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2 PROJECT NO. 13509-001
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A-P-P-E-A-R-A-N-C-E-S

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Project Coordinator/Civil Engineer

Matt Cutlip

Fisheries Biologist

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Fisheries Biologist

Applicant:

Turnagain Arm Tidal Energy Corporation

Dominic S.F. Lee, PE

Freddie Sue Lee

Tammie Smith

Taken by:

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BE IT KNOWN that the aforementioned proceedings were taken at the time and place duly noted on the title page, before Mary A. Vavrik, Registered Merit Reporter and Notary Public within and for the State of Alaska.

P-R-O-C-E-E-D-I-N-G-S

MS. KIM NGUYEN: Morning. I think we are going to go ahead and get started, please. My name is Kim Nguyen. I'm the project coordinator and civil engineer from the Federal Energy Regulatory Commission. With me here today are two of my colleagues, Matt Cutlip and Ian Smith, both fishery biologists, and we're here to -- this is the first of two public scoping meetings for the proposed Turnagain Arm Tidal Electric Energy Project for Project No. 13509-001.

This is our agenda for this morning. First we would like to start with some introductions so the court reporter at least can get everybody's appearance on the record today. We'll start with you, Monte.

MR. MONTE MILLER: My name is Monte Miller. I'm the statewide hydropower coordinator for the Alaska Department of Fish & Game. I'm based here in Anchorage.

MS. BETSY MCCRACKEN: I'm Betsy McCracken with the Fish & Wildlife Service in the Anchorage field office and I work for conservation planning assistance.

MR. DOMINIC LEE: My name is Dominic Lee. I'm the project manager for the Turnagain Arm Tidal Energy Project.

MS. FREDDIE LEE: I'm Freddie Lee. I'm

with the Turnagain Arm Tidal Project.

MS. TAMMIE SMITH: I'm Tammie Smith, also with Turnagain Arm Tidal Project.

MS. KRISTEN NELSON: I'm Kristen Nelson. I'm with Petroleum News.

MS. CASSIE THOMAS: Cassie Thomas, hydro program coordinator for the National Park Service based here in Anchorage.

MR. MICHAEL DAIGNEAULT: Mike Daigneault with the Department of Fish & Game, Division of Habitat here in Anchorage.

MS. TAMARA MCGUIE: I'm Tamara McGuie. I'm a wildlife biologist here in Anchorage.

MS. MANDY MIGURA: Mandy Migura, National Marine Fisheries Service, marine mammals specialist.

MS. KATE MCKEOWN: Kate McKeown with the Alaska Conservation Alliance, clean energy coordinator.

MS. KIM NGUYEN: Great. Welcome. So as you can see, this meeting is being transcribed, and the transcript will be made part of the record. So to help Mary, the court reporter, out, to make sure she gets a complete and thorough record, please sign the registration form if you haven't already done so and restate your name and spell it, if you could, before you speak today.

The applicant, Turnagain Arm Tidal Energy

1 Corporation, filed a Notice of Intent and a preapplication
2 document for the project. They are using the Commission's
3 integrated licensing process, so we are in the early
4 prefiling stage of that process which requires scoping of
5 the issues, and that's why we're here.
6 So NEPA and FERC regulations and other
7 applicable law requires evaluation of environmental
8 effects of licensing or relicensing any hydropower
9 projects.
10 Now Turnagain Arm is going to give us a brief
11 description of the project and their operations.
12 MR. DOMINIC LEE: Yes. Okay. Hello,
13 everybody. My name is Dominic Lee. I'm the project
14 manager and also the founder of the Turnagain Arm Tidal
15 Energy Project.
16 I came to this country in 1962 and studied at
17 the University of Missouri at Columbia. I received a
18 bachelor and master degree in electrical engineering in
19 power generation major, and I also received an aerospace
20 engineering and mechanical engineering master's degree at
21 the same school. And then I studied environmental
22 engineering in University of Alaska Anchorage and also
23 wave engineering and coast engineering and earthquake
24 engineering.
25 I got lots of degrees, lots of classwork because

1 I just love to learn something, not because people give me
2 a promotion or anything, because I have my company since
3 1980. And I'm also very experienced in hydroelectric
4 projects. I was an engineer of record for evaluating the
5 70-year-old Bonneville Dam at Columbia River near Oregon.
6 I received a citation from the Corps of Engineers that my
7 job was well done. And I was also invited to China to
8 help them solve some construction project problems in the
9 40-billion-dollar Three Gorges Dam.
10 And last year I was invited to present a paper
11 at the First International Hydro Tidal Energy Project in
12 Dalian, China, and one of my papers I present was a 50,000
13 megawatt tidal energy project in Bo Hai, which is 175
14 miles of energy project with the size of -- the area of
15 water is bigger than North Korea. And so I feel I've got
16 the qualifications and ability to tackle this project.
17 This project is called the tidal energy project
18 in Turnagain Arm. Turnagain Arm is right in our front
19 doorstep. It is the world's fourth highest tide in the
20 world. On average, there's 26 feet between low tide and
21 high tide. At certain time in springtime when the sun and
22 the moon and the sun all line up, the tide will go up to
23 33 feet.
24 So the tide coming in, going out is twice a day.
25 It is reliable, predictable. It's unlimited resources and

