nordic?

17 DONALD PERKINS: Yes, it is, but I think
18 central here is our knowledge. We're deeply involved
19 in fishery research. We do work on herring, we do
20 work on cod, we do work on lobsters and we're
21 extensively involved in fishery management.

22 MR. DRAPER: Thank you.

23 MR. DUCHESNE: Other questions?
24 Mr. Pelletier.

25 MR. PELLETIER: Hi, Mr. Perkins. I

1 appreciate that a lot of the comments you were making
2 were talking about the percentage of habitat impacts.
3 I understand that and it makes sense. Most of your
4 comments though are also about construction impacts
5 and no real comments about operations. This morning
6 we heard a couple of different testimonies about the
7 influences of flows and tides in -- in Penobscot Bay
8 but not so much about Belfast Bay. And with the
9 types of discharges that they're talking about here
10 and particularly thinking about, you know, maybe some
11 of the viral issues and things like that, do you have
12 any particular comment or opinion about risk to the
13 effect as it stands to primarily the Belfast Bay
14 region?

15 DONALD PERKINS: As you note, I chose not to
16 speak to the impact of effluent into the bay and the
17 reason for that is that at the end of the day the
18 discussion there is around the models used. Our
19 modeling expert -- expertise at GMRI is really a
20 system scale, so we're looking at the entire Gulf of
21 Maine, the entire North Atlantic and so I chose not
22 to comment specifically here because it's a smaller
23 scale than our work is.

24 MR. PELLETIER: Thank you.

25 MR. DUCHESNE: Other questions? We'll go

1 first to Mr. Sanford.

2 MR. SANFORD: Just to clarify for the
3 record, and I don't mean anything implied by this,
4 but there is no financial or fiduciary interest
5 between GMRI and Nordic?

6 DONALD PERKINS: No, we have no financial
7 relationship with them. We have no -- yeah, period.

8 MR. DUCHESNE: Mr. Miller -- Martin. Twice
9 I've done that.

10 MR. MARTIN: You'll get it eventually.

11 MR. DUCHESNE: Honestly.

12 MR. MARTIN: Earlier today we heard a line
13 of questioning regarding the Penobscot River Study
14 and particular sampling methodologies, do you have
15 any comment on that?

16 DONALD PERKINS: I -- I guess I would
17 comment simply that the sampling that was done there
18 was to characterize the mechanics and the details of
19 how the HoltraChem source mercury was interacting
20 with a marine environment. The -- once you get down
21 into Belfast Bay that information is background
22 information and then the question becomes what's
23 happening -- it's background information and the
24 evidence is that the concentration of mercury down in
25 Belfast Bay is -- is as we've all seen typical of

1 bays along the coast.

2 MR. MARTIN: Thank you. That's the only
3 question I have.

4 MR. DUCHESNE: Great. Any other questions?
5 Seeing none, I'll give you one last opportunity to
6 clarify anything based on the questions you got. Is
7 there anything you feel you need to clarify?

8 DONALD PERKINS: No. I think, again, I
9 think there are a lot of -- there is obviously a lot
10 of details that you're all digesting and there is a
11 lot of picking back and forth that goes on and I
12 think ultimately the question is how does this get
13 executed on the water, how does it get run and, as
14 I've said, I think there is a very talented group of
15 people here to get that done.

16 MR. DUCHESNE: Great. Thank you very much.
17 We'll take a five minute break while we reset and get
18 ready for our next panel.

19 (Break.)

20 MR. DUCHESNE: I believe we have our next
21 panel ready to go and I'll hand the mic over to Miss
22 Tucker.

23 MS. TUCKER: Thank you Presiding Officer and
24 members of the Board of Environmental and staff.

25 MR. SANFORD: Is that on?

1 MS. TUCKER: Oh, I don't know.

2 MS. BENSINGER: And just to -- since the
3 Board as a whole hasn't been involved in all of the
4 many side conversations, Mr. Canning did not file
5 pre-filed written testimony in case you were thinking
6 you just missed it, but he has been -- the Chair has
7 decided after discussions with the parties that he is
8 allowed to testify.

9 WAYNE CANNING: I have a statement I filed
10 to you folks.

11 MS. BENSINGER: It wasn't pre-filed.

12 WAYNE CANNING: It wasn't -- it wasn't the
13 last two -- two weeks when I wasn't available to have
14 it notarized and all that.

15 MS. BENSINGER: Right. So he's going to
16 hand in a written version. The Board didn't have it
17 in their packets is what I'm saying, so thank you.

18 MS. TOURANGEAU: Can I ask a question real
19 quick too? I had been under -- I see that there is a
20 slideshow up and I had been under the impression that
21 that was going to be recirculated with exhibit
22 numbers on it this morning, but I didn't get that.

23 MS. BENSINGER: We didn't either. We're
24 hoping that it's exactly as it was --

25 MS. TUCKER: It -- it is exactly as you

1 said.

2 MS. BENSINGER: -- reviewed.

3 MS. TUCKER: If there is any hiccups from
4 the -- he's got the package you gave me, so he's got
5 it and he will delete anything --

6 MS. TOURANGEAU: But with the exhibit
7 numbers on it so we can kind of follow along?

8 MS. TUCKER: We believe so. We are very
9 hopeful.

10 MS. TOURANGEAU: And are there any copies of
11 it available?

12 MS. TUCKER: In his hand.

13 PAUL BERNACKI: And I'm very -- I'm very
14 happy to just click delete on any slide and it will
15 disappear forever.

16 MS. BENSINGER: How many slides are there?

17 PAUL BERNACKI: Ah, I don't know, about 30
18 of them.

19 MS. TUCKER: It's about half of what they
20 were originally.

21 PAUL BERNACKI: Yes.

22 MS. BENSINGER: How many were in the packet
23 that you had --

24 MS. TUCKER: It's exactly the same number,
25 whatever that is.

1 MS. BENSINGER: -- pre- -- to the third
2 version?

3 MS. TUCKER: I'll trust Joanna's count.

4 MR. DUCHESNE: Yeah, and just for the
5 record, we believe we have an agreement between the
6 parties on what's allowable and what isn't.

7 MS. TOURANGEAU: 17.

8 MS. BENSINGER: 17 slides in the agreed upon
9 version.

10 PAUL BERNACKI: It was midnight.

11 MS. TOURANGEAU: I am going to object. This
12 is the third or fourth go around on this and it's
13 been -- over the last three days I've reviewed a
14 hundred and something slides and tried to get a set
15 that was agreed on last night.

16 MS. TUCKER: This is really a visual aid for
17 you all.

18 MR. DUCHESNE: Okay. Here is -- if I may.

19 MS. TUCKER: Yes.

20 MR. DUCHESNE: I have an objection in front
21 of me. My ruling would be he may proceed with the
22 slideslow, but if we run into difficulty with any of
23 the slides there is a strong risk that we'll simply
24 take down the slideshow and you can go ahead verbally
25 but won't be able to relate to slides that don't

1 match up to what was agreed to.

2 PAUL BERNACKI: Thank you, sir.

3 MR. DUCHESNE: Okay. Thank you.

4 MS. TUCKER: Thank you very much.

5 MR. DUCHESNE: You may proceed.

6 MS. TUCKER: All right. My name is Kim
7 Ervin Tucker, as you all know. I represent a diverse
8 group of citizens, the Maine Lobstering Union, which
9 represents licensed commercial lobstermen and
10 sternmen from Kittery to Cutler; individual
11 lobstermen representing local lobstermen from the
12 Belfast and mid-coast area, Wayne Canning and David
13 Black, who have decades of experience fishing in the
14 area of Penobscot Bay that NAF proposes to take for
15 its use for pipelines; and Judith Grace and Jeffrey
16 Mabee, who are, we contend, the fee-simple owners by
17 deed in a prior 1970 quiet title judgement of the
18 intertidal land that Nordic Aquafarms proposes to use
19 without their consent for the placement of the
20 pipelines. In addition, I also represent the Friends
21 of Harriet L. Hartley. For the sake of full
22 disclosure, the Harriet L. Hartley conservation area
23 who are the holders of a conservation area that
24 covers the -- all of the intertidal land that Jeffrey
25 and Judy show they own in the prior judgement and

1 they are not intervenors here.

2 All of these parties share a common interest
3 in protecting the same area of Penobscot Bay from
4 damage and destruction by Nordic for this project,
5 however, none of these parties or organizations is
6 opposed per se to aquaculture including land-based
7 fish factories where the proposed aquaculture
8 facility will do no harm to the environment or access
9 to and the viability of existing lobster and crab
10 fishing grounds.

11 Here we direct the Board's attention to;
12 one, Nordic's failure to comply with the requirements
13 in NRPA and the DEP testing protocols relating to
14 completing the required sediment testing in the area
15 Nordic Aquafarms proposes to do extensive dredging,
16 blasting and trenching that this project proposes.

17 NAF's failure to do sediment testing to
18 determine the location and level of HoltraChem
19 mercury in the area proposed for dredging, blasting
20 and trenching for pipeline placement, sediment
21 testing method -- and not using the sediment testing
22 methods that the federal court's experts have said
23 should be used to properly assess the presence of
24 HoltraChem mercury in the PRMS.

25 Three, NAS's failure to do the necessary

1 geotechnical studies of the required -- required to
2 assess the impact of this proposed project on the
3 coastal wetlands and bluffs and the suitability of
4 the methane latent and holocene mud in this area for
5 placement of the pipelines as proposed in the most
6 recent installation method.

7 Four, NAF's failure to do the necessary
8 studies of impacts of the proposed project on the
9 current economic uses of the Penobscot Bay,
10 especially the lobster and crab fishing, scalloping
11 and other existing aquaculture projects including the
12 mussel farm up in Northport. Byssal.

13 Five, NAS's misrepresentations regarding the
14 adverse impacts of --

15 MR. DUCHESNE: Yes, just a little bit
16 slower.

17 MS. TUCKER: Oh, I'm sorry.

18 MS. DOSTIE: You're reading quite quickly.

19 MS. TUCKER: I'm going to email this to you.

20 MS. DOSTIE: Well, that's okay, I'd rather
21 write it as we go.

22 MS. TUCKER: Okay. Sorry. NAF's
23 misrepresentations regarding the adverse impacts from
24 NAF's proposed project on commercial fishing in the
25 upper bay and beyond. Especially the potential for

1 disturbing buried HoltraChem mercury from the
2 placement of pipelines using significant blasting,
3 dredging and trenching out along the bay followed by
4 the potential for post-installation, erosion,
5 scouring and sediment resuspension including sediment
6 containing buried HoltraChem mercury from the
7 pipelines themselves and proposed for installation.

8 I was struck by Mr. Heim's explanation of
9 what brought Nordic Aquafarms into mid-coast Maine to
10 build a land-base salmon farm yesterday. First, he
11 cited the warming oceans as the basis for pursuing a
12 land-based fish farm and then noted that -- that
13 maine has cold, clean water resources as the basis
14 for NAF coming here. But this project proposes to
15 dump 7.7 million gallons a day into the shallow
16 estuary of the upper Penobscot Bay at a depth of
17 approximately 35 feet of wastewater that is 5 degrees
18 to 33 degrees warmer than the ambient water
19 temperatures of this area at various times. To put
20 the volume of wastewater in this perspective, the
21 waters from this facility for the entire Milliken
22 Bayside is only permitted to dump 7 million gallons a
23 year into the same area of Penobscot Bay.

24 The presence of HoltraChem mercury in this
25 area is not a matter of speculation by the

1 intervenors. The amount and location of HoltraChem
2 mercury, buried or otherwise, that can impact this
3 environment of the Penobscot River watershed and its
4 biota has been the subject of one of the most
5 extensive studies ever conducted of the impacts of
6 industrial dumping of inorganic mercury into an
7 aquatic environment ever conducted in this country.
8 The NRDC and the Maine People's Alliance filed suit
9 in federal court in the late 1990s --

10 MR. DUCHESNE: A little bit slower.

11 MS. TUCKER: Sorry. -- over the damage done
12 to the Penobscot River watershed including Penobscot
13 Bay and the upper estuary from HoltraChem's mercury
14 dumping. Under the direction of the federal court in
15 Bangor a panel of neutral court appointed experts did
16 a two phase study over more than a decade to
17 determine where there was mercury in the river and
18 bay attributable to the 12 tons plus of mercury
19 HoltraChem dumped into the river beginning in 1969.
20 The third phase determining where active remediation
21 is needed for several areas where the mercury has not
22 been buried by the grace of Mother Nature by natural
23 attenuation of sediments over time is ongoing. The
24 Penobscot River Mercury Study Phase 1 and 2 studies
25 are accessible through DEP's own website and the

1 NRDC's Mallinckrodt website and I give that and I
2 will circulate it to everyone. Frankly, the NRDC's
3 is a little easier to use. No offense.

4 As long as the mercury remains buried
5 according to the court's experts, it poses no risk to
6 the health of the bay or its residents, human or
7 otherwise. Where the mercury is in contact with the
8 methylating bacteria in the bay and river
9 methylmercury is formed and can contaminate the
10 entire food web bioaccumulating and biomagnifying as
11 it goes up the food chain. For this reason, the
12 court's experts said no remediation by dredging
13 should be done in the areas where natural processes
14 have buried the mercury. Dredging for remediation
15 was only recommended in areas where the mercury
16 remains at the surface causing active methylmercury
17 contamination. Pretending this mercury does not
18 exist will not prevent an environmental and economic
19 disaster in the mid-coast region if Nordic disturbs,
20 resuspends and spreads the HoltraChem mercury that
21 will not just impact Penobscot Bay but will damage
22 the economy, the entire State of Maine and the
23 reputation for wholesomeness of all lobsters sold
24 under the Maine lobster brand. However, NAF has
25 repeatedly falsely asserted to this Board including

1 today and to the Legislature last section that there
2 are no mercury levels of concern in the area NAF
3 proposes to dredge, blast and develop despite the
4 lack of any sediment testing done along that route.

5 Despite this, as will be discussed in more
6 detail by Paul Bernacki, a DEP certified erosion
7 control specialist in Maine, NAF has, according to
8 its own NRPA application and exhibits, failed to do
9 the testing -- necessary sediment testing required of
10 all proposed dredge projects, let alone the specific
11 sediment testing that the experts who have conducted
12 the PRMS have said is needed to show the amount and
13 location of buried HoltraChem mercury.

14 In addition, neither DMR nor the applicant,
15 NAF, has complied with the statutory requirements in
16 38 MRS, Section 480D, Subsection 9 for a
17 determination of the impacts of the dredging proposal
18 on fisheries and commercial fishing. Lobstering
19 representative intervenors, Wayne Canning, who is the
20 Zone D lobster representative for District 11, which
21 are the lobstermen that fish in this area, and David
22 Black will discuss their personal knowledge regarding
23 the presence of lobsters and crabs and other
24 commercial fishing in the area proposed for the NAF
25 pipeline, which would be permanently lost to fish --

1 fishermen. The impact on lobster and crab fishing in
2 the upper estuary from HoltraChem mercury
3 contamination, the impact of any dredging on lobster
4 and crab fishing and the danger posed by the proposed
5 pipeline installation methods. They will discuss the
6 closures of areas in the upper bay to lobster and
7 crab fishing where HoltraChem mercury is present.