1 does not cost you anything except your infrastructure.
2 That's not using fuel, so there are no emissions or carbon
3 dioxide to pollute the air. It does not harm the fish or
4 the marine mammals when the project does not dam up the
5 whole Cook Inlet, instead of making a little island in the
6 middle of the ocean.
7 In Alaska we have a shortage of electrical
8 energy because electrical energy in the Railbelt are
9 generated by natural gas. In Cook Inlet we run out of
10 gas. By 2018, we will be completely run out of gas. And
11 if you don't find a solution, all the house heating, the
12 electrical generation for electricity will be very
13 expensive because everything has to be shipped in.
14 This is -- on 2010 February, the FERC gave us a
15 location for us to put our -- to develop this preliminary
16 area for our energy project. The first phase is a
17 240-megawatt plan, which is almost as much as what
18 Anchorage needs in baseline electricity.
19 The plan is about two miles long and one mile
20 wide, and you have submarine cable all the way to the
21 Anchorage switchyard in the International Airport Road,
22 and where the Chugach shop is located. And then on the
23 other side, go to the North Possession Point, which is the
24 tip of the Kenai. It has a control building and then the
25 transmission line will be using the existing utility

1 corridor down to Kenai city, which is about 71 miles long.
2 I myself, as an environmental engineer, I'm very
3 concerned about environmental, and I know there is no way
4 we can build a project which would dam up the whole tidal
5 basin, so I've searched and searched and think about it,
6 and then I decided that also tidal power pad is the best
7 design because it is, by itself, just a little island in
8 the middle of the ocean. It's about five miles to Kenai,
9 13 miles to Anchorage. And this has a very minimal
10 environmental impact to the fish and marine mammals. And
11 actually it benefits the birds, especially the endangered
12 species so they can have nesting places in this island.
13 Using tidal to generate electricity is not new.
14 This is called La Rance Tidal Power Plant in France. The
15 water comes in from the ocean. It will go through the
16 turbine generating electricity, and when the tide goes
17 out, the turbine also -- the water would go out to the
18 sea, and the turbine still generates electricity. But
19 then in order to make it work, they have to dam up the
20 whole river so that they could control the water. The
21 project was built in 1966, cost the French government 88
22 million dollars. And 20 years later, when they retired
23 the debt service, they are selling the electricity to the
24 City of St. Milo, which is about the size of Anchorage,
25 has 250,000 population for 1.2 cents a kilowatt hour.

I have two engineers I sent to visit the site to talk to the electricity, the France who are operator of this project, and they told us people in this city, they use, not just for their power and light their home, they also use it to drive the electric car. They also use it to using electric heat for their home, like putting an electrical coil on the furnace or put an electrical boiler and which the monthly bills is about $7 per month. It's way, way cheaper than what we are paying in Alaska.

The turbine they use is called a bulb turbine. Basically the water will come in through here. You will turn the blade and then you will have a generator magnetic coil around here. The electricity is generated by cupping the flux and then it will bring the electricity up to the control room. This blade is computer controlled. So in the ebb tide, the tide that retreats into the ocean, they change the brake's angle so that the turbines are always running counterclockwise and you generate electricity all the time, except during the slack time. Slack time means when the flood tide coming in and it's coming no more, but then before they retreat, which is called the ebb tide, there is about 15 to 30 minutes of time this La Rance station does not generate electricity, but because they are part of the national grid, so the other electricity supply will take care of the slack.

1 In Anchorage you cannot do that because you have
2 a tidal energy project which produces 11 hours and 30
3 minutes, and then you got 30 minutes with no electricity.
4 That is not acceptable. So the only thing that is
5 acceptable is using a new method. Actually, it's also an
6 old method called pump storage tank technology. What you
7 do is you store it when the tide is coming in, then you
8 use excessive electricity to -- to -- to store the water
9 higher than the high maximum of the flood tide at least 20
10 feet, so when the tide coming in and stop, does not move
11 anymore, you just open the flood gate and let the storage
12 tank open up the gate and then water will run backwards to
13 the sea. And until the ebb tide start, you are drawing
14 the majority of the water from the basin of Turnagain Arm,
15 then you can turn off the gate of the storage tank and let
16 the natural ebb tide do the cause. It can go on two times
17 a day because the tide coming in two times, going out two
18 times.
19 The bulb turbine technology is proven. You have
20 to build by electricity of France and also by G.E., by
21 Siemens. So it's not something they have been using for
22 44 years. And the one in France never have a major
23 breakdown. It has been working like a charm.
24 And then on the offshore site, they use
25 something called a wet construction. That means you do