8 Finally, Mr. Bernacki will be discussing the
9 failure of NAF to do proper sediment testing along
10 the route to determine the suitability of this area
11 for the proposed installation method change as well
12 as the prior installation method of the under water
13 sea wall but now the dangling method over the bottom.
14 Thank you.

15 MR. DUCHESNE: Great.

16 MS. BENSINGER: A Board member has asked
17 that we clarify based on what's put up there, and I
18 think I can do it, correct me if I'm wrong, that
19 Mr. Bernacki does not work for the Maine Department
20 of Environmental Protection and, correct me, and that
21 it is -- what that means is he has a certification
22 from the Maine Department of Environmental Protection
23 as an erosion and sedimentation control consultant.
24 Would that be correct?

25 MS. HALLOWELL: Yes.

1 MS. BENSINGER: Yes. And that's correct?

2 PAUL BERNACKI: Yes.

3 MS. BENSINGER: Thank you.

4 MR. DUCHESNE: Great. Okay. One
5 announcement also for the public, if I might. We
6 have been talking about what slides will be
7 permissible in the slideshow that's approaching. I
8 just need to explain to the public, I think, who may
9 be curious about why certain slides are not allowed
10 and some are. The hearing process is regulated by
11 state law, the Administrative Procedures Act, and
12 also by state DEP rules. Those rules require
13 pre-filed testimony by certain procedural deadlines.
14 Anything after that may be inadmissible and usually
15 is inadmissible. To the extent that a slideshow
16 comes in at the last minute which augments the
17 presentation that's fine, but it's not an opportunity
18 to put in information that was not previously
19 admissible and that's why there is a concern about
20 does this slideshow comply with the law. It's
21 nothing against what may have been on the slide, it's
22 really just a procedural requirement of the law.

23 The second thing is in the opening statement
24 I think TRI was mentioned a couple of times. In my
25 opinion there is wide latitude during an opening

1 statement, however, during testimony, especially
2 summaries of pre-filed testimony, should it come up,
3 I would expect a quick objection and I would suspect
4 an even faster sustained.

5 MS. TUCKER: There is no discussion -- I
6 should have specified. I was trying to cut my thing
7 down, but I left out the paragraph that I said we are
8 absolutely not discussing TRI at all.

9 MR. DUCHESNE: Yes. No, I was just
10 clarifying for the public and all parties.

11 MS. TUCKER: Yes. Thank you.

12 MS. TOURANGEAU: Before the testimony starts
13 can, we confirm that the witnesses have been sworn?

14 MS. BENSINGER: Have you been sworn?

15 WAYNE CANNING: Sworn this morning.

16 DAVID BLACK: Yes.

17 MS. TOURANGEAU: Mr. Bernacki?

18 MR. DUCHESNE: Yes? Is that a yes?

19 PAUL BERNACKI: No. That's a no.

20 MR. DUCHESNE: Okay. Would you please stand
21 and raise your right hand. Do you affirm the
22 testimony you are about to give is the whole truth
23 and nothing but the truth?

24 PAUL BERNACKI: Yes, sir.

25 MR. DUCHESNE: Thank you. We may begin.

1 PAUL BERNACKI: Good afternoon, everybody,
2 the Board, Attorney General's Office and the hard
3 working, dedicated staff at the DEP, Commissioner
4 Reid. Thank you for all of the hard work --

5 MR. DUCHESNE: This may be a case where
6 the microphone needs to be closer for people up back.

7 PAUL BERNACKI: Thank you for all of the
8 hard work and effort you've put into this. And I --
9 I'm not very used to doing this, but I know you all
10 pretty well by this point and some of you very well
11 and I am going to speak colloquially and directly. I
12 too have no axes to grind in this except that this is
13 my home, the bay is a place I've been swimming and
14 boating in since I was a child and I care very
15 deeply, so with that I'll get started.

16 My name is Paul Bernacki. I am a Maine DEP
17 certified erosion and sedimentation contractor, my
18 license number is 2767, with over 40 years of
19 experience in wetland consultation and land
20 management, shorelands projects, upland, forest farm
21 management projects. My practice and experience in
22 the mitigation of erosion via living shoreline, plant
23 and natural material stabilizations and getting
24 permits from the DEP for various structural shoreline
25 and intertidal projects. I represent the interests

1 of and manage the shorelands of multiple landowners
2 in the area that will be directly and indirectly
3 impacted by the proposed NAF project. I have been
4 and continue to act as a consultant and intervenors
5 Mabee-Grace whose shoreland I manage and also as an
6 advisor to the Maine Lobstering Union.

7 In the normal course of applying for DEP and
8 town permits, designing and implementing shoreland
9 projects, I have gathered 40 years of working
10 experience involving property boundaries, practice
11 and have formal associations with licensed surveyors
12 and engineers. As a result, I have extensive
13 personal and professional experience locating things
14 on the ground, high and low tide marks and whose
15 property is whose so I don't run a backhoe on
16 somebody else's property. Locating mean and normal
17 low tide locations is essential to my practice as I
18 am required by law to accurately locate geographical
19 legal boundaries, features, monuments, structures for
20 permitting and construction of every shoreland
21 project I do. I have some 35 years of practice in
22 interpreting actual property law, easement boundary
23 descriptions and plans and surveys as related to the
24 projects I am supervising and designing.

25 So this is state law. I don't -- I don't

1 think it's very controversial. We've had it around
2 for quite a while, I think the '70s, and -- the
3 National Resources Protection Act and it's the law
4 that controls what I do on the shoreland and what I
5 do to habitat and how I conduct myself on people's
6 property in relationship to the law. If I violate
7 this law, I am in a lot of trouble and I try very
8 hard not to do that. I have -- I have found that in
9 my practice and in relating to my customers, the DEP
10 and my environment that reading the preamble, the
11 findings and purpose of this Act are profound and --
12 and very important because all of us who work with
13 this we get into the exhibits and the lines and the,
14 you know, details of filling out the applications and
15 the engineering, but the findings and purpose of the
16 actual law are -- are kind of like the guiding
17 principles of what we are doing and why we are doing
18 it as opposed to the details of each project, so I'm
19 just going to do this briefly.

20 Findings, purpose, shore, tidal, the
21 Legislature finds and declares that the state's
22 rivers, streams, great ponds, fragile mountain areas,
23 fresh water wetlands, significant wildlife habitat,
24 coastal wetlands and coastal sand dune systems are
25 resources of state significance. These resources

1 have great scenic beauty and unique characteristics,
2 unsurpassed recreational, cultural, historical
3 environmental value with present and future benefits
4 of the citizens of the state and that uses are
5 causing rapid degradation and in some cases the
6 destruction of these critical resources producing
7 significant adverse economic and environmental
8 impacts and threatening the health, the safety and
9 the general welfare of the citizens of the State of
10 Maine. The Legislature further finds and declares
11 that the cumulative effects of frequent minor
12 alterations and occasional major alterations of these
13 resources pose a substantial threat to the
14 environment and the economy of the state and its
15 quality of life. This article is known and may be
16 cited as the Natural Resources Protect Act, but we
17 all call it NRPA.

18 This is also not controversial in any way
19 for us to look at. This is the application that
20 Elizabeth Ransom signed on behalf of Erik Heim, so
21 she's the agent and I do this all of the time. I
22 sign this application and I swear to tell the truth
23 in the application. And the application has some
24 very specific details and in my -- in my review
25 here -- my -- my thinking on this review and the next

1 paragraph of my pre-filed testimony is the thinking
2 of the review and whether or not this application and
3 all of its attachments have been sufficient for my
4 review to understand whether or not there is a
5 problem here.

6 That's what I've been asked to do and -- and
7 as you can see, I have a file. I've been working on
8 this for a year-and-a-half. As Mr. Martin knows,
9 I've been working on it for a year-and-a-half and I
10 think as part of my qualifications I just want to say
11 the documents that I have reviewed, I think that's
12 appropriate. Nordic -- and a lot of these are the
13 applicant's actual filed attachments to this
14 application and, again, I don't think that's any
15 problem for anybody here, that's what we're supposed
16 to be working on. So we have Nordic Aquafarms
17 seawater access system, construction narrative, and
18 this is the latest revision, which is January 6,
19 2020, so sometime during this Board process there has
20 been another revision of this, which I have in my
21 hand and I've reviewed. Maine Department of
22 Environmental --

23 MS. TOURANGEAU: Objection.

24 PAUL BERNACKI: -- Protection --

25 MS. TOURANGEAU: Objection. I think that

1 that submission is not actually to the Department.

2 PAUL BERNACKI: Okay. Forget that one.
3 Somebody else can look at that.

4 MS. BENSINGER: And it is beyond the scope
5 of your pre-filed testimony.

6 PAUL BERNACKI: No, I don't believe so.

7 MR. DUCHESNE: But if you decide, you can go
8 ahead without it.

9 PAUL BERNACKI: Yeah, yeah, thank you, sir.
10 Good work. Maine Department of Environmental
11 Protection issue profile. And I've read the NRPA
12 preamble and it comes with a great guidance document.
13 It's Natural Resources Protection Act and it's a
14 15-page document that doesn't print page by page and
15 it's general information and basically how to go
16 about doing it and it's another guideline. Another
17 DEP information sheet, which is the guideline for
18 restoration plan for shoreland clearing violations.
19 And, of course, I just recently found out that I was
20 reviewing a memo by Ed -- Edward Cotter from Monday
21 that was in answer to some of the things that I
22 filed, so I referred to this, but I'm not quite sure
23 if I can refer to it as except as I did with my
24 pre-filed testimony before it was there.

25 MR. DUCHESNE: Yes, in the context of your

1 pre-filed testimony if it's consistent, that's okay.

2 PAUL BERNACKI: Thank you. The Attachment
3 1-B -- well, it's 7.0, Attachment 7, construction
4 plan, and it's not dated, so I don't -- I don't
5 really know where it fits in or if it's been updated,
6 but it's the applicant's construction plan. And in
7 the interest of brevity and time, you see I have all
8 these notes, but I realized somewhere along the
9 process that there are too many things to talk about,
10 so I've looked at all of this stuff and I've studied
11 it all. And this is pre-filed testimony attachment
12 that's been accepted, the Penobscot River Mercury
13 Study, Chapter 5, and these are the excerpts and you
14 all have a copy. Another document that's been
15 accepted is -- is the -- a fellow named Jason Jonkman
16 was the lead author on this and I've spoken with him
17 several times. He's out in California and it's
18 the -- it's about wind and it was paid for by the
19 federal government Department of Energy, but it --
20 it's a development of a conceptual site model for all
21 of the things that a large infrastructure that
22 involves anchors, cables, pipelines, things like that
23 that come from a wind mill site off-shore and it's a
24 10-page document and the DEP has this to review and
25 recommend to the Board as to its pertinence. I did

1 have a lot of notes, but I'm not -- that's their job
2 now. Hurry up. Hurry up.

3 (Laughter.)

4 PAUL BERNACKI: So Tier 2-3, individual
5 permit, Block 27, Appendix A, add others if required,
6 I'm looking at Appendix B of the application, I've
7 reviewed that. I've reviewed it fairly thoroughly
8 because it's the thing that I most like doing when I
9 get to a jobsite is walking on the beach and looking
10 around and filling out this beautiful little
11 checklist and I have filled out this little checklist
12 for myself. I've got a blank and I've reviewed Miss
13 Fiorillo's statements of -- involving that and this
14 is one of the documents that I found to be
15 insufficient in order for this Board to review as
16 I've stated in my third -- one, two, three -- fourth
17 paragraph, which I haven't read yet. I will read in
18 a moment.

19 So under activity description the
20 applicant's expert forgot to check the box that says
21 dredge and I will let -- I will let the DEP and the
22 Army Corps of Engineers finish their findings on
23 whether or not excavation and side casting is
24 dredging or not. I've reached my conclusion and you
25 probably know what it is.

1 Another -- the next thing down that I find
2 significant is that the agent's expert says that
3 the -- there are zero feet of indirect impact to
4 intertidal/subtidal and I really don't see how
5 Cianbro with three giant barges and a timber matway
6 could have zero impact. I never have zero impact
7 when I'm working.

8 Shoreline character, again, the applicant
9 didn't check bluff bank height from spring high tide
10 and her picture, which is -- I think we've accepted.
11 12 minutes. There it is. This is the applicant's
12 picture on Appendix B identified as above. And so
13 right in the center of this picture you can see a
14 cottage to the right and just to the left of that is
15 the coastal wetland and in that coastal wetland right
16 there is the cottage and then the coastal wetland,
17 that's where the pipe comes out right there. You can
18 see that to the right of it is a coastal bluff and
19 I've actually observed this lately and it's eroding
20 and it's Boothbay loam, silt and there is active
21 erosion going on here on the Eckrote property. And
22 immediately to the left of this there is a stream --

23 MS. TOURANGEAU: Excuse me.

24 PAUL BERNACKI: Yes.

25 MS. TOURANGEAU: I'd just like to point out

1 for the record that while the picture and the block
2 to the right-hand side of it were taken from the
3 report, all of the text above the picture, I believe,
4 has been added and is not in any of our materials.

5 PAUL BERNACKI: Exactly, I've added it to
6 describe this thing exactly because I was asked to
7 have --

8 MS. TOURANGEAU: I'm not objecting, I'm
9 pointing out --

10 PAUL BERNACKI: Thank you.

11 MS. TOURANGEAU: -- that there was a change
12 from the documents that are in the record.

13 MR. DUCHESNE: And there is some discomfort
14 from the Presiding Officer that when something is
15 taken from the application and used, that's fine.
16 Once new text is added to it it's basically changing
17 the exhibit in a way that starts to get
18 uncomfortable, so I'll let it go a little further,
19 but if there is a lot of this then we may have to
20 move on.

21 MS. TUCKER: We actually added that
22 description of where it came from so that people
23 would know where it came from, so --

24 MR. DUCHESNE: Yes, and it's simply okay to
25 show the exhibit and to say where it came from, but

1 to actually alter the exhibit --

2 PAUL BERNACKI: I'm sorry, I'll just talk
3 about the bluff. And to the left is a bluff, but
4 more importantly in the bluff there is a structure
5 and the applicant didn't notice that there was
6 actually a structure there. And a little further
7 down its current state of signing adjacent upland and
8 there is some residences along here, but the vast
9 majority of the entire NRPA application site is
10 undeveloped and is essentially not too bad wildland.

11 Coastal characterization. Time of survey.
12 I have reviewed the direct testimony of the
13 application, various exhibits and other material
14 submitted by Nordic Aquafarms in support of their
15 application. I have determined these to be
16 incomplete in very many ways and inadequate to make
17 an accurate assessment of all the potential impacts.
18 This testimony is submitted as rebuttal testimony to
19 discuss the blaring omissions in the filings the
20 applicant has provided to the Board and Department.
21 This testimony supplements my prior citizen's
22 comments which are incorporated by reference herein.
23 And I already swore that I am a truthful man.

24 And I've skipped to Appendix B. Under NRPA
25 Chapter 418 and subsections thereof, NAF must be

1 required to address various requirements for a
2 proposed reuse of dredge spoils resulting from the
3 proposed NAF pipeline trenching, i.e., dredging. The
4 blasting, redeposit of dredge spoils amounting to at
5 least 30 to 40,000 cubic yards. Adequate studies of
6 this critical data are absent from the material
7 submitted to date by this applicant. They tested but
8 not on the actual site of the testing, the proposed
9 lease area from this submerge land as CS-101 chose.
10 This area has been identified as having significant
11 HoltraChem mercury deposits according to the Phase 2
12 sediment study conducted by the federal court's
13 experts. I have previously submitted Chapter 5 of
14 the federal court's Phase 2 study to the DEP staff
15 for consideration and incorporate that document here.

16 The core sampling done by the federal
17 court's expert was done using the most accurate
18 method for identifying the amount and location of the
19 mercury deposits. This method was developed by the
20 court's neutral experts more than a decade ago during
21 the Phase 1 portion of their studies for the federal
22 court. The Penobscot River Mercury Study standard
23 requires an adequate number of core samples taken
24 from a depth of 90 centimeters with every 1
25 centimeter segment tested for mercury from 0 to 20

1 centimeters, every 2 centimeters segment tested from
2 21 to 40 and every 5 centimeters segment tested from
3 41 centimeters to the depth achieved down to 90
4 centimeters where possible. And I want to add that
5 the federal standards require that whatever you're
6 going to call this trench that the dredging of it
7 should be tested to the bottom of the dredging, so
8 that would be down to 10 feet because that's what
9 you're going to be dredging up. Rather, the testing
10 submitted by the applicant was for only three cores,
11 not the whole site, not on the site of the actual
12 project that's been selected at this point ranging in
13 depth from only 1.5 to 6.5 feet, roughly 45 to 200
14 centimeters, were done along the abandoned second
15 pipeline route. Further, the 1.5 and 4.5 cores were
16 combined with each other prior to testing and the 6.5
17 foot core had all the material within the core
18 samples combined diluting the level of mercury by
19 mixing contaminated sediments with clean, glacial
20 till and lower levels. I have till -- all of that
21 has been struck and disappeared.

22 I am going to really summarize this next
23 little piece, which is that as an erosion control --
24 certified erosion control contractor, I have looked
25 at this site very carefully, which is what I'm

1 required to do and I don't believe there has been any
2 testimony by another certified contractor today, at
3 least that I know of, I've looked at everybody's
4 credentials. And from the wetlands, the little salt
5 marsh 850 feet through this sandy, gravel and bedrock
6 area Cianbro proposes to dig a trench that's 15 feet
7 wide at the bottom, 30 feet wide at the top starting
8 right at a fresh water stream and then chew up the
9 material, blast out the ledge you see in the
10 foreground or any ledge they encounter. They haven't
11 done any geotech tests so they have no idea if there
12 is ledge. And then in the middle of the winter
13 during November stormy season they're going to expose
14 this whole thing and then shove these unconsolidated,
15 saturated, mixed up materials back into this hole.
16 They're going to put gravel around the pipelines down
17 below and at the place this pipeline starts there are
18 two streams coming out that flow an unknown, untested
19 amount of water during the spring floods. What's to
20 keep that water from going down into the crushed
21 stone around the pipe and forming an under, you know,
22 like a culvert getting washed out in your driveway in
23 the springtime? What's to stop it? There is no
24 plan. That's why I can't review -- if I could review
25 the plan, I would review the plan, but there is no

1 plan. What's to stop that unconsolidated 30 foot
2 wide trench in winter, in stormy season, in the
3 storms of February like we had three years ago which
4 took out banks all the way around that coastline here
5 with 8 foot waves. What's to stop that big 30 foot
6 wide trench of chewed up materials from simply
7 washing out and turning into -- washing all the way
8 down to the gravel for that matter. And all that
9 material and all that silt is going to go this way
10 and that way after the silt curtains. There is no
11 plan for the consolidation. There is no plan for rip
12 rap on top of it. There is absolutely no plan for
13 putting plants on top of it. Now, I'm a living
14 shoreline specialist and what I see is that it's
15 going to tear a 30 foot wide and 850 foot long trench
16 that's going to constantly be eroding and not be
17 stabilized or zero impact at all. Under water, I see
18 100 foot wide area that's been chewed up with a 5 ton
19 clamshell dredge and a giant long-armed excavator
20 with a 3 or 4 yard bucket. Materials are going to be
21 dropped down through the water column for over 3,000
22 feet into a big sloppy pile next to the big sloppy
23 ditch because it's unconsolidated, soft sediments.
24 Elizabeth says very soft sediments. They're very
25 soft sediments and 100 foot wide by close to 2,000

1 foot long not including intertidal, subwater trench
2 is going to be dug and the side-casting which is an
3 official Federal Clean Water Act term, it's called
4 side-casting. And side-casting is redeposited dredge
5 spoils. This is what the DEP guideline says, this is
6 what the federal law says and this is what Peter
7 Tischbein said to me last week and three weeks
8 before. We've been talking about it. I've been
9 studying the law. I've been keeping up-to-date with
10 it. This is a dredging operation plain and simple.

11 And I'm getting a note that I have to wrap
12 it up, so that's saves you the trouble. So in
13 wrapping it up, yeah, I covered that. I did that
14 pretty well. Side-casting. The courts have
15 found...da, da, da, da. If anybody would to like to
16 know anything more about this project I've been
17 working too hard on it and have all of the documents
18 in one place and I strongly, strongly feel that
19 Cianbro has not done due diligence that Mr. Jim
20 Wilson who is their project engineer for this has
21 signed one document and he's not here today and I
22 think we should hear from Jim Wilson if we -- if we
23 trust Cianbro, why isn't Cianbro here? Why did they
24 send a young woman who is not certified -- not a
25 certified contractor in the state? She mentioned in

1 her pre-filed testimony that she was certified and
2 then I called up my certifying contact with the DEP
3 and, in fact, she's not certified. So I'm ready to
4 be quiet now now that you're ready to tell me to be
5 quiet. Thank you.

6 MR. DUCHESNE: Great. Thank you. Continue.

7 MS. TUCKER: Next will be David Black from
8 Belfast, Maine.

9 DAVID BLACK: Okay. This microphone works.
10 Mr. Duchesne, Presiding Officer, members of the Board
11 of Environmental Protection and staff, my name is --
12 and guests, my name is David Black. I am a seventh
13 generation inhabitant of this area, a resident and
14 taxpayer of Belfast, Maine, USA and a lobster
15 fisherman working in upper Penobscot Bay for 56
16 years. I am not today being paid as a scientist, I
17 am not being paid as a lawyer, thank goodness, and I
18 am not being paid as a bureaucrat. However, if I
19 were a bureaucrat and I needed a presiding officer, I
20 would be calling Mr. Duchesne because he has kept
21 this vessel on course for the last two days and I
22 appreciate that very much. Thank you.

23 Please include the information in this
24 statement as part of the discussion on applications
25 before you regarding the Nordic Aquafarms proposal to

1 construction multiple pipelines into upper Penobscot
2 Bay and Northport for the purpose or purposes of
3 providing intake and seawater -- intake of seawater
4 and the discharge of effluence from a recirculating
5 aquaculture facility proposed by Nordic Aquafarms to
6 be located in Belfast, Maine.

7 As a lobster fisherman, I derive a
8 significant portion of my annual income from the area
9 beneath and adjacent to the proposed location of the
10 Nordic Aquafarms pipeline, therefore, I feel I have
11 considerable local knowledge of the area and I feel
12 obligated to use this opportunity to share some of
13 that knowledge with you. I am sure that upon your
14 total review of the local information regarding this
15 project many concerns will arise concerning the
16 environmental dangers and consequences of this
17 proposed pipeline.

18 I would like to give you some history of the
19 area. Penobscot Bay has a long and productive
20 history of fishing, which has been diminished over
21 time due to many municipal and industrial pollution
22 sources. These pollution sources include decades of
23 raw municipal sewage disposal from many points around
24 the bay, untreated chicken waste from area poultry
25 plants, fish waste from a long operating fish canning

1 factory and mercury contamination in the bay from the
2 discharge of effluence from a facility in the
3 Penobscot River. Add to these, several dredging
4 projects in Belfast, Searsport and other ports and
5 you begin to see the degree of pollution this bay has
6 suffered in the past. I will discuss these pollution
7 concerns separately.

8 Municipal sewage. When I was young --
9 actually, I am young.

10 (Laughter.)

11 DAVID BLACK: When I was younger, raw sewage
12 was a -- it's late in the day, okay, we've got to add
13 a little something to this, okay. -- raw sewage was
14 a common site in the bay. In recent decades the
15 municipal sewage outfalls around the bay have mostly
16 been identified and corrected. The result has been
17 lower fecal coliform levels and increased
18 availability of clean shellfish resources in the bay.

19 Industrial waste. During the 20th Century
20 there were two poultry processing plants and one fish
21 canning factory, as I said earlier, in Belfast that
22 dumped untreated chicken waste and some fish waste
23 through large pipelines directly into any Belfast
24 Harbor. The harbor was so foul with this effluent
25 that Belfast Harbor was listed in the U.S. Coast

1 Pilot publication as a harbor to avoid when cruising
2 the coast of Maine. After the closures of these
3 factories and the elimination of these discharge
4 pipes the bay is cleaner and more appealing to the
5 public and it is becoming a destination for many
6 visitors to Vacationland, however, I can tell you
7 that today the remnants of those discharges remain in
8 the sediment on the bottom of the bay. I believe it
9 will take many a lifetime for this area to completely
10 clean itself.

11 Dredging. In my experience whenever there
12 is a dredging project at Mack Point in Searsport
13 Harbor the lobster catch in the area slowed for
14 several years until the environment recovered.
15 Additionally, when Belfast Harbor was dredged in
16 2003, it took a decade for the environment to recover
17 according to a letter from a prominent lobster
18 fishermen's group to the Army Corps of Engineers in
19 2013, which I included with my original testimony.
20 Please note that the most recent attempt to dredge
21 Searsport Harbor was canceled due to environmental
22 concerns with the bay.

23 Pipelines. In the year 2000, a sewer line
24 of removed from the Belfast footbridge and it was
25 relocated and extended east to west across the bottom

1 of Belfast Harbor. This project stopped the summer
2 migration of lobsters into the river which previously
3 had produced very productive fishing for some. The
4 lobster resource in that area never recovered.

5 Mercury contamination. You've heard a lot
6 about this. I'll throw in my two cents worth.

7 Mercury contamination in the bay from decades of
8 unconfined industrial mercury pools in the Penobscot
9 River being moved down river by the current has
10 resulted in 13 square miles at the mouth of the
11 Penobscot River being closed to all lobster and crab
12 fishing due to methylmercury contamination in these
13 shellfish. Please note that that Nordic pipeline
14 site is less than 6 miles directly downstream from
15 that closed area. Further studies by the federal
16 court that is reviewing the source of that pollution
17 have identified buried mercury in other areas of the
18 bay and specifically in the area of the proposed
19 Nordic Aquafarms pipeline.

20 Impacts of this project. Can we now feel
21 comfortable with a new pipeline proposal by Nordic
22 Aquafarms to be constructed in Belfast Bay based upon
23 this history? Each of the aforementioned sources of
24 pollution were the result of projects permitted by
25 the State of Maine and by the federal government over

1 long periods of time. I can think of several reasons
2 to be very cautious of this project and they are as
3 follows; this proposed pipeline is to be located just
4 over one mile from the selected disposal area of the
5 recent and very controversial attempt to dredge
6 Searsport Harbor, which failed due to environmental
7 concerns. Dredging and blasting resulting from this
8 project will produce the same impact as other
9 dredging projects in the area. The construction and
10 operation of this pipeline 6 miles downstream of the
11 area closed due to mercury contamination is directly
12 in another area identified as containing buried
13 mercury that would be continuously impacted by the
14 operation of this project releasing mercury to be
15 ingested by sea life resulting in further -- possible
16 further closures of lobster and crab fishing areas
17 where I make my living.

18 Concerns. This project proposes discharging
19 7.7 million gallons of brackish and warm water into
20 the bay every day. I was -- I was -- it was
21 indicated to me by the project engineer for this
22 project who I talked with on the phone that this
23 large volume of water equals nearly 50 percent of the
24 total water volume of this RAS facility being
25 discharged daily. There is presently a RAS system

1 located in Franklin, Maine which is run by the
2 University of Maine. The operator of that facility
3 has stated to me that they discharge only 10 percent
4 of the total water volume daily, a significant
5 difference from what Nordic is proposing. This is
6 water that would be heated to between 5 degrees
7 Fahrenheit and 30 degrees Fahrenheit above the
8 ambient temperature of seawater from the bay
9 depending on the time of year combined with
10 groundwater from wells which will unquestionably
11 lower the salinity of the discharge water. It is
12 very unreasonable to assume that this water which has
13 been described by the applicant as cleaner than the
14 water being pumped into the facility from the bay
15 should be discarded so soon after mixing and heating.
16 This does not sound like a recirculating aquaculture
17 facility at all but rather a flow-through system. It
18 is my opinion that the discharge of this warm and
19 brackish water into Penobscot Bay will cause lobsters
20 to leave the area for more saline and temperate
21 conditions. This concern alone will cause great
22 economic hardship for myself and other fishermen.

23 The chief technical officer for Nordic
24 Aquafarms explained to me one day in his office that
25 all discharge water from this facility will be run

1 through a 0.4 micron. Now, they've stated 0.04
2 micron water filter before re-entering the bay.
3 Again, at the RAS facility system run by the
4 University of Maine the minimum water filter is 40
5 microns, about -- depending on which filter you use a
6 hundred times finer or a thousand times finer than
7 what is the standard for the RAS system in Franklin,
8 Maine. The manager of that facility stated that
9 filters less -- actually, stated that filters that
10 are finer than 40 microns would clog quickly and be
11 of no value. Nordic Aquafarms has submitted
12 technical data with their application stating that
13 lobsters are absent from this area of the bay.
14 According to DMR statistics, Department of Marine
15 Resources, the total annual landings of lobsters for
16 Waldo County have nearly doubled in the past decade.
17 The proposed location of this pipeline is where this
18 reported resource exists and thrives.

19 The present design of the pipeline structure
20 suggests an elevated structure secured by chains and
21 anchors. These anchors are proposed to be attached
22 in the silty bottom sediment directly in an area of
23 methane pockets which have been determined by state
24 geologists to be unstable. Traditionally, this very
25 area of the bay has been an occasional anchorage area

1 for ocean-going ships that for various reasons choose
2 not to anchor closer to the port of Searsport.
3 Picture a ship anchor hooked into a pipeline. You
4 got that picture, didn't you? Yeah, that's a good
5 picture.

6 As a fisherman working on this bay for 56
7 years, I have become a mentor for some of the younger
8 fishermen that are hoping to have opportunities to
9 live and prosper on this bay similar to those which I
10 have enjoyed for much of my life. And you had one of
11 them speak to you last night, Hunter Penney was
12 15-years-old and he is a lobster fisherman that
13 fishes in this area and he wants to make that his
14 career. He wants to keep fishing in Penobscot Bay.
15 The old timers always told me that it was my
16 responsibility to leave this bay in better condition
17 than when I found it for the benefit of the next
18 generations and that is exactly why I am speaking to
19 you today. The construction of this pipeline will
20 be -- will do nothing to improve the health and
21 viability of upper Penobscot Bay and will only serve
22 to diminish the quality of life presently essential
23 for the survival for its many inhabitants.

24 Please exercise your responsibilities as
25 representatives of the people of the State of Maine

1 and understand that a better solution for the
2 treatment of wastewater from recirculating
3 aquaculture must be found other than Nordic's out of
4 sight and out of mind pipeline. Your vote in
5 opposition to this project is in order. Leave this
6 bay better than it was when you found it. Thank you
7 very much for listening.