1 not block up the river or the inlet and dry up the water
2 before you pour concrete and build a foundation and do
3 these things. The new method is called wet construction.
4 You build everything in modules and you take it to the
5 barge and sink it down to the ocean one by one. We got 24
6 turbines. We sink them all together and link them
7 together, and that's your power pad. You don't need to
8 kill lots of fish by drying up the river and disrupt the
9 habitat, disrupt them coming back every year for spawning
10 because this project lasts for a year. If you kill the
11 fish that are coming back for spawning, by the third year
12 or fourth year, you have no fish at all. So this will
13 eliminate that.
14 And also because it's a little island in the
15 middle of the ocean, the marine mammals like beluga whale,
16 fishes and seals, they can swim around it. It doesn't
17 look like an island to them, so they wouldn't bother to --
18 they are not blocked. They pass. So the beluga whale
19 still can raise their calves in Chickaloon Bay and North
20 Kenai Bay.
21 And also because it's made out of rock, it can
22 become a bird nesting places for lots of endangered
23 species birds. They can rest there without being harmed
24 by predators.
25 Now, as an engineer, I look to all kinds of

1 different renewable energy projects. I look at the wind.
2 Wind can stop and intermittent because sometimes when we
3 don't have wind or the wind is to strong, it will stop the
4 turbine and you lose electricity. So it will not work in
5 Alaska very well because you cannot have the whole city
6 depend on the wind. Solar, it will not work in Alaska,
7 either, because in the summer you got sun, but in the
8 winter you have dark. And they are also very
9 intermittent.
10 And hydroelectric dam, it does not work in
11 Alaska, either. Most of the rivers in Alaska, the water
12 comes from melting of glacier ice. Because of raising in
13 global warming, the water coming into the river getting
14 less and less. I was recently in China. They have the
15 same problem. The Himalaya is drying up. There is no
16 more glacier water to come down.
17 So that also in Alaska, you put a -- build a
18 dam, it freeze up in the wintertime. You don't get
19 electricity to run the turbine in the wintertime because
20 you don't have enough water.
21 And then the biggest problem we have in Alaska
22 is we are on the Ring of Fire, which is called the
23 earthquake ring. Earthquake is very common around the
24 world. It happens a million times, but sometimes it's so
25 small, less than three Richter scale. You don't feel it.

1 But every year there are at least 20 of the earthquake
2 size seven or bigger, at least one or two of these is an
3 eight scale, Richter scale. If one of these hit the dam
4 you put up, it will wipe it out. It will -- you lose
5 everything, plus you can cause lots of damage to the
6 people downstream of the dam because the dam will be broke
7 for sure.
8 And also the dam, you block all the migration of
9 fish to go back to the other side to their spawning
10 ground. So this is another no-no in Alaska.
11 Now, on this pad we have, we have two miles long
12 and one mile high. This is called the storage tank. This
13 is the 24 turbines we have here when the high tide. When
14 in high tide, the water coming in here, it will turn the
15 engine. The water will go out through this gate, which
16 this is the basin of Turnagain Arm. So you would generate
17 electricity all the time.
18 And meantime, this is a pump to pump the water
19 with excess electricity to make sure this water storage
20 tank is at least 20 feet higher than the highest tide
21 limit. So when the flood tide starts to slow down, it
22 only takes two minutes to open this gate here to let the
23 water from this area to go through the gate and then the
24 water will be flowing back to the sea. And this will keep
25 the continuity of electricity so you don't get

1 intermittent effect.
2 And when the -- when the ebb tide coming in, it
3 will draw the water from here, and then it will open this
4 gate so the water can go through this gate and go through
5 the front part, and then you shut this gate back and make
6 it a confined storage tank. And then using the excessive
7 electricity in the pump station to pump the water from
8 here back to here, so it will be always have 20 feet above
9 the highest tide level. And then when the ebb tide keep
10 going until it quit, and then you open this gate and keep
11 going, keep this -- get the water from here to go through
12 this turbine and keep generating electricity until the
13 flood tide come back in in the sea. And then you -- this
14 is a cycle we'll repeat two times a year. But all the
15 time you get electricity supply. You don't have any
16 breakdown or stoppage.
17 MS. KIM NGUYEN: I'm sorry. Can you go
18 back? Can I ask a question before you go on? So is this
19 reservoir thing, is that part of -- the storage reservoir,
20 is that part of the -- how is that wet construction when
21 you are building this?
22 MR. DOMINIC LEE: This one here is just a
23 -- this part is all wet construction here, but this part
24 here, this is all rock and this is rock. And what it does
25 -- go to the next page, or the conception. It's just like