8 MS. TUCKER: And next, Wayne Canning, who is
9 the Zone D Lobster Council representative for this
10 area.

11 WAYNE CANNING: Good evening. My name is
12 Wayne Canning. I am a state representative of the
13 Lobster Zone Council in this zone up in the Zone D,
14 District 11 which covers Northport, Belfast,
15 Searsport, Stockton, Bucksport, Verona, Penobscot and
16 Castine.

17 The purpose of this statement is to provide
18 concerns and facts to the Maine Board of
19 Environmental Protection regarding the licensing
20 request for intake and discharge pipes proposed by
21 Nordic Aquafarms for the RAS project located in
22 Belfast to Northport. And I'd also like to make a
23 note is that each fisherman in this area or anywhere
24 is a business on their own. It is a business which
25 puts -- that helps the economy immensely and also

1 there is a lot of young people hopefully going to be
2 able to be in the fishery. I had one with me today.
3 It's my grandson. He's been in it three years now
4 and hopefully it will be there for him.

5 While every fisherman in Zone D in Penobscot
6 Bay will be vastly impacted by this project, those
7 individuals in my District 11 will be impacted most,
8 which would cover the Northport/Belfast area and
9 probably over towards Searsport and Islesboro. As I
10 discuss this project with fishermen regularly, it's
11 very clear that the majority of the fishermen working
12 in the area of this proposed pipe are very concerned
13 and opposed to this project. They're actually afraid
14 or scared that this project with the discharge volume
15 of 7.7 million gallons of water we may end up getting
16 this area closed too. If that's the case we're
17 totally out of business because we've already got a
18 closure over on the other side of Sears Island going
19 across to Wadsworth Cove due to the mercury.
20 Everything north of that there is no fishing. I used
21 to be there.

22 Local fishermen have the best knowledge of
23 the conditions in the bay and have seen the impacts
24 of other similar projects which have caused great
25 harm to the environment in the upper Penobscot Bay.

1 Example as follows. And David mentioned some of
2 these also. It's the dredging at Mack Point caused
3 the lobster production to decline in that area or
4 close to the area. For some reason when you disturb
5 the soil of the bottom then the lobsters can smell it
6 or whatever, I don't know what goes on, but they
7 don't -- they don't seem to be happy with it. The
8 dredging in Belfast Harbor in 2003 up in the mooring
9 fields. It was quite lucrative up in there, the best
10 I've ever seen it the years or so before that because
11 I was fishing both sides of the mooring field coming
12 out of the harbor or going in, whichever way I
13 decided to tend it. After they ran the sewer line
14 and dredged that harbor for the mooring field and
15 then they ran a sewer line up about that across the
16 east side to the west side that whole thing shut
17 down. I don't know, I tried it again this year this
18 past season some, you know, I spot tested it. Picked
19 up very, very few lobsters, so those lobsters aren't
20 going up in there anymore because of that
21 disturbance.

22 And I'm afraid that the Nordic Aquafarms
23 pipeline as proposed will affect the fishing down in
24 this area, which is not too far from where we are
25 today and we fish down through there quite heavily,

1 especially in the fall months when the lobsters are
2 leaving the area some, I fish it very, very serious.
3 I go all the way from Belfast down to Lincolnville, I
4 jump outside of that, I come back up the bay and I go
5 set over again, I'm going back down the bay and every
6 time I set over I'm going into deeper water, I'm
7 trying to find out where the lobsters have moved to.
8 And I probably -- I don't know if I should be telling
9 all this, but...

10 (Laughter.)

11 WAYNE CANNING: The lobster fishermen are
12 probably all going to be fishing in that water saying
13 here we go and I'll be out of business anyway.

14 (Laughter.)

15 WAYNE CANNING: So anyhow, when I get done
16 over there I'm over in the shipping channel, I'm over
17 on the Islesboro shore and I run them all the way up
18 into Searsport, which has something to do with the
19 dredging going on up in there that's why I'm familiar
20 with that process. So the dredging and the blasting
21 construction of this pipeline will cause lobsters to
22 avoid the area the same as it did in the other
23 dredging projects. And these lobsters will want to
24 go -- I think they're traveling in that area to come
25 in -- to get up in down by the Belfast Park area and

1 up through that side of that shoreline. They're
2 coming up from the bayside area. That's what I have
3 determined over a long period of fishing.

4 Buried mercury is also known as a
5 contaminant in the bottom sediment in this area.
6 This mercury contaminant sediment found to be in
7 these locations during the federal court's Penobscot
8 River Mercury Study will observably be disturbed not
9 only by dredging and blasting but by the continuous
10 operation of the pipeline. And -- and I have a --
11 and you folks already probably have all of this
12 information anyway where the mercury study was done
13 and it's closed. This doesn't show the closed off
14 area in this photo, but it also shows a light amount
15 of mercury. There is a color change that comes all
16 the way over on the bottom, comes across from Turtle
17 Head Islesboro, all the Belfast Bay area and
18 Searsport and right to the shoreline where this pipe
19 is going to be.

20 MS. BENSINGER: Excuse me, Mr. Canning, can
21 you just for the record identify what it is you're
22 pointing to? No, the -- the thing you had in your
23 hand just now that you were referring to.

24 WAYNE CANNING: What am I pointing for? Oh,
25 this paper here?

1 MS. BENSINGER: For the stenographer. The
2 court reporter has to --

3 WAYNE CANNING: Oh.

4 MS. TUCKER: I can identify that it was
5 actually attached to several things, but one of the
6 easiest ways to describe it is Nordic's Exhibit 39.

7 MS. BENSINGER: Thank you. I just wanted
8 the reporter to be able to reflect it. Thank you.

9 MS. TUCKER: Okay.

10 WAYNE CANNING: Okay. Where am I? Okay.
11 The Penobscot River is now closed to all lobster and
12 crab fishing as far as Stockton Harbor all the way
13 across to the southern part of Wadsworth Cove, which
14 is just a little north of Castine. That's a large
15 closed out area and that's to do with the mercury.
16 It has to do with industry, you know, for somebody
17 who wasn't -- the state or whatever wasn't paying
18 attention to what was being dumped overboard. That's
19 the opinion I get.

20 As any fisherman can tell you lobsters are
21 very sensitive to even slight changes in the
22 environment. This project proposes to dump enormous
23 amounts of brackish warm water in a small area of
24 Belfast Bay. This alone will cause lobsters and
25 crabs to move away and not return to the area. Many

1 fishermen will be displaced by the impacts of this
2 project due to the very territorial nature of
3 lobstering society we, as fishermen, it is impossible
4 to relocate your fishing business to someone else's
5 area. And you're pretty well here you are and this
6 is what you got, you better do the best can you with
7 it and hopefully it stays as good as it does.

8 Interestingly, the pipeline is located just
9 over one mile from the proposed dump site from the
10 Searsport Harbor improvement dredge project that
11 resulted in huge controversy and was finally canceled
12 because it was -- has caused so much destruction to
13 the environment and we're afraid that this project
14 could do the -- could be the same way. We're just --
15 we're real concerned. I mean, this is how we make
16 our living. It's scary really. I'm concerned. And
17 I'm an older fellow and probably I don't have that
18 many years left, but it's not me I'm worried about,
19 it's the people behind me and the younger folks who
20 are going to pursue this type of a job.

21 It's a very important -- the lobster
22 industry is a very important industry for Waldo
23 County. Remember that this is a very small area now
24 that we have a third of it closed off and up to 100
25 fishermen, which includes over the Castine area,

1 probably I'm going to say for this local Northport,
2 Belfast, Searsport location there is probably at
3 least 50 to 60 fishermen in the immediate area.
4 Lobster landings by these 60 fishermen are worth
5 three to five times the amount of those landings to
6 the local mid-coast economy according to the Maine
7 Lobster Institute. This is a significant economic
8 contribution to the Maine economy that will be lost
9 if this project is allowed to proceed.

10 Additionally, there are several local
11 fishermen who fish for crabs in the winter months
12 that would be impacted by this project. Because the
13 fishing for crabs -- that brings up another issue too
14 to do with Denis-Marc Neault's letter that he sent to
15 you folks. He stated that there wasn't any lobsters
16 or crabs -- or he didn't even mention the crabs. He
17 didn't even mention the crab fishery at all and
18 that's a pretty good thing up in this area. There is
19 probably five fishermen that's pretty much what they
20 target. So Dennis was incorrect with his statement
21 that he made to you folks. Which I don't know why
22 Denis didn't contact myself or someone -- because I
23 know Denis. I don't know him very well. I know him
24 through the, you know, when I'm with the DMR and my
25 connection with the zone council I've seen Denis

1 before and we've spoke.

2 MR. DUCHESNE: I'm just checking in with
3 you, Mr. Canning, on how much more as you're wrapping
4 up.

5 WAYNE CANNING: Oh.

6 MR. DUCHESNE: Just for time assessment.

7 WAYNE CANNING: Can we -- can we do it in
8 about five or six minutes?

9 MR. DUCHESNE: Can we do it in two?

10 WAYNE CANNING: Two? Oh, well, I guess
11 we'll have to, it sounds like, don't it, huh?

12 (Laughter.)

13 WAYNE CANNING: We'll try to do that. Boy,
14 I don't know. If I've got more can I submit this
15 tomorrow or something with the extra information I
16 don't get to say tonight?

17 MR. DUCHESNE: Just go right ahead and use
18 all of the next two minutes you want to.

19 WAYNE CANNING: Well, I'm chewing it up the
20 wrong way, I can tell you that this minute. So I'm
21 going to skip some of this. I'm going to say I'm
22 thinking that this has got to be a very, very serious
23 decision for you folks and that I think as the permit
24 or the way their application is set up now to pump
25 that 7.7 million gallons of water into a bay that

1 doesn't have any flushing action to speak of is a
2 high risk for the fishermen. I think that's going
3 to -- the potential -- a good potential, I feel, is
4 going to poach us, okay.

5 Now, I'm going to have to skip a lot of this
6 again, I guess, so we're going to go to Dr. Pettigrew
7 this morning. I was really interested in what he
8 said about the year-long study about the water
9 currents and the tides, I think that should be
10 something that Nordic Aquafarms should be required to
11 do. Maybe would make the fishermen and the local
12 people feel a little better depending on the results.
13 I think that year-long current and tidal information
14 should take place. And also he recommend a dye test.
15 The dye test is just a short-term test, but at least
16 it will be some test, but I like -- I like the sounds
17 of the one where you hook that up and do your testing
18 for the whole bay for a whole year for all seasons.
19 And in regards to Denis' statement about no lobsters,
20 there are some lobsters caught not too -- probably
21 within 2 or 300 feet from where that pipe is going to
22 stop, okay. That's me and this is my grandson and in
23 the back -- jee, I probably swallowed my cough drop
24 now.

25 MR. DUCHESNE: Are those lobsters legal

1 size?

2 WAYNE CANNING: Are they legal size? No, we
3 throw them back. We put them in the kennel.

4 MR. DUCHESNE: They're a little big.

5 WAYNE CANNING: Yeah, they're a little big.

6 (Laughter.)

7 WAYNE CANNING: No, we don't fool around
8 with -- we abide by the laws and regulations. I've
9 been at this a long time and I want to continue until
10 I can't go and I want the future young people to be
11 able to go through this whole process because, I'll
12 tell you what, you go out there in October and you
13 look back and you see all of the foliage, the
14 different colors and everything on a nice day, she's
15 some pretty, I can tell you that. But here is
16 something too kind of interesting, here is a picture
17 of a mother with a couple of young ones feeding on
18 shrimp. No one has mentioned shrimp that we have out
19 here.

20 MR. DUCHESNE: Yeah, we can't -- we can't
21 see from this distance.

22 WAYNE CANNING: You can't.

23 MR. DUCHESNE: Well, the older folks can't.

24 WAYNE CANNING: Well, maybe I can -- I know,
25 it's probably because it's not a colored picture,

1 that's why, but maybe I can get one made up and I can
2 turn it in tomorrow that you can take home with you.

3 MR. DUCHESNE: Well, great. If we can wrap
4 up at this point.

5 WAYNE CANNING: Yup. I'm all set. I just
6 want -- I just wanted to know if this pipeline from
7 Nordic continues forward with these young porpoises
8 and families feeding on the shrimp, which are coming
9 into the bay will they still be around.

10 MR. DUCHESNE: Mmm Hmm. Great. And just by
11 way of explanation to the public, we accommodated Mr.
12 Canning because he is an intervenor but has not
13 pre-filed any testimony. It could have been possible
14 for Nordic or any other parties to object and
15 potentially keep you from speaking, but I think
16 Nordic and others were considerate in allowing it to
17 go forward and the Board has, I think, profited from
18 it, so, again, we thank the parties for allowing it
19 to go forward. Thank you for speaking.

20 WAYNE CANNING: Well, thank you all very
21 much for letting me speak.

22 MR. DUCHESNE: Okay. We can go, I believe,
23 to cross-examination by Nordic.

24 MS. TOURANGEAU: Mr. Bernacki, did you
25 submit pre-filed rebuttal testimony on January 16,

1 2020?

2 PAUL BERNACKI: I think so.

3 MS. TOURANGEAU: Was your pre-filed --

4 MR. DUCHESNE: Microphone up, please.

5 PAUL BERNACKI: Yes. Hold on. Hold on. Go
6 ahead Joanna.

7 MS. TOURANGEAU: Did you submit pre-filed
8 rebuttal testimony on January 16, 2020?

9 PAUL BERNACKI: If the attorney will confirm
10 that, I guess so.

11 MS. TOURANGEAU: I think you have it. It's
12 got the date right on the top.

13 PAUL BERNACKI: I think so, yeah.

14 MS. TOURANGEAU: Was your pre-filed
15 testimony made under oath or affirmation that it's
16 true?

17 PAUL BERNACKI: Yes, ma'am.

18 MS. TOURANGEAU: Did you reaffirm that oath
19 or affirmation a few minutes ago?

20 PAUL BERNACKI: I did.

21 MS. TOURANGEAU: Thank you. I've got too
22 many papers up here.

23 PAUL BERNACKI: And what is this?

24 MR. DUCHESNE: Thank you.

25 MS. TOURANGEAU: These are sworn statements

1 from Mr. Dorsky and Mr. Gartley regarding the truth
2 of Mr. Bernacki's pre-filed testimony.

3 MS. BENSINGER: Um --

4 PAUL BERNACKI: I was -- I am afraid this is
5 about TRI and it should be rejected immediately
6 and --

7 MS. TOURANGEAU: It's impeachment testimony.

8 MS. BENSINGER: Wait a minute. Hold on.

9 MR. DUCHESNE: Okay. One at a time and
10 we're going to go --

11 MS. BENSINGER: The other parties need a
12 minute to look at it, so let's take a minute and we
13 do too.

14 MR. DUCHESNE: Yeah.

15 MS. BENSINGER: You gave us your original
16 here.

17 MS. TOURANGEAU: On purpose.

18 MS. BENSINGER: Oh, okay. All right.

19 PAUL BERNACKI: Well, I'll start here
20 because --

21 MS. BENSINGER: Hold on.

22 PAUL BERNACKI: Oh, I'm sorry.

23 MR. DUCHESNE: Thank you. We are on a break
24 so we can see what we've just been handed.

25 MS. BENSINGER: Can you tell us where in

1 Mr. Bernacki's testimony these statements are and
2 whether or not they are part of his pre-filed
3 testimony that was stricken?

4 MS. TOURANGEAU: They are part of his
5 testimony that was stricken, but the --

6 MS. BENSINGER: Okay.

7 MS. TOURANGEAU: -- the statements do not go
8 to the substance, they go to the veracity.

9 MS. BENSINGER: But this is a topic that is
10 not a hearing topic.

11 MS. TOURANGEAU: Correct, which means it
12 remains in the record just not on the hearing topic
13 as a comment.

14 MS. BENSINGER: No, it's stricken. His --
15 oh.

16 MS. TOURANGEAU: When it's not on a hearing
17 topic it's still in.

18 MS. BENSINGER: Oh, you're right. So but
19 it's -- are you going to his general truthfulness?
20 Is that the --

21 MS. TOURANGEAU: Yes. It's just for
22 impeachment purposes. I'm not going to talk about
23 the substance. I'm just going to --

24 MS. TUCKER: Then we're going to need to
25 talk to Mr. Dorsky whose survey has been designed --

1 MR. DUCHESNE: Well, again, one at a time
2 and I have to designate who gets the microphone so we
3 can capture it on audio.

4 MS. TUCKER: Oh.

5 MR. DUCHESNE: So to the -- Ms. Tourangeau,
6 have you made your point long enough for it to be
7 addressed by Ms. Tucker?

8 MS. TOURANGEAU: The point of this
9 impeachment exhibit is that testimony that was
10 submitted by a witness that was designated by an
11 intervenor is false. It's not going to the substance
12 of requirements, it's going solely for impeachment
13 purposes as to the truth of the testimony that's been
14 presented to this Board.

15 MS. BENSINGER: But that testimony isn't the
16 subject of this hearing, so it's not before the
17 Board. The Board hasn't read it, so.

18 MS. TOURANGEAU: As for truthfulness though
19 I think it's relevant just in the same way that
20 earlier today we were talking about testimony in
21 front of the Legislature with regards to impeachment.

22 MS. BENSINGER: But that was on a topic that
23 was relevant to the hearing.

24 MS. TOURANGEAU: So I'm saying that him
25 swearing to the truth before this Board is relevant

1 to the Board's proceedings and its consideration of
2 the weight and credibility of his testimony.

3 MR. DUCHESNE: First of all, I'd like to
4 hear from Ms. Tucker and then I'm ready to proceed
5 with a ruling on this.

6 MS. TUCKER: I would note that in -- and
7 I'm -- I tried not to go to TRI. It wasn't me, I
8 just want it for the record.

9 PAUL BERNACKI: Me too.

10 MR. DUCHESNE: Yes, and you won't now
11 either. This is getting to the truthfulness of the
12 statement.

13 MS. TUCKER: Yes. Well, so what I -- and as
14 for the truthfulness of the statement from the
15 affiant that signed this filing, Exhibit 41, on May
16 16, 2019, the same James Dorsky filed a document with
17 the Submerged Land specifically saying that the
18 Eckrotes -- acknowledging that the Eckrotes didn't
19 own this intertidal land and saying that Nordic now
20 owns it based on released deeds that they say they
21 have filed that have blacked out grantors. I don't
22 think you want to go into travail this patch of
23 weeds, but I think that this document should be
24 struck. There is no allegation that anything in the
25 unstruck version of this was a lie and I would have

1 to say that this statement from Mr. Dorsky and
2 Mr. Gartley is not accurate because even Mr. Dorsky
3 has said that Nordic doesn't own this land, that
4 Harriet L. Hartley owned this land and retained it
5 when she conveyed the land to Fred R. Porter, but now
6 magically these heirs have -- that we don't know who
7 they are because their identities have been blacked
8 out and their address has been blacked out and it's
9 unrecorded for having --

10 MR. DUCHESNE: Okay. Again, we're getting a
11 little too far into the TRI argument and not the
12 veracity of the witness or the sworn statement.

13 PAUL BERNACKI: (Ripping up his copy of the
14 impeachment statement.)

15 MR. DUCHESNE: Given that it's not a hearing
16 topic, I'm advised by counsel, if that's the right
17 term, it's not a hearing topic, it's -- and it's
18 getting into the issues of TRI is not something we're
19 prepared to do at this moment, I'm going to set this
20 aside and rule that we're not going to go down that
21 road at the moment. However, I think we're going to
22 be open to impeachment of the witness if there is
23 other reason to do so.

24 MS. TUCKER: And if that's the case, I have
25 previously discussed with counsel about the possible

1 impeachment of Mr. Perkins because when he was asked
2 the question by Mr. Sanford --

3 MS. TOURANGEAU: Objection.

4 MS. TUCKER: -- about the finances he didn't
5 reveal that Cianbro was a major donor to TRI.

6 MR. DUCHESNE: Okay. Different topic.
7 Sorry. Different topic.

8 MS. TUCKER: I was told I couldn't respond
9 and I abided by that, but if this -- if this stunt is
10 going to be pulled here then I want to talk about Mr.
11 Perkins' veracity for failing to identify to
12 Mr. Sanford that Cianbro who is putting this pipeline
13 in is a major contributor to them.

14 MR. DUCHESNE: Okay. We got that part.
15 Thank you very much.

16 MS. TUCKER: Thank you.

17 MR. DUCHESNE: You may proceed. Yeah, okay,
18 these aren't in at the moment. Well, they're not in.
19 However, it's duly noted.

20 MS. TOURANGEAU: I would move that those
21 comments that are addressed in that statement be
22 stricken from the administrative record entirely and
23 not left in for other purposes.

24 MS. DUCHESNE: Thank you. We'll take that
25 under advisement.

1 MS. TOURANGEAU: Thank you. Mr. Bernacki,
2 are you aware that the PRMS are not legal methods for
3 characterizing mercury?

4 PAUL BERNACKI: I don't know -- I think a
5 federal court and Mr. Yeager in relationship to the
6 federal court in being a special master that was
7 assigned by the federal court to study the mercury in
8 Penobscot Bay. I don't know what kind of
9 qualifications of legal or illegal you're talking,
10 Joanna. Please be more specific.

11 MS. TUCKER: And I'd object that
12 characterization. Mr. Bernacki --

13 MR. DUCHESNE: Once again, you would need to
14 be on mic.

15 MS. TUCKER: I'm sorry.

16 MR. DUCHESNE: If we can borrow another
17 microphone.

18 MS. BENSINGER: And --

19 MR. DUCHESNE: And you may do it from your
20 seat too.

21 MS. TUCKER: I don't have a mic at my seat.

22 MR. DUCHESNE: But that's wireless.

23 MS. TUCKER: Oh, okay.

24 MR. DUCHESNE: So can you go to your seat
25 and -- if you would or any seat. I think probably it

1 would be better not to sit behind the person at the
2 podium. If you would be so kind as to -- that looks
3 like a perfect place. Thank you.

4 MS. TUCKER: I'd object to any questions
5 being asked of Mr. Bernacki, who is not holding
6 himself as an expert in the law and I'd also object
7 to the characterization of the law. Clearly, Judge
8 Woodcock is the law and I'd defy anyone in this room
9 to tell him otherwise if you're in his courtroom.
10 He's -- that was in an established by court order
11 that was affirmed by the First Circuit Court of
12 Appeals and I call that the law.

13 MS. BENSINGER: What was the question again,
14 please?

15 MR. DUCHESNE: We're not clear what the
16 objection is about, so if you could repeat the
17 question.

18 MS. TOURANGEAU: Are you aware that the PRMS
19 testing standards are not a legal method for
20 characterizing mercury?

21 MR. DUCHESNE: It's a legitimate question,
22 are you aware? You may proceed.

23 PAUL BERNACKI: I am not aware.

24 MR. DUCHESNE: Okay. Thank you.

25 MS. TOURANGEAU: Are you aware that the

1 levels of mercury in the project area are similar to
2 those identified in the PRMS?

3 PAUL BERNACKI: I have carefully reviewed
4 all of the applicant's materials for months and
5 months and months and compared them to the Penobscot
6 River Mercury Study results and I have had
7 discussions with numerous geologists. I've been
8 sailing with a chart and a GPS these waters. I
9 actually am very familiar with all of these places
10 and points, the sediments because I anchor and I pull
11 the sediments up. There is good holding bottom and
12 there is not so good holding bottom. I have, like
13 most people in this room except for the lobstermen
14 sitting next to me, a personal long-term knowledge of
15 this bay and I have as a consultant -- my job as a
16 consultant is to consult and it comes -- I tell
17 people what I think and I talk to people who know a
18 whole lot more about all of this that are all
19 accessible the Board and the DEP staff through my
20 proffering of professional documents, my
21 conversations that I have forwarded to Mr. Nick
22 Livesay, with the state geologist and his assistant
23 Steve Dixon, who has forwarded to the DEP through
24 Mr. Livesay. I think you're barking down the wrong
25 road, Joanna. I'm just a consultant.

1 MR. DUCHESNE: Okay. Yes, we will reply to
2 each other with last names and title.

3 PAUL BERNACKI: Ms. Tourangeau.

4 MR. DUCHESNE: All right. You may proceed.

5 MS. TOURANGEAU: So you're aware that the
6 levels identified in the PRMS in this area are .2 to
7 .3 milligrams per kilogram?

8 PAUL BERNACKI: No. Actually, I'm not aware
9 of that because the applicant hasn't done specific
10 site -- specific testing of this area.

11 MS. TOURANGEAU: I asked because that's
12 what's identified in the PRMS study, Chapter 5, but
13 it --

14 MS. TUCKER: I would object to that because
15 you are not being specific. Are you talking about
16 the --

17 MR. DUCHESNE: You can raise your objection
18 to me and tell me what it is.

19 MS. TUCKER: Oh, sorry. Ms. Tourangeau --
20 sorry, Tourangeau --

21 MS. TOURANGEAU: It's like Toronto with a J
22 in place of the T.

23 MS. TUCKER: Okay, thank you. Tourangeau is
24 talking about, I think, the chart that has the color
25 chart, but actually in the PRMS study the values for

1 will A-8, 8-C and 7-A, as she's aware, show that
2 there are much higher levels --

3 MR. DUCHESNE: Okay. You are now
4 testifying. I need to know what the nature of your
5 objection is.

6 MS. TUCKER: The characterization of they
7 have found this level of mercury, I believe she means
8 on that color chart not actually what they found
9 because they found quite a larger number than that in
10 the report --

11 MR. DUCHESNE: So once again, what I'm
12 hearing is testimony --

13 MS. TOURANGEAU: I'd like to finish my
14 question too.

15 MR. DUCHESNE: Yes. I'm hearing testimony
16 and not an actual objection to the question, so if
17 you can go ahead with your question.

18 MS. TOURANGEAU: Yes, thank you.

19 MR. DUCHESNE: Thank you.

20 MS. TOURANGEAU: So Mr. Bernacki, are you
21 aware that for the project area the levels of mercury
22 that were identified in the Chapter 5 PRMS study for
23 that project area are .2 to .3 milligrams per
24 kilogram?

25 MS. TUCKER: Objection. Again, that is not

1 an accurate statement about what the chapter says.

2 MR. DUCHESNE: Whether it's accurate or not
3 that's not the objection. The question is can he
4 answer the question and how would he answer it?

5 MS. BENSINGER: If Mr. Bernacki wishes to
6 answer the question, A, he's not aware of it or, B,
7 he disagrees with the characterization that's up to
8 Mr. Bernacki to answer not for counsel to answer the
9 question.

10 MR. DUCHESNE: So you may continue with that
11 question and --

12 PAUL BERNACKI: I heard the question. Thank
13 you.

14 MR. DUCHESNE: Okay. And your answer would
15 be?

16 PAUL BERNACKI: Ms. Bensinger, my answer is
17 I will repeat that I have not seen in the applicant's
18 voluminous representations of the current CS-101
19 route of mercury testing in the project footprint,
20 which is approximately 100 foot wide and some 6,000
21 feet long, so I really can't compare your apples and
22 oranges for you today.

23 MR. DUCHESNE: All right. Thank you. You
24 may proceed.

25 MS. TOURANGEAU: Are you aware that those

1 numbers, the .2 to .3 milligrams per kilogram are
2 consistent with the samples that Nordic conducted in
3 the project area for mercury?

4 PAUL BERNACKI: You know, I've studied the
5 sampling methods and I have a huge stack of documents
6 here and I've also consulted with Mr. Peter Tischbein
7 as recently as today and I believe Mr. Tischbein is
8 leaning towards requiring the Army Corps of Engineer
9 Standards for redeposited dredge spoils to be the
10 consideration of the federal government in regards to
11 this project, so I am going to leave it to Peter
12 Tischbein and Mr. Livesay and the able works of the
13 DEP to continue to process this very, very complex
14 thing. I'm just here to talk about my consultation
15 and my clients' knowledge of and our review of
16 whether or not this meets the NRPA standards for a
17 complete enough documentation for the actual site of
18 the proposed project. That's pretty much it.

19 MS. TOURANGEAU: And are you aware that when
20 Nordic tested its samples for mercury it used the
21 Army Corps written standard?

22 PAUL BERNACKI: But they're not on the
23 project site. Let me say that again. The samples
24 that were taken are not on the project site.

25 MS. TOURANGEAU: Where are they?

1 PAUL BERNACKI: They are off to the side of
2 this project site not actually --

3 MS. TOURANGEAU: How far?

4 PAUL BERNACKI: Well, let me just show you.
5 Mr. Cotter stated it already today and I will ask
6 that that record be reviewed because that's the
7 accurate representation. I have no reason to doubt
8 that. They're not on the top of my head. Thank you.

9 MS. TOURANGEAU: Was his answer that they
10 were within a few hundred feet of the current
11 pipeline route?

12 MS. TUCKER: Objection. By the pipeline --
13 I think we already established there are no core
14 samples for most of it --

15 MS. BENSINGER: Ms. Tucker --

16 MR. DUCHESNE: Once again, that's testimony.

17 MS. TUCKER: Sorry. Well, I just --

18 MS. BENSINGER: If we -- please direct your
19 objection to the Presiding Officer.

20 MS. TUCKER: Yes. If I may ask for
21 clarification from Ms. Tourangeau about when she says
22 the project area, which is an amorphous topic or the
23 pipeline -- because we're talking about the pipeline
24 route and the distance from the current pipeline
25 route.

1 MS. TOURANGEAU: Great question. Thank you.
2 So I will define that. The project area that we
3 looked at with regards to the pipelines as Ms. Ransom
4 testified earlier today is the area encompassed by
5 all of the Eckrote alternatives. So samples were
6 taken for mercury, correct, Mr. Bernacki --

7 PAUL BERNACKI: Mmm Hmm. I'm listening.

8 MR. TOURANGEAU: -- in the area -- the
9 project area adjacent to the pipeline route
10 alternatives that were reviewed by Nordic, correct?

11 PAUL BERNACKI: So this -- this is the
12 twisted sister that was presented over a year ago and
13 it was in this time frame that Normandeau conducted
14 those tests and if you look at the test chart you'll
15 see that located along the pipeline route that was
16 abandoned there were a number of tests that were
17 done. And one of those tests was called B3, if my
18 memory serves me, and it was over in this area right
19 here and than the other two were over along the bend
20 over here.