1 a concrete wall from the bottom to the top, and then you
2 just get the barge with one meter or two meters rock
3 granite rock to build up the reservoir. So this part
4 is -- you just bring the barge and you pick up the crane
5 and pick up the rock and one by one and build this thing.
6 The wet -- but it's still we are doing it in a wet
7 condition. We do not dry up the land. Did I answer your
8 question?
9 MS. KIM NGUYEN: Uh-huh.
10 MR. DOMINIC LEE: Now, this is a slot gate
11 construction, which is the wheel, so that the water -- if
12 this gate moves up, the water will go through here. This
13 is an isometric view of a slot gate. This gate will go up
14 and down but it go very slowly. The one we designed in
15 the Bonneville Dam, it move about one inch per minute,
16 very, very slow, you know. Because they are -- they are
17 not this kind. They are much wider and bigger gates. So
18 it depends. Basically this one is just a gate to let the
19 water in and going out from the storage tank to the
20 turbine or from the outside into the storage tank or to
21 the turbine. And this is the arrangement of the turbine.
22 You have 24 together. Each one is ten megawatts. So
23 total together is 240 megawatts.
24 And this is -- this area is for service. You
25 can pick up the whole coil to fix it. In France they have

1 got a slot gate from here and from here they can shut both
2 gates and people can go in here and repair the unit. And
3 in France, my engineer was visiting down there.
4 Everything is made out of stainless steel, like brand-new,
5 even they work for 44 years.
6 Okay. In summary, this project is very
7 environmental friendly. It is not using fuel, produces
8 low emission, it does not block the migration pathway of
9 the marine mammals and also the fish. It is operation
10 that's very quiet because all under the water. It's
11 earthquake proof because when you have earthquake and
12 tsunami, it only affect anything above sea level. Under
13 the water it's strong enough to withstand any strong
14 current. It solves the intermittent problem of the
15 renewable energy sources. This is the only renewable
16 energy source that does not have an intermittent problem.
17 Economic for the benefit of Railbelt. It will
18 create 2,000 jobs during the four-year construction and
19 about 200 permanent jobs to do the operation and
20 maintenance, and also reduce electricity cost to the
21 Railbelt area from we are paying 16 cents down to six
22 cents or four cents, it ranges. When the service debt is
23 retired, it will go down to one cent.
24 And the construction costs -- also the
25 construction cost on this project is only 760 million

1 dollars. It's about 3,000 per megawatt -- per kilowatt.
2 3,000 per kilowatt. It has been confirmed by Black &
3 Veatch Engineering Company in Kansas City and it has been
4 confirmed by the tidal project that are being built right
5 now in Inchon, Seoul, Korea. And that project is a 1.3
6 mega -- 1,300 megawatts for 3.9 billion dollars. So
7 average is about 3,000 per kilowatt hour, compared to
8 geothermal is 10,000 per kilowatt hour in the one in Chena
9 Hot Springs that he built, compared to the hydroelectric
10 dam is, like, 20 billion dollars to build the same amount
11 of electricity.
12 This is the cheapest way to get cheaper
13 electricity for the total -- this project can expand up to
14 1,200 megawatt hours by modules. You can add whatever you
15 want, but if you do the maximum, which is 1,200 megawatts,
16 which is much more than Alaska needs, including the future
17 projection of the industry, it only cost 2.5 billion
18 dollars for 1,200 megawatts. And about 1.5 million
19 dollars for 600 megawatts. And only 760 million dollars
20 for what we have here, 240 megawatts.
21 I'm also an engineering economist because I want
22 to -- engineer has several ways to do two things. You got
23 to get the best environmental requirement. You get the
24 easiest to deal with, less interruption, and then economic
25 is another important thing. And thank you for listening,

1 and I appreciate you all coming today.
2 MS. KIM NGUYEN: A couple more questions
3 for you, Dominic. So are there intake gates along with
4 the other -- the slotted gates at the entrance and the
5 exit of the turbines?
6 MR. DOMINIC LEE: Yes, we just install
7 everything, yeah. But every turbine, we will have a gate
8 on both ends so we can shut it off and do repair.
9 MS. KIM NGUYEN: And the plant in France
10 that you spoke to, have there been studies on, for
11 example, fisheries where -- I don't know if they have
12 whales over there.
13 MR. DOMINIC LEE: Yeah, they did lots of
14 studies. They have 44 years of records. They haven't
15 killed any fish. Fish up to three, four feet swim right
16 through, no problem. One thing we need to let you know,
17 the turbines turn very, very slow. It's 2.4 seconds per
18 revolution. So it's about 25 revolutions per minute. So
19 that means it's slower than you walk through the revolving
20 door of a hotel front door. So there is no problem for
21 the fish to go in. And also in front of the turbine we
22 have the guard made out of sheet metal so the beluga whale
23 cannot swim inside. They will be blocked. They block
24 them from going into the turbine.
25 MS. KIM NGUYEN: So impingement and