21 MS. TOURANGEAU: Mmm Hmm.

22 PAUL BERNACKI: And then coming out here
23 there were three or four other sample sites going
24 out. And what was noticeable to me -- most notable
25 to me was that there were no mercury studies done.

1 The samples were dried out to find out what their
2 water to solid matter rate was. They were -- the top
3 6 inches was sifted through a fine screen to see if
4 there were miniature clams, worms, benthic organisms
5 in them.

6 MS. TOURANGEAU: I'm going to object --

7 PAUL BERNACKI: That occurred most
8 notably --

9 MS. TOURANGEAU: -- this is not --

10 PAUL BERNACKI: I'm not finished answering.

11 MS. TOURANGEAU: -- in the record.

12 MR. DUCHESNE: On behalf of the person who
13 has to transcribe all of this, I'm going ask for one
14 conversation at a time. I think that we have your
15 answer and I think that Ms. Tourangeau can clarify.

16 MS. TOURANGEAU: Well, this visual aid isn't
17 in the record. It's not an exhibit. I'm not sure
18 where it came from just now. I think it's coming
19 off...

20 PAUL BERNACKI: This is your exhibit. What
21 do you mean?

22 MS. TOURANGEAU: I don't -- I'm not sure why
23 it...

24 PAUL BERNACKI: It's your exhibit. It's
25 your plan. You submitted it.

1 MR. DUCHESNE: Once again, I'm going to go
2 to one person at a time. I'm going to go to
3 Ms. Tourangeau and let her state her objection to
4 what the slide is.

5 MS. TOURANGEAU: So I think that the -- what
6 we're looking at right now is something that
7 Mr. Bernacki had in his PowerPoint that is an altered
8 version of something that was submitted that is not a
9 Nordic exhibit that was part of an application, so
10 it's kind of a separate objection from the testimony
11 piece, but setting that aside --

12 MR. DUCHESNE: You don't have to set it
13 aside. What I would like to do is take the slide
14 down --

15 MS. TOURANGEAU: Okay.

16 MR. DUCHESNE: -- because I do agree it
17 appears to be altered and I think we can continue
18 with the conversation without actually having the
19 slide up.

20 MS. TOURANGEAU: Thank you.

21 MR. DUCHESNE: So we can go ahead with your
22 question. So you can go ahead and take that down and
23 just close it right out.

24 PAUL BERNACKI: And I'm going to close it
25 for the interest of...

1 MR. DUCHESNE: Peace and harmony.

2 PAUL BERNACKI: Respect for the Chair.

3 MR. DUCHESNE: I don't get that a lot.

4 Thanks.

5 MS. TOURANGEAU: So while --

6 PAUL BERNACKI: And I'm not sure, am I still
7 answering this question or?

8 MR. DUCHESNE: We may need to.

9 MS. TOURANGEAU: I think he answered. I'm
10 ready to move on.

11 MR. DUCHESNE: Okay. You can go ahead to
12 your next question. I think you've succeeded.

13 MS. TOURANGEAU: So when you were answering
14 the last question, Mr. Bernacki, you pointed to three
15 different locations along the submerged portion of
16 the pipeline route that -- where mercury samples were
17 taken, correct?

18 PAUL BERNACKI: I'm sorry, that slide isn't
19 up anymore and that last part of it is absolutely
20 gone. Poof.

21 MR. DUCHESNE: So what would the answer to
22 your question now be?

23 PAUL BERNACKI: Okay. I'll start all over
24 again. So I've been studying the applicant's
25 application and under the NRPA application, which is

1 a one-page application, Tier 27 -- I'm sorry, Block
2 27, Tier 2-3, you're required to present a
3 construction and erosion plan. So I have been
4 reviewing the construction and erosion plans as were
5 submitted by the applicant across various agencies
6 consistently and they were submitted in digital form.
7 So in other words, it was a full-size engineering PDF
8 digital form. So the thing that is no longer on the
9 screen, I -- I don't run a GIS program. I didn't
10 alter it in any way, sir.

11 MR. DUCHESNE: Mmm Hmm. Yes, I'm not sure
12 you're getting at the question.

13 PAUL BERNACKI: Well, I -- I am, but this is
14 a big serious business.

15 MR. DUCHESNE: Which is fine. For my
16 benefit, I'd like to hear what the question repeated
17 because I forget what you're answering. So, please,
18 Ms. Tourangeau.

19 PAUL BERNACKI: I'd be happy to hear it
20 again.

21 MS. TOURANGEAU: So when we are looking at
22 the pipeline, the project area, and the current
23 pipeline route that's in the preferred alternative
24 there were two mercury samples that were taken along
25 the -- a prior alternative but still within the

1 project area about 700 feet off and there was one
2 mercury sample that was taken directly along the
3 submerged portion of the current preferred
4 alternative route; is that correct?

5 MS. TUCKER: If I may. Again, I'm --

6 MR. DUCHESNE: It depends. Is there an
7 objection because --

8 MS. TUCKER: I do have an objection --

9 MR. DUCHESNE: Your objection would be what?

10 MS. TUCKER: -- to the usage of the
11 amorphous phrase project area because, again, these
12 terms are being used interchangeably and project area
13 I would prefer it be defined as to what we're talking
14 about.

15 MR. DUCHESNE: Okay. Yes, I think I will --

16 MS. TOURANGEAU: Okay. I will define.

17 MR. DUCHESNE: Yes, I will overrule. I
18 think project area is loosely understood by the Board
19 and we can go ahead with that term even though it may
20 not be precise at least for this line of questioning
21 and it will suffice. You may proceed, Ms.

22 Tourangeau, or are we still waiting on the answer to
23 the question?

24 MS. TOURANGEAU: Yes, we're still waiting
25 for an answer.

1 PAUL BERNACKI: So mind you that I fill out
2 these applications truthfully and the project area is
3 a very specific thing that's shown on an overhead
4 plan, an engineering plan, and a document you submit
5 to the DEP, to the state government under oath has a
6 dimension on it, has to be to scale, the lines on it
7 have to be to scale, it's a very specific place.
8 CS-101 is a very specific place. It was -- it was --
9 I forget all of the numbers. There has been so many
10 alterations to this plan over the last
11 year-and-a-half that I can't keep them straight in my
12 head even though I studied them.

13 MR. DUCHESNE: Can you give me an estimate
14 on when the answer to the question will begin?

15 PAUL BERNACKI: The former plans are not the
16 plans. The former plans and the lines and the
17 location on the face of the earth located by GIS,
18 located by graphics, cartography, the samples that
19 were taken are on an abandoned pipe route. There are
20 no samples of mercury on the current CS-101 pipe
21 route. There are no samples for this project testing
22 for mercury on the actual project. I've answered the
23 question again.

24 MR. DUCHESNE: Okay. You may go ahead with
25 your next question.

1 MS. TOURANGEAU: Are you aware that metal
2 testing including for mercury will be required to
3 characterize advance of disposal of any waste
4 sediment?

5 PAUL BERNACKI: That doesn't really suit the
6 needs of a -- depending upon how you figure a 40 to
7 80,000 cubic yard dredge operation under DEP
8 standards, but I'll leave that to the DEP to actually
9 come to that conclusion themselves. As I have said
10 previously, the Army Corps of Engineers has already
11 made preliminary statements and asked for comments
12 for a dredge operation and a side-casting of dredge
13 materials for 40,000 to 80,000 cubic yards. So the
14 fact that you're going to grab 6,000 yards left over
15 on an area a mile 3,000 feet long or 5,000 feet long
16 and you're going to identify it and you're going to
17 somehow say that's what's going to go to the
18 landfill? It all sounds a little...

19 MR. DUCHESNE: The opinion of how it sounds
20 is not relevant to answering the question, so if we
21 can focus on that this will be helpful. Thank you.
22 You may proceed.

23 PAUL BERNACKI: We haven't done any testing
24 of that potential 6,000 cubic yards.

25 MR. DUCHESNE: Well, let me ask then, Ms.

1 Tourangeau, if you're satisfied that the question was
2 answered.

3 MS. TOURANGEAU: I'm ready to move on.

4 MR. DUCHESNE: Very good. I think the Board
5 is ready to move on. Your next question.

6 MS. TOURANGEAU: Are you aware that
7 additional sampling for mercury will be done as part
8 of the additional geotechnical work to -- prior to
9 replacement of the anchors?

10 PAUL BERNACKI: I am aware that this is it
11 right now and that this Board has to decide whether
12 or not the information is sufficient to grant you an
13 application, Ms. Tourangeau.

14 MS. TOURANGEAU: Are you aware that a wind
15 anchor is 100 times bigger than Nordic's pipeline
16 anchors?

17 PAUL BERNACKI: No, actually I not aware of
18 that because there was a wind anchor over in Castine
19 for at last two or three years, an experiment by the
20 University of Maine and it was moored and anchored
21 right on my path between Belfast and Castine Harbor
22 and it was just a little guy, so I guess they come in
23 different sizes perhaps.

24 MS. TOURANGEAU: Are you aware that the
25 trenching will use trench boxes to prevent water flow

1 into the excavated area during construction?

2 PAUL BERNACKI: That's on the above the hat
3 line portion of this and I am aware that Cianbro is
4 planning trench boxes. It's very difficult to seal
5 trench boxes for especially large flows from 2 to 3
6 inch rain events coming down those gullies.

7 MS. TOURANGEAU: Are you aware that sediment
8 will be placed on contained barges prior to being
9 replaced into the excavated area?

10 PAUL BERNACKI: That's only for a section of
11 the intertidal and it's really not -- not clear how
12 those barges are going to be affecting the overall
13 sedimentation process especially the open ditch when
14 the tide is running in and out and there is 6 foot
15 waves crashing on that beach, so I think the
16 sedimentation issues as much as we've had
17 reassurances from various individuals with or without
18 any actual construction expertise in this room, I've
19 been working on these mudflats with backhoes and
20 crews up and down the coast of Maine since 1987 and
21 it doesn't sound like a very sound, reliable process
22 to me.

23 MS. TOURANGEAU: When you use backhoes on
24 the mudflats, do you use timber mats?

25 PAUL BERNACKI: Yes, we do. Hemlock.

1 MS. TOURANGEAU: Are you aware that the
2 sedimentation -- when the trench boxes and the
3 sediment is being excavated and the pipeline
4 construction is being done that there will be
5 turbidity curtains that are used?

6 PAUL BERNACKI: Yeah, I'm glad you brought
7 that subject up because the turbidity curtains will
8 be in place and I've seen them. I've never had to
9 use them because I've never made a big mucky mess,
10 but the turbidity curtains will be in place in the
11 intertidal area and stretched 850 feet out away from
12 shore in an area that's got an exposure of some 6 to
13 8 miles and the gentleman on the -- at the table with
14 me here and I have seen crashing 8 to 10 foot waves.
15 Now, these things are anchored down with chains down
16 on the bottom, they've got little floats up at the
17 top. I am not at all convinced in this exposed site
18 starting in November that you're actually going to,
19 as much as Miss Fiorillo, who we didn't real get a
20 chance to question very thoroughly this afternoon, I
21 am not convinced that her erosion control plan is
22 going to be effective for the intertidal area during
23 that construction process. But what's really, really
24 clear is that Cianbro has suggested, this anonymous
25 Cianbro presence in our room here which doesn't

1 actually have an engineer or a representative of
2 actually construction process.

3 MR. DUCHESNE: We can narrow the
4 conversation down to the actual question if anyone
5 remembers it.

6 PAUL BERNACKI: Is that the turbidity
7 curtains will not be used and will not be affected in
8 of dredge area in the subtidal and transition zones
9 in this project.

10 MR. DUCHESNE: Great.

11 PAUL BERNACKI: This is open water
12 side-casting.

13 MR. DUCHESNE: Ms. Tourangeau, you may
14 continue.

15 MS. TOURANGEAU: Are you aware that the
16 trench boxes extend above to height of the water to
17 avoid wave action?

18 PAUL BERNACKI: The trench boxes are only
19 going to be used in the upland area into the
20 immediate hat line area in the tidal marsh. They are
21 not proposed according to the latest construction
22 plans I've seen for the intertidal zone at all.

23 MS. TOURANGEAU: Are you aware that that's
24 inaccurate?

25 PAUL BERNACKI: I -- I -- I am speechless.

1 MR. DUCHESNE: I didn't think that was
2 possible.

3 MS. TOURANGEAU: I'm done then.

4 (Laughter.)

5 PAUL BERNACKI: That was for sake the of
6 brevity, sir.

7 MR. DUCHESNE: Just give me 30 seconds here,
8 if you would. We are going over the original motion
9 about the impeachment of the witness --

10 MS. TOURANGEAU: Okay.

11 MR. DUCHESNE: -- and making sure that we
12 are consistent with our understanding of why we
13 arrived at the decision we did, so I'm going to ask
14 Ms. Bensinger to explain it better than I can.

15 MS. BENSINGER: The Presiding Officer is
16 going to stick with his ruling on not allowing
17 Ms. Tourangeau not to submit Nordic Exhibit 41 --
18 it's just all one exhibit, right?

19 MS. TOURANGEAU: Yes.

20 MS. BENSINGER: -- Nordic Exhibit 41 and
21 use it for impeachment purposes. In response to that
22 ruling not allowing that exhibit in and not allowing
23 her to cross on that, Ms. Tourangeau made a motion
24 requesting that Mr. Bernacki's testimony regarding
25 Mr. Dorsky's statements be not even allowed in the

1 record as comments. We had said that they would be
2 taken into the record as comments on the TRI issue
3 and what the Presiding Officer has decided is that he
4 is not going to remove Mr. Bernacki's stricken
5 testimony from the record as comments, but he will
6 allow this, excuse me, this in as comment. So that's
7 where we stand on that.

8 MR. DUCHESNE: Great.

9 MS. RACINE: Presiding Officer Duchesne, may
10 I follow-up on that point on impeachment while we're
11 on the topic very briefly? I understand it's very
12 late.

13 MR. DUCHESNE: Yes.

14 MS. RACINE: I just want to put on the
15 record a concern that I had raised but not on the
16 record about questions being asked of witnesses by
17 staff, DEP, the Assistant Attorney General and BEP
18 members, it's come to my attention that this
19 afternoon that some of the responses by the witnesses
20 during that questioning time would be impeachable and
21 there is a reasonable question of veracity. As those
22 answers were given during the question period time
23 and not during direct exam time wouldn't have fallen
24 within the parameters as I understand it of recross
25 and I'm trying to respect those boundaries, but

1 without that I'm now faced with the fact that those
2 responses are in the record as sworn testimony
3 without the opportunity to address the veracity of
4 those statements.

5 MS. BENSINGER: I think the witness panels
6 that are gone are gone and obviously not all
7 opportunities to impeach can be seized upon and so
8 some opportunities are just lost.

9 MS. RACINE: So just to confirm, going
10 forward as well for the scope of say recross, with
11 permission is it possible to direct questions to
12 testimony that occurs during that question period
13 because the way we've been operating it seems to be
14 within the parameters of direct.

15 MS. BENSINGER: You could -- if there is a
16 pressing need you can request it going forward.

17 MS. RACINE: Thank you.

18 MR. DUCHESNE: So the ruling on the field
19 stands.

20 MS. TUCKER: If I may, I think -- I don't
21 know.

22 MR. DUCHESNE: Yes, Ms. Tucker.

23 MS. TUCKER: If I may, I have another
24 objection. Since now this is going into the record
25 for a different purpose, I'm afraid I have to request

1 to file Mr. Dorsky's May 16, 2019 statement, which
2 verifies what Mr. Bernacki said. It's from the
3 submerged land lease and I didn't want to do it, but
4 if this is coming in then I need to impeach the
5 impeacher.

6 MS. BENSINGER: The record on TRI is open
7 for comment and the parties may submit comment into
8 the record on TRI, so it's not part of this hearing.
9 You may submit comment into the record on TRI.

10 MS. TUCKER: I just want to say you'll
11 regret saying that, but sure.

12 (Laughter.)

13 MR. DUCHESNE: Okay. Is everyone with us?
14 We're up to BEP and Board and staff questions.

15 PAUL BERNACKI: Oh.

16 MR. DUCHESNE: Oh, yes, you're not off the
17 hook yet. The entire panel isn't. So are there
18 questions? Now you're off the hook. Thank you,
19 there being no questions.

20 WAYNE CANNING: No questions?

21 PAUL BERNACKI: No questions.

22 MR. DUCHESNE: No.

23 WAYNE CANNING: So can I -- I'm going to
24 come in tomorrow anyway because I am kind of enjoying
25 this.

1 (Laughter.)

2 MR. DUCHESNE: You'll be amazed at how fast
3 that wears off.

4 WAYNE CANNING: So can I bring this that I
5 didn't get a chance to talk about today? Can I bring
6 it in and --

7 MS. BENSINGER: No, you're done. I'm sorry,
8 you're finished now.

9 WAYNE CANNING: So can I submit --

10 MS. BENSINGER: No.

11 WAYNE CANNING: -- it to the DEP by the --

12 MS. BENSINGER: No.

13 WAYNE CANNING: -- by the 18th?

14 MS. BENSINGER: Nope. You're done now,
15 sorry.

16 WAYNE CANNING: Well, what about if -- what
17 about if I have the grandson submit it?

18 (Laughter.)

19 MR. DUCHESNE: That's my kind of Mainer,
20 find the rules and work around it.

21 WAYNE CANNING: But there is a comment
22 period until the 18th though, isn't there?

23 MR. DUCHESNE: I'm going to Ms. Lessard has
24 a question for Mr. Black.

25 DAVID BLACK: I thought I was done. You

1 said you were done.

2 MS. LESSARD: It's my fault. I -- I
3 apologize. You testified that you were concerned
4 about the presence of the pipeline impacting the
5 lobster fishing. What specific concerns beyond
6 construction does it getting hit by anchors or pulled
7 up with gear or what -- what is the -- what are your
8 other concerns?

9 DAVID BLACK: My concerns with the pipeline
10 are what comes out the end of the pipe after it is
11 constructed. That would be warm water, low salinity
12 water and the fact that it will be contained in that
13 area for a significant period of time. I think that
14 will impact my ability to catch lobsters in that
15 area.

16 MS. LESSARD: Thank you.

17 MR. DUCHESNE: Great. Any other questions?
18 Now, you're off the hook. Thank you. Give us a 30
19 second pause here for a moment. We're going to check
20 in with Board members and staff just for a second
21 just to see how you're doing and also our reporter.
22 Doing great?

23 MS. DOSTIE: Awesome.

24 MR. DUCHESNE: We're trying to decide, first
25 of all, I think people are getting tired. It's been

1 a long day. We're trying to digest whether there is
2 any more we can do now. We're wondering, for
3 instance, first all if the Board has any commitments
4 or problems staying a little longer. I don't see any
5 major issues there. There -- we're trying to decide
6 what might be the next faster topic to take,
7 wondering if The Fish Are Okay people are willing and
8 able to go now. The answer appears to be yes. That
9 appears to be perhaps another half an hour if --
10 where this will go and then we'll disburse for the
11 night. And we are going to take a five minute break
12 or as long as it takes to get the job done.

13 (Break.)

14 MR. DUCHESNE: If we may have everyone's
15 attention for a moment and everybody assembled in
16 their seats. And one clarification on a statement
17 that I made earlier which has been brought to my
18 attention that I misspoke, so if you would clarify.

19 MS. BENSINGER: The hour is getting late and
20 we're all getting tired and the Presiding Officer
21 just misspoke when he referred to Mr. Bernacki's
22 slide as being potentially altered, that last slide,
23 what he meant to say is it hasn't been submitted as
24 an exhibit, so there wasn't an allegation that that
25 slide was altered. We just wanted to clarify that.

1 MR. DUCHESNE: Yes. Thank you and I
2 apologize. And at this point, we're ready to go
3 ahead, so you may proceed.

4 DIANE BRAYBROOK: All right. It's been a
5 long day. We should be quick. And I have to say I
6 have never been through this in my entire life. It's
7 been a real education.

8 Welcome. And I'm glad to be here. My name
9 is Diane Braybrook. I'm a retired teacher with a
10 Master's degree in Education and I've lived in
11 Belfast for 14 years. Since my retirement, I have
12 been actively involved as a volunteer for the Belfast
13 Chamber of Commerce, the Belfast Farmers' Market and
14 quite a number of other civic organizations including
15 sitting on the Board of Directors for the Maine
16 Celtic Celebration.

17 I'm here today to speak on the matter of
18 Nordic Aquafarms as President of The Fish Are Okay.
19 This is a citizen-based non-profit organization that
20 has put considerable effort over the past year into
21 keeping concerned citizens in Belfast and surrounding
22 communities up to date on issues and actions related
23 to the Nordic Aquafarms project.

24 The Fish Are Okay has come to depend upon
25 Belfast resident Gef Flimlin for insight into the

1 Nordic Aquafarms proposal. He has dual insight into
2 the pending applications as both the owner of a
3 property that directly connects with Nordic
4 Aquafarms' project and as a retired professor of
5 aquaculture at Rutger's University with 40 years
6 experience as a leader in the aquaculture industry.

7 I'd also like to take this opportunity to
8 introduce Dick (sic) Faegre for his willingness to
9 appear as an intervenor on our behalf at this hearing
10 to talk about his personal experience with the water
11 usage issues.

12 The testimony offered by these two people is
13 representative of many landowners who directly adjoin
14 or who are within the neighborhood of Nordic
15 Aquafarms' project site. In the big picture these
16 landowners share the entire community's desire and
17 demand for environmentally responsible forward
18 thinking design and operations. These property
19 owners have each formed an impression of their trust
20 in Nordic to be confirmed by regulatory fact-finding
21 of this Board and its staff as well as the Belfast
22 Planning Board.

23 So I'd like to introduce Dick (sic) Faegre
24 who will speak first about the water quality in his
25 well and then Gef Flimlin will be following him.

1 Thank you.

2 DIRK FAEGRE: I might note I have not been
3 sworn.

4 MR. DUCHESNE: Sworn in, okay. If you may
5 please stand, raise your right hand. Do you affirm
6 the testimony you are about to give is the whole
7 truth and nothing but the truth?

8 DIRK FAEGRE: I do. I'd say good afternoon,
9 but it's getting on to good evening. Presiding
10 Officer, Board members, staff, Commissioner, my name
11 is Dirk Faegre. I appear today as being part of The
12 Fish Are Okay. My wife and I reside at 46 Herrick
13 Road in Belfast less than a mile from the proposed
14 salmon farm. As one who could be directly affected
15 by Nordic's water withdrawal, I very much appreciate
16 this opportunity to testify for the Board.

17 Let me make clear from the onset that absent
18 the expertise, regulatory authority, scrutiny and
19 ongoing watchdog responsibilities of the regulatory
20 entities involved, I may well have been opposed to
21 the Nordic project. I can evaluate the project's
22 positive benefits as measured by an increase of the
23 local tax base, educational possibilities and job
24 opportunities. Indeed, I have even quantified the
25 carbon footprint caused by importing the thousands of

1 pounds of salmon by air -- airfreight from Scotland,
2 Norway and Chile that will be offset by raising
3 salmon on this side of the Atlantic. However, I am
4 far from qualified to evaluate the technical details
5 of the many environmental impacts that could result.
6 Therefore, I'm deeply grateful for the work of this
7 Board and other governmental bodies to be sure.

8 My concern with the project has primarily
9 been with the groundwater withdrawal wondering how it
10 could affect the water supply for my family. A
11 continuing safely available supply of fresh water is
12 paramount that to include both quantity and quality.
13 However, Nordic without my intervention called and
14 asked if they might install electronic monitoring
15 equipment in my deep drilled well. They were anxious
16 to see what effect from their on-site well would have
17 on my water supply. I was delighted and quickly
18 agreed. Once the monitoring equipment was installed,
19 Nordic tested local wells over an extended period
20 with technicians appearing regularly to download the
21 captured data. Subsequently Nordic's professional
22 hydrologist met with me to explain the results.
23 Throughout this testing period Nordic's staff and
24 outside professionals were polite, intelligent,
25 competent and helpful. I was both surprised and

1 pleased to have them furnish a signed letter without
2 any prompting from me that assured me they would
3 guarantee the quality and quantity of fresh water or
4 they would make it good up to and including
5 connecting us to Belfast Water District distribution
6 system. What more could one ask than that?

7 My many interactions with Nordic Aquafarms
8 have reached the impression of a firm that will
9 clearly make a good neighbor and effective part of
10 the Belfast scene. The owners and staff of Nordic
11 have been proactive, sharp, thorough, transparent,
12 trustworthy in dealing with me and other property
13 owners in the neighborhood. Their entire
14 interactions with us were impressive and
15 professional.

16 Thank you for the opportunity to testify.
17 It's appreciated.

18 MR. DUCHESNE: And we'll need to move the
19 microphone.

20 GEF FLIMLIN: Mr. Duchesne, Ms. Bensinger --
21 are we close enough?

22 MR. DUCHESNE: A little bit closer or
23 higher. That's better, yes. There you go.

24 GEF FLIMLIN: Board, staff, DEP, Ms. Burke
25 and -- so everybody, thank you for letting me

1 participate in this process.

2 My name is Gef Flimlin. My wife and I
3 recently built a home at 52 Perkins Road in Belfast.
4 The back property line of which adjoins along its
5 full length the proposed Nordic Aquafarms project
6 site. I am testifying on behalf of The Fish Are
7 Okay, a citizen-based non-profit that has put
8 considerable effort over the past year to keep our
9 neighborhood as well as other concerned neighbors in
10 Belfast and surrounding communities up-to-date on
11 issues and actions related to the Nordic project.

12 I recently retired as Professor Emeritus
13 from Rutgers University State University in New
14 Jersey. I have been involved in commercial fisheries
15 and aquaculture for about 40 years. I served as a
16 Marine Extension Agent for the Rutgers Cooperative
17 Extension. That's a position that's very much like a
18 County Agricultural Agent who works with farmers, but
19 I have worked with fishermen and a lot of shellfish
20 farmers. I have a degree in biology, a Master's
21 degree in Biology and a Master's degree in Marine and
22 Environmental Science. I did cross my doctor thing
23 out because I do not have a post hole digger as I
24 call a Ph.D.

25 I have served on the Technical Advisory

1 Committee for the US. Department of Agriculture's
2 Northeast Regional Aquaculture Center on and off for
3 about 18 years --

4 MS. BENSINGER: A little slower.

5 MS. DOSTIE: Can you slow down?

6 GEF FLIMLIN: Oops.

7 MS. DOSTIE: Thank you.

8 GEF FLIMLIN: -- ending as the Chair of that
9 committee. I was on the Executive Committee as well
10 as Vice President of the National Shellfisheries
11 Association. I was on the Board and served as the
12 President of the U.S. Aquaculture Society, which is
13 meeting right now in Honolulu and I am here instead
14 of there. That position also put me on the Executive
15 Committee of the World Aquaculture Society. I was on
16 the International Conference for the Exploration of
17 the Seas, Aquaculture Work Group, working with
18 scientists and regulators from Canada and the
19 European Union on aquaculture research priorities. I
20 was the founder of the New Jersey Aquaculture
21 Association and co-founder of the East Coast
22 Shellfish Growers' Association. I also started the
23 Barnegat Bay Shellfish Restoration Program, which was
24 an environmental stewardship and education program
25 and ran that for 15 years before I retired.

1 Over the past two years my wife and I have
2 become full-time residents of Belfast. It was during
3 this time that we learned the home we were building
4 on property we purchased many years ago was to have a
5 new neighbor, Nordic's proposed salmon farm, firmly
6 abutting the entire length of our new homesite. The
7 irony and humor of this situation was not --

8 MS. BENSINGER: Excuse me, can you be --
9 slow down. Take your time.

10 MS. DOSTIE: It's the end of the day, I'm
11 sorry.

12 MS. BENSINGER: The court reporter is having
13 trouble transcribing you.

14 GEF FLIMLIN: Your fingers must be tired.

15 MS. DOSTIE: They are.

16 GET FLIMLIN: The irony and humor in this
17 situation was not lost upon friends, family and my
18 professional peers from around the world. We've
19 laughed along with them, although to be honest, this
20 wasn't the best news I've had since my retirement
21 from Rutgers.

22 In the meantime, it became apparent that the
23 political dynamics within our new neighborhood in
24 Belfast were destined to complicate this news even
25 further. We learned that two neighbors are the

1 founders respectively of Local Citizens for SMART
2 Growth Salmon Farm, a non-profit organization for the
3 purpose of opposing the Nordic project, as well as
4 Upstream Watch, another non-profit that shares this
5 goal. Nonetheless, it is my wife and I who will
6 likely be the most extensively impacted by Nordic's
7 construction and operations. A 40 foot wooden buffer
8 -- wooded buffer strip is all that separates our
9 property from the building that will house Nordic's
10 core production activities, so we are right there.
11 And after 40 years of promoting aquaculture, I can't
12 be the not in my backyard guy.

13 So with reference to the applications, the
14 NRPA and -- Site and NRPA applications, I contacted
15 Erik at Nordic -- Erik Heim at Nordic about 10 days
16 after the announcement was made about the possibility
17 of the fish farm being built at that site. I told
18 him who I was, what I did, and that if he failed it
19 would not only be bad for his company, but for
20 aquaculture in general, so he'd better get it right.
21 He certainly concurred. Since then, I have met with
22 him and his engineer many times. I've asked
23 questions about the facility and how things would
24 work. They have been straightforward with their
25 answers. Aside from these newly developing

1 relationships with Nordic folks, I count four
2 aquaculture engineers as friends of long-standing.
3 Two literally wrote the book on Recirculating
4 Aquaculture Systems. I have not hesitated over the
5 past two years to contact them and others for insight
6 into Nordic's design plans and criteria.

7 Professional curiosity alone would have
8 driven me to investigate Nordic's plans for design
9 and operations, but that wasn't all that I had in
10 mind. My wife and I were also in the process of
11 getting to know our new neighbors, some of whom think
12 the facility will be a great asset and others who
13 don't. In my mind, all opinions are fair and fact --
14 until facts and/or actual experiences prove them
15 wrong. I felt I had the training and experience to
16 sort out at least some of these issues in advance of
17 the deadline for making decisions for building. If
18 nothing else, my wife and I needed to be satisfied
19 that we'd examined all the angles.