1 entrainment is very minimal at these bulb turbines; is
2 that what they found in France?
3 MR. DOMINIC LEE: Yes, very, very
4 economic. They -- they have been running for 44 years,
5 never have a major breakdown. But they do regular
6 maintenance.
7 MS. BETSY MCCRACKEN: I have a related
8 question about the reservoir design. It seems like there
9 is potential for entrapment within the reservoir of fish
10 and marine mammals.
11 MR. DOMINIC LEE: The reservoir will have
12 both gates. It has a front gate and also has a back gate
13 so the water can flow from the back into the reservoir and
14 go out to the sea and vice versa.
15 MS. BETSY MCCRACKEN: Is it not shut off
16 during --
17 MR. DOMINIC LEE: It's only shut off
18 during the time we need to pump water in.
19 MS. BETSY MCCRACKEN: And so then when the
20 tide goes out, it seems like there is a period where the
21 water is in the reservoir and there could potentially be
22 aquatic life in there, also.
23 MR. DOMINIC LEE: There is a time when --
24 MS. BETSY MCCRACKEN: Twice a day.
25 MR. DOMINIC LEE: Yeah, twice a day, but

1 the reservoir, both gates will open at certain times
2 because we also need the water to come in to fill up the
3 majority of the water in the reservoir, too.
4 MS. BETSY MCCRACKEN: So is that possible?
5 MR. DOMINIC LEE: Well, the fish will be
6 trapped in there, but they can also get out, too. They
7 can always, when the gate opens, just get out. Maybe at
8 that time the beluga are waiting outside to catch them.
9 MS. BETSY MCCRACKEN: Is that so?
10 MR. MONTE MILLER: Related question:
11 Nowhere in the PAD or the other documents did I see a
12 description of the pump system. I would like to know the
13 volume of water to be pumped in there, you know, how many
14 gallons per minute, the sizes of pumps. Is that intake
15 going to be screened? I mean, it's the same issue. You
16 are talking about safety for fish down here, but you don't
17 talk about safety for fish at the pumped area, which is
18 separate.
19 Secondarily, you -- you say in your PAD document
20 that ice is not an issue. I see ice very much to be an
21 issue at your pump storage area. Icing can be a major
22 problem out there, and that is totally unprotected.
23 The third question I have is, you have a very
24 large structure here made of basically rock. Where is
25 this rock coming from? What kind of volume are you

1 talking about? And what effect is the removal of that
2 much rock from whatever area going to have on the
3 environment at that site?
4 MR. DOMINIC LEE: Okay. To answer your
5 third question -- I go backwards. Tidal -- Turnagain Arm
6 Tidal Energy has a Memorandum of Understanding with a rock
7 quarry owner who owns a rock quarry west of Cook Inlet
8 near Iliamna Bay, and he's getting the final permit for
9 operation permit from the Corps of Engineers. And they
10 are over 300 acres of 95 percent hot granite rock which
11 has been tested by geology is good to use as a boulder for
12 building the reservoir. And the available rock is about
13 between 15,000,000 to 30,000,000 cubic yards.
14 MR. MONTE MILLER: Fifteen to 30?
15 MR. DOMINIC LEE: Fifteen to 30,000,000
16 cubic yards. In our calculation, we need about 10 to
17 12,000,000 cubic yards. For the other question for the
18 pump, pumping technology is not new. There has been --
19 over 300 facilities just in America are using the pumping
20 water from lower reservoir back to the higher reservoir in
21 the time when there is excess electricity so that they can
22 use the water over and over again instead of use up the
23 river water. And we will -- pumping -- the pump, G.E. and
24 both Siemens technology, they can make a pump that can
25 pump up to 1,000 gallon per minute. So it's not

1 something -- this is also very old technology. Pumping
2 storage has been at work in dams and also in -- all over
3 the world. Some of them even pump up to 2,000 feet high,
4 higher reservoir and let it flow back. And so we will get
5 into that when we hire -- we are negotiating a contract
6 with Louis Berger Engineering in Seattle called ABAM to do
7 our engineering. And they'll do a good job on that, I'm
8 sure.
9 MR. MONTE MILLER: I guess my concern with
10 that is the volume of water you are talking about is going
11 to be extremely difficult for juvenile young-of-year fish
12 to negotiate past. They are not going to be able to swim
13 away from a draw of up to 1,000 gallons a minute. That's
14 tough. Any type of screen to keep them out is going to
15 have to be an extremely large area so that it reduces
16 those velocities.
17 MR. DOMINIC LEE: I understand that, yeah.
18 But also you are looking at, they got lots of deep water
19 holes underneath the sea, and that's what we can draw the
20 water from, very deep. Over 10 feet deep from the area.
21 MR. MONTE MILLER: You are putting this in
22 an area that's only 60 feet deep, according to the PAD
23 document.
24 MR. DOMINIC LEE: The area we -- we put
25 our -- our PAD is about 60 feet, but I'm telling you