20 So what better place to start than asking
21 Nordic about our own property, our needs, our
22 expectations?

23 So one of the items that we were allowed,
24 The Fish Are Okay, to talk about was odor. A bad
25 odor at an aquaculture facility is a dead give-away

1 that poor management is resulting in bad husbandry,
2 resulting in compromised equipment, disease, fish
3 mortality and financial ruin. From my perspective
4 this is an instance in which NIMBYism is fully
5 justified. From conversations with Nordic about
6 their practices, I'm satisfied there will be no
7 whiffs of fish or fish waste reaching my backyard.
8 This includes exchanges that Mr. Cotter and I have
9 had about where they're going to put their exhaust
10 fans on the other side of the building that we back
11 up to, so they're really going out of their way.

12 Noise. It simply goes with the territory
13 that construction-related noise such as blasting will
14 be an annoyance on and off for five years or more.
15 Nor do local ordinances offer much protection given
16 that blasting is permitted seven days a week between
17 the hours of 6 a.m. and 10 p.m. The Flimlin
18 household is prepared and willing to endure this
19 disturbance as a necessary trade-off --

20 MS. BENSINGER: Slower.

21 GEF FLIMLIN: I'm from Jersey, I talk fast.

22 MS. BENSINGER: I know.

23 (Laughter.)

24 GEF FLIMLIN: The Flimlin household is
25 prepared and willing to endure this disturbance as a

1 necessary trade-off for achieving a locally produced
2 food source grown in an environmentally sound way.
3 I've talked with Nordic's folks about disturbances
4 from construction. I'd like to add something at this
5 point. I had eight years of jesuitical education,
6 four years of high school, four years of college, and
7 great men who are scientists and taught a myriad of
8 subjects, but one of the things that they'd always
9 talked about was magus and that is something where
10 what you do is not just for yourself, it's for other
11 people too. And so this is part of our
12 decision-making process that, you know, it's going to
13 be tough for construction, but it's going to have a
14 great product coming out at the end that will be a
15 benefit for this area and so we took that into --
16 into account when we made our decisions to finally
17 build the full-size house and stay here.

18 So, in fact, both odor and noise were part
19 of my discussion with Erik Heim when we initially
20 met. I told him that I knew the system wasn't going
21 to be loud, that it wasn't going to smell, but that
22 I'd be really ticked off if he ruined my night sky.
23 He responded he was also a star gazer and that lights
24 at night would not be an issue. I also have a .22.

25 Visual Impact. If we were to be granted my

1 preference in the setback requirements governing
2 required distances between an industrial facility and
3 a residential property, that distance would easily be
4 twice or more of the setback currently required under
5 our municipal code. Unfortunately, I became involved
6 in the regulatory process too late to influence a
7 change in our existing code. In the face of this
8 reality, Nordic has gone out of its way to offer help
9 in buffering my property from their operations. I've
10 been given my choice of native plantings for the
11 buffer strip, and we will take them up on their offer
12 after construction is beginning. All in all, we've
13 had enough on-site, eyes-on discussions about my
14 needs in establishing and managing this buffer strip
15 that I'm more than satisfied with their cooperative
16 attitude. I pass a window factory down the street
17 daily and it simply blends into our neighborhood. I
18 think this will be the case with Nordic and I don't
19 expect that in the long run it will ruin our property
20 value.

21 A second aside, right now the Planning Board
22 is meeting downtown to discuss a 20 acre solar farm,
23 which is going in the field right across from our
24 house. So I am here and my wife is at the Planning
25 Board meeting talking about the solar field that is

1 going in across the street. You know what it's like
2 when you want to watch one tv program and there's
3 three on at one time, it's kind of like that here
4 today.

5 (Laughter.)

6 GEF FLIMLIN: So I'm satisfied that Nordic
7 intends to be a good neighbor. I'm satisfied overall
8 that Nordic's design concepts and its operational
9 plans are leading toward an environmentally sound
10 operation that achieves sustainability in producing a
11 high quality product. At the core of my
12 satisfaction, however, is the confidence I have in
13 the Maine -- Maine's Board of Environmental
14 Protection and the state staff to thoroughly evaluate
15 Nordic's applications and to monitor ongoing
16 performance towards achieving these goals.

17 As this process proceeded, I kept thinking
18 about the people who opposed it and I kept finding
19 that I thought that their feelings about -- about the
20 ability for the state and federal agencies to get
21 everything right was kind of naive. I have worked
22 with the county, state and federal agencies for 40
23 years and there are some things that I have learned.
24 First, these agencies will accept practically zero
25 risk. They never want lawyers beating down their

1 doors because they've overlooked something. This
2 brings me to a second place, agencies will always
3 fall on the conservative side of any issue rather
4 than on the other especially when setting regulatory
5 constraints. I have worked with applicants over the
6 years who were fuming about all of the information
7 that is required to get a permit to do something, but
8 people who have not gone through these processes have
9 no idea of the intense labor that state agencies must
10 go through to grant a permit. I have constantly
11 heard from those in opposition to this project that
12 Nordic Aquafarms will kill or pollute the bay. What
13 they don't understand is that Nordic cannot get a
14 discharge permit if the effluent exceeds 20 percent
15 of the assimilative capacity of the receiving waters.
16 So this kind of diligence is essential for the
17 maintenance of the bay for decades to come and it
18 will be the state and federal government that will
19 demand Nordic's adherence to these parameters. The
20 bottom line is that I find it disturbing and somewhat
21 demeaning to the agencies that those in opposition to
22 this land-based fish farm have so little trust in the
23 people who are mandated just to keep the bay viable.

24 Thank you for the opportunity to testify. I
25 affirm my testimony is true to the best of my

1 knowledge and belief.

2 MR. DUCHESNE: Great. Thank you. By the
3 way, a .22 will take out the bulb but a larger
4 caliber will take out the whole thing.

5 GEF FLIMLIN: I have a side by side.

6 (Laughter.)

7 MR. DUCHESNE: We have an opportunity for
8 cross by Nordic.

9 MS. HOWE: Mr. Faegre, you have a drilled
10 well within one mile of the project?

11 DIRK FAEGRE: I believe it's within one
12 mile, yes.

13 MS. HOWE: And did you observe any impacts
14 from the four pump tests that Nordic performed on
15 your well?

16 DIRK FAEGRE: I did.

17 MS. HOWE: You observed impacts?

18 DIRK FAEGRE: I did. And the hydrologist
19 went over and they showed me and they were
20 insubstantial but noticeable.

21 MS. HOWE: Okay. So based on the testing
22 done on your well, do you believe there will be
23 negative impacts in your water quality or quantity?

24 DIRK FAEGRE: From the discussions I had
25 with the professional hydrologist I would say

1 absolutely not.

2 MS. HOWE: Okay. Thank you.

3 Ms. Braybrook --

4 DIANE BRAYBROOK: Yes.

5 MS. HOWE: -- is it fair to say that the
6 majority of abutters based on the map in the
7 affidavit attached to your testimony do not oppose to
8 the project as so long as it meets the standards of
9 review before the Board of Environmental Protection
10 and the city of Belfast Planning Board?

11 DIANE BRAYBROOK: Yes.

12 MS. HOWE: Mr. Flimlin, what is your
13 perspective of this project as a lay person?

14 GEF FLIMLIN: As a lay person?

15 MS. HOWE: Yeah.

16 GEF FLIMLIN: Well, I've been doing this for
17 40 years.

18 (Laughter.)

19 GEF FLIMLIN: I'm not.

20 MS. HOWE: Sorry. What is your perspective
21 of the project?

22 GEF FLIMLIN: I think it's a great project.
23 I think that the constraints are there to be put in
24 place. I think it's planned out very well. I think
25 in terms of how its going to affect the area, I think

1 it's going to be economically very beneficial for
2 Belfast. And I've -- over the past couple of days
3 people are talking about all these truck loads of
4 dirt going in and out, well, yeah, there's a guy
5 driving each one of those trucks and he's going to
6 get paid. All of those people who are going to work
7 for this -- this construction company are going to
8 get paid. There's a lot of money going into it
9 that's going to be spent in the local economy, so I
10 think there is a very positive effect for that.

11 MS. HOWE: Thank you. That's all of the
12 questions I have.

13 MR. DUCHESNE: Thank you. I believe we can
14 proceed to Board questions, Board and staff. I'm
15 looking around and Ms. Lessard.

16 MS. LESSARD: Mr. Faegre -- I'm sorry, it's
17 been a long day, I didn't push the button. You
18 indicated that Nordic said they would take whatever
19 steps were necessary to ensure that you had water and
20 if something happened to your well that they would
21 connect -- pay for connection to the Belfast Water
22 District; is that correct?

23 DIRK FAEGRE: It's partially correct. What
24 they said was we'll do whatever it takes to make it
25 good. That could mean drilling a new well for me,

1 could be providing filters, but the bottom line, and
2 it says so right in the signed letter, that they
3 would connect me to the Belfast Water District, the
4 district water distribution system if it came it
5 that.

6 MS. LESSARD: Okay. And my question was if
7 that was necessary, does it commit to long-term
8 payment of the bills associated with that since
9 that's not something you would have had to pay prior
10 because you had a private well?

11 DIRK FAEGRE: I'm sorry, I don't quite
12 understand the question.

13 MS. LESSARD: They would pay for the
14 installation of connection to water, would they
15 continue to pay that -- the cost of water?

16 DIRK FAEGRE: The water bill?

17 MS. LESSARD: The water bill.

18 DIRK FAEGRE: They certainly didn't say so.
19 I'd love to have them do it.

20 (Laughter.)

21 DIRK FAEGRE: Of course, I have to pay for
22 the water in the sense that if the pump fails or the
23 well fails or whatever, so one never gets free water
24 even if you have a well.

25 MS. LESSARD: It was just a question.

1 DIRK FAEGRE: Sure.

2 MS. LESSARD: I have seen other instances
3 where that was the case, so I didn't --

4 DIRK FAEGRE: I will take that under
5 advisement.

6 (Laughter.)

7 GEF FLIMLIN: I'm hoping to get free
8 electricity from them.

9 (Laughter.)

10 MR. DUCHESNE: Yes, Mr. Pelletier.

11 MR. PELLETIER: Thanks very much.

12 Mr. Flimlin, I -- I appreciate all you're saying
13 about this and I'm not sure how long you've been here
14 today or yesterday, but there has been quite a bit of
15 conversations about water issues from the effluent
16 and circulations in the bay. Can you -- from your
17 own perspective, do you have any big concerns with
18 this or in terms of monitoring?

19 GEF FLIMLIN: Well, first of all, let's talk
20 about supply because the first comments I made about
21 this project were to the city council and I had two
22 concerns. One was that I thought the property should
23 be zoned agriculture and not industrial because that
24 way if -- if the system failed it could not go to be
25 a tire factory. It would have to remain in some kind

1 of agriculture process. The second was I was
2 concerned if there would be enough water, but two of
3 my neighbors told me about with the way the laws were
4 written in Maine that if you put a well down you can
5 pretty much go where you want and suck it up. So I
6 had a conversation with Keith Pooler, who is the
7 Executive Director of the Belfast Water District. I
8 said, Keith, do you have enough water? He said I've
9 got two wells that are running now and I've got
10 another one I haven't -- I haven't started to use
11 yet. He said, yeah, I have enough water. So that
12 kind of finished that part.

13 So then you get to the other end. Now,
14 they'll be taking water in from the bay and yesterday
15 I was here and listening again and again about what
16 happens when there is a drought and, you know,
17 salmon -- remember, salmon go from salt water to
18 fresh water so they're adaptable. They're anadromous
19 fish and so if there is a changes in salinity by a
20 couple parts per thousand, which is a tenth of a part
21 percent that's not going to really hurt them. It may
22 throw off -- it may throw off the growth rate a
23 little bit, but I don't think it would be a big deal.
24 Remember, you've got water in the bay that's probably
25 about 28 parts per thousand and if you add fresh

1 water to it to get it down to where I think they're
2 planning on it's like 25 or 26 parts per thousand
3 it's not a whole lot of fresh water to bring that --
4 that down. And so it's -- but it's easy enough for
5 them to go, well, if there is a drought we can always
6 go back up the other way and we can grow these in a
7 little bit saltier water and that's still okay. So
8 it goes through the whole system and there is a lot
9 of water coming through here and some of it's --
10 fresh water is going into the early stages for eggs
11 and smolt and things like that that has to be fresh
12 water. Remember, anadromous fish are up in the
13 rivers, they're in fresh water, that's where they
14 grow, okay. And so once they move from there they're
15 going to go into the larger tanks where they're going
16 to be the grow-out tanks. And I've heard people go,
17 oh, they're going to be crowded in there, they're
18 going to -- they don't like being crowded. Salmon
19 are schooling fish. They like to be next to each
20 other. They -- that's the way they get around. The
21 water will move through the tanks, it will make the
22 meat quality better and they'll keep going.

23 Now, part of the water that's coming in
24 there has to be kept for cooling the system because
25 when the water temperatures get too high they don't

1 like that. They're stressed. Again, animal
2 husbandry. And so the part of the water that's going
3 back out is coming in and going back out as a cooling
4 unit and not going through the tanks. So once the
5 filter systems get going and they're removing stuff
6 down to and now Dave Noyes is telling me .04 microns,
7 that's a polishing. That's a really, really high
8 standard that is much higher than Whole Oceans is
9 going. And in terms of the amount of water that's
10 going out, I think Whole Oceans is at 17 million
11 gallons a day and this is 7.7, so I think it's in the
12 right parameters.

13 I really enjoyed hearing Mr. Black --
14 Captain Black and Captain Canning today. I mean,
15 those are people that I have worked with for 40
16 years. You know, they're incredibly good observers
17 because if they weren't they wouldn't set their pots
18 in the right place the next time. And so their
19 concerns about this thing are well-founded in their
20 minds of what has to go on. I don't think it's going
21 to be a problem because the temperature -- because
22 the salinity of the water going back is not going to
23 be much different from what it comes in at and the
24 fresh water part of it may actually go to the
25 surface, which might not even impact the bottom of

1 the bay. Did I speak too fast for again?

2 MR. PELLETIER: No, you didn't. I -- my
3 wife is from New Jersey.

4 GEF FLIMLIN: Okay.

5 (Laughter.)

6 MR. PELLETIER: Thank you.

7 MR. DUCHESNE: Great. I see no further
8 questions. So you have an opportunity to clarify
9 anything you may have said under cross-examination
10 from Ms. Howe earlier. Do you wish to clarify
11 anything?

12 GEF FLIMLIN: No.

13 MR. DUCHESNE: Then I believe that concludes
14 this panel. And it concludes the day. We need to
15 talk a little bit about what schedule we're going to
16 follow tomorrow. Snow is coming in.

17 MS. BENSINGER: So the plan is to start in
18 the morning at 8 with Dr. Podolsky and then go to the
19 stormwater and erosion and sedimentation control
20 panel by Nordic of McGlone and Johnston. If there is
21 any issue with a late start, which we don't
22 anticipate because the snow isn't supposed to start
23 until 7, so it shouldn't have accumulated very much.
24 Please keep an eye on your emails, but we're hoping
25 to go ahead as planned. Thank you.

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MR. DUCHESNE: Great. Thank you.

(Hearing continued at 6:54 p.m.)

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C E R T I F I C A T E

I, Robin J. Dostie, a Court Reporter and
Notary Public within and for the State of Maine, do
hereby certify that the foregoing is a true and
accurate transcript of the proceedings as taken by me
by means of stenograph,

and I have signed:

Court Reporter/Notary Public

My Commission Expires: February 6, 2026

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