1 between Fire Island and North Kenai, there are a couple of
2 deep valleys up to 10 feet deep. You look at the chart
3 made by NOAA, they indicate that it is about 30 some
4 fathoms, which is about 10 feet deep. So that is the kind
5 of area we can draw water from. And also this is in the
6 middle of the ocean. Most of the fish that swim along the
7 shore, especially juvenile ones. So if they are sucked
8 into the water -- we hope it will not, but we will make a
9 study to mitigate it.
10 MR. MONTE MILLER: And you don't feel ice
11 is a problem with your pump station?
12 MR. DOMINIC LEE: Oh, the ice. The ice
13 usually in the inlet is no more than ten feet deep. And
14 our pump, our turbine is at least ten feet below the lower
15 water low tide limit. So we are way below the --
16 MR. MONTE MILLER: I'm not talking about
17 your bulb turbines. I'm talking about your pumped area.
18 MR. DOMINIC LEE: Well, our intake on the
19 pump is way down south to suck the water out from deeper
20 area, so there will be no ice problem with that because we
21 are sucking it through -- through large diameter pipe.
22 MS. MANDY MIGURA: I would like to share
23 some just general concerns about needing more information
24 about the pump system, the possibility for pumping in
25 marine species. I won't delve into that further, but I do

1 have -- I guess you just jogged my thinking on this ice
2 issue, that maybe just consider the possibility that, is
3 the storage area going to be depleted and refilled
4 completely?
5 MR. DOMINIC LEE: No, no, no.
6 MS. MANDY MIGURA: Then there's a chance
7 during the winter that that top layer is going to be iced
8 over so you are going to have some ice forming on the
9 inside of that. I don't know how that's going to impact
10 anything, but just something to consider that I agree that
11 ice may be a concern in that area.
12 I would also like to ask about how will this
13 barrage, this storage tank area of this project affect the
14 hydrology in Turnagain Arm. There is some indication that
15 the channels running through Turnagain are very important
16 for Cook Inlet belugas for transit areas, some of these
17 deeper channels, so there is the concern how this large
18 structure is going to change the hydrology, change those
19 channels. And also if you are pulling the water from some
20 of these deeper channels, those may be used for the
21 belugas passing.
22 MR. DOMINIC LEE: We will look into
23 something like that. Right now I don't have all
24 information.
25 MS. MANDY MIGURA: Just so -- that will be

1 one thing that NMFS will probably want to have some more
2 information on is the hydrology changes.
3 MR. DOMINIC LEE: We have Dr. Hayes of
4 Louis Berger from Morristown, New Jersey. He came to
5 Anchorage last month and talked to us about that. And he
6 is a -- he's got his MIT Ph.D. degree in hydrology, and he
7 said he has run into some problems, but there is a
8 solution for that.
9 MS. MANDY MIGURA: And the last paint I
10 want to bring up is this is smack in the middle of beluga
11 critical habitat which is a recognized sensitive area, so
12 those effects will need to be analyzed and weighed, as
13 well. So it's not just the effects of the beluga, but to
14 their critical habitat element as well. We'll need to
15 look at that and FERC will need to work with us to make
16 sure those aren't adversely modified.
17 MR. DOMINIC LEE: We very concerned about
18 that. That's why we already know we cannot dam up the
19 whole inlet because it will block the path of the beluga
20 whale as well as the fish migration. We don't want that
21 to happen. That's why we build a little island there so
22 they can swim around it.
23 MS. CASSIE THOMAS: We are going to be
24 requesting some studies on recreation aesthetics. That's
25 our main area of jurisdiction. But I also want to say

1 that I'm an oceanographer. And the thing we all need to
2 understand about how tidal regimes work, as opposed to
3 more conventional hydrology in a river is that if you
4 didn't have any land on earth and the bathymetry of all
5 the oceans was constant, you didn't have underwater
6 mountain ranges and so on, the tides everywhere on the
7 planet would be very predictable and regular in terms of
8 magnitude and timing. You would have coriolis effect, but
9 basically you would have eddies of tides spinning in the
10 northern and southern hemisphere, and you would have a
11 very predictable tidal regime everywhere.
12 High tides -- and I did my oceanography work in
13 Nova Scotia. I used to own a house on Bay of Fundy that
14 had ten to 14 acres, depending on whether the tide was in
15 or out. So high tides in the areas on the planet where we
16 have them are a product of two things. One is the
17 bathymetry, the nearby bathymetry, how deep the water is;
18 and the other is the actual geometry of the coastline. We
19 tend to find these big tides somewhere where you have a
20 long narrow dead end like Turnagain Arm or the Bay of
21 Fundy in Nova Scotia.
22 The tidal regime in these areas is very
23 sensitive to changes in that geometry. So what I haven't
24 seen really mentioned to any great extent in the PAD or
25 the SD1 is what the effect of a two-square-mile change in

1 the geometry and bathymetry of Turnagain Arm would have on
2 the overall energy of the system. And from my physical
3 oceanography background, if you take energy out of a
4 system -- and we are talking about taking quite a bit of
5 energy out of the water in this system -- you are going to
6 have an impact on sedimentation, on sediment transport
7 basically, especially where you are talking about very
8 fine sediments, which is the kind of sediment that we have
9 in Upper Cook Inlet.
10 So even if you could build this two-square-mile
11 barrage or island -- and I'm skeptical about how feasible
12 that is due to the depth of the sediment and the amount of
13 scour that you will have as you try to construct this --
14 even if you could build this, I think that before you were
15 to commence doing this, we would want to know what will
16 happen to the sediment transport in and out of this system
17 on the tides. Where will the sediment go? Will there be
18 scouring? Will there be erosion of coastline? Will we
19 change everything, you know, the port of Anchorage, any
20 existing submarine cables in the system? Will the system
21 even work? Because you may find that as you slow down
22 water velocity in the vicinity of this new island by
23 taking energy out, you are going to have, you know,
24 increased deposition and you may end up with a mound of
25 sediment all around this island and no water around it.

1 So the physical oceanographic effects are
2 something that are just absolutely important from a
3 feasibility point of view to understand. And obviously
4 all of that has impacts on things like fish habitat and
5 navigation, you know, and even things like the Seward
6 Highway falling into the ocean.
7 So I think we -- I would encourage you to hire
8 an oceanographer, a physical oceanographer and do some
9 modeling because I know that when the project on the Bay
10 of Fundy was built, which was a barrage that went
11 completely across an arm of water, the -- some of the
12 effects that were modeled were that it would change the
13 tides in Boston, Massachusetts, which is several hundred
14 miles south.
15 So we will be asking a lot more specifically
16 about recreation and aesthetics, but I just wanted to talk
17 about the oceanographic effects because that's kind of a
18 preliminary issue.
19 MR. DOMINIC LEE: To answer your two
20 questions, the first one would be recreation. The only
21 recreation I saw -- I have been in Alaska since '77 -- is
22 that people do some wind surfing near the Girdwood area.
23 And there are very few boats going into Turnagain Arm.
24 There is no shipping lanes there. That's why we choose
25 that area is there is no shipping lane for the Anchorage

port. And also because the high tide and low tide, very few people will drive a boat or sail a boat into the inlet because they will get stuck because of tides coming in and out in such a fast movement. Before you know it, you are stuck on the sandbar.

Concerning the sediment area, one of the reasons we put it into an island is not -- instead of a dam across the whole inlet is to let the flow of the tide in and out take care of the sediment. Around our -- our power pad area, we were using a very heavy-duty compressor to pump air so that makes sure there is no sediment accumulate near our turbines or power pad or anywhere that will have an effect of sediment accumulation. We were using compressed air up to one thousand 1,200 psi to blow it out. So when the sediment was trying to settle and we blow it out and the tide carry them out into the sea. And that's what we have imagined.

But another concern you have is the tide coming in, we are losing -- take lots of energy. We are not taking lots of energy out of this. We are taking about 240 megawatt size. According to the studies done by the State of Alaska in 196, it has 16,000 megawatts potential. So we are taking 240 out of 16,000, which is a little bit more than one and a half percent of the energy out of the inlet. So in our preliminary study, it would not affect

that much energy taking it out. And also because our pad is in the middle of the Cook Inlet, the Cook Inlet is, like, 1 miles wide between Anchorage and Kenai. We were -- we make our pad facing the Cook Inlet only one mile wide. It's not two miles wide. We only have one mile wide facing the tide. So that one mile out of 1 miles, the water will spit out and it will not like disrupting the shoreline that much. We will make a study on that. We can make a computer model to find out how much a wave can hit the shoreline and damage the shoreline.

And I studied wave engineering and coastal engineering in the Martha's Vineyard, how percent it was changing. So I know with such a wide area, there will be very, very little effect. The waves will hit the shore different than they normally hit the shore. But I will have to say I will have to do a computer model to verify that.

But in my mind as an engineer for 40 years, licensed in 11 states in this country, I can assure you we will make sure this project will do it right because I'm an environmental engineer. I work for Sierra Club, clean up the Grand River and Osage River in Missouri when I was a college student. And I'm still going to the Anchorage Sierra Club meetings all the time to tell them what needs

1 to be done to make this state from pollution, from
2 excessive burning of fossil fuels and also from damming up
3 the river and places to hurt the fish and marine mammals.
4 My -- my environmental engineering professor, Dr. Gene
5 Dickinson, was a former director of EPA in Alaska Region.
6 He taught me a lot, how to be humble, how to do things
7 right. And he say, you don't want to mess it up, the
8 environment. You got to do the best you could to protect
9 it. And I carry his message all my life.
10 MS. KIM NGUYEN: Thank you, Dominic.
11 MR. DOMINIC LEE: You are welcome.
12 MS. KIM NGUYEN: I think Mr. Lee has
13 pretty much gone over his proposal and environmental
14 measures. So we will just go past these slides really
15 quickly, please, and get to the scope of cumulative
16 effects.
17 We have initially identified fishery resources
18 and the Cook Inlet beluga whale as being cumulatively
19 affected by the project. Our geographic scope is the
20 Upper Cook Inlet, obviously. The temporal scope is 30 to
21 50 years into the future, concentrating on the effects of
22 reasonably foreseeable future actions.
23 Now, the bulk of the meeting or the gut of this
24 meeting, we are going to discuss each resource issue one
25 by one.

1 MR. MATT CUTLIP: Let's take a step back.
2 Let's talk about cumulative effects again. Is everybody
3 looking at the scoping document? The scoping document
4 actually provides the discussion of cumulative effects.
5 It also describes the specific resource issues. Our
6 slides don't necessarily identify every issue by line
7 item. It just sort of recognizes that we have various
8 resource issues, fisheries, water resources, terrestrial
9 resources. So we're going to actually be moving through
10 the scoping document now. And I think we want to quickly
11 touch back on cumulative effects, make sure that we have
12 identified the resources that will be cumulatively
13 affected and take any comments on that verbally.
14 MS. KIM NGUYEN: Page 12 of the scoping
15 document.
16 MS. MANDY MIGURA: I have a question on
17 something on page 11, maybe a comment. And that's right
18 before cumulative. I think it's under the environmental
19 measures, something that wasn't talked about. I just want
20 to point out, there seems to be a bit of an inconsistency
21 in the mitigation for aquatic resources versus the
22 threatened and endangered species. And it looks like
23 there is going to be acoustic deterrents used for aquatic
24 resources, but then under the threatened and endangered
25 species, it's going to be reducing noise through noise

1 suppression techniques. It just seems a bit inconsistent,
2 we're adding noise and we're taking away noise. So
3 there's an acoustic deterrent that might be of a concern
4 to the beluga whale. I just wanted to let that be known,
5 there seems to be a bit of an inconsistency.
6 MS. KIM NGUYEN: Do you, Mr. Lee, have a
7 response for that?
8 MR. DOMINIC LEE: On the noise, when my
9 engineer went down to the turbine area in the La Rance, he
10 does not require to have earmuffs, but he said he could
11 hear a humming noise just like in the turbine. But he
12 said the French men told him you could always put
13 insulation down, they call it bubble, sound insulation in
14 the system, which they didn't have when they designed the
15 project 44 years ago. But he said the technology is so
16 new now, you can insulate all the sound from the turbine
17 to get out. He didn't think that the noise in the turbine
18 area to -- he did not see any point of wearing earmuffs in
19 the control room area, as well as the people working in
20 the turbine area. But we will be taking the insulation to
21 take care of the noise as much as possible.
22 MR. MONTE MILLER: Your diagrams that you
23 showed initially in your presentation showed the bulb
24 turbines suspended down. It appeared that water went all
25 the way around the turbine, that it wasn't requiring

1 everything to go through it. If you have an opening like
2 that, I don't see how you are going to be able to sound
3 buffer.
4 MR. DOMINIC LEE: The sound buffer is on
5 the -- on the generation -- generation where they have the
6 electrical coil and the magnetic area. That's where the
7 sound come from. The turbine itself have no -- they have
8 a slot gate to shut down both ends so they can pump the
9 water and try to service the turbines.
10 MR. MONTE MILLER: In France.
11 MR. DOMINIC LEE: Yeah, in France. G.E.
12 has the same thing, too. They use a G.E. Canada turbine
13 in the Bay of Fundy. It's the same kind of a design,
14 except made in U.S.A. And I heard that G.E. turbines are
15 much quieter than the French one because they just make it
16 recently, not 40 years ago. So there are lots of sound
17 protection built into housing the electrical wiring and
18 the magnetic flux.
19 So we haven't decided which turbine we are going
20 to use, but we will look into every different kind and get
21 the best. And my initial inclination is we would get the
22 G.E., the first choice, because they are made in USA.
23 MR. MONTE MILLER: Maybe what -- I guess
24 I'm a little confused, too. I followed the comment or the
25 question that was asked before. While you are trying to

1 quiet the turbine, you are talking about 1,200 psi air
2 jets going into the system around there that's going to
3 create a huge amount of noise.
4 MR. DOMINIC LEE: No, that is outside,
5 outside the turbine area. Wherever they have a -- we find
6 a pile of sediment, then we put the -- blow it out there.
7 Mr. Chuck Renfro, he's the engineer. He went to look at
8 the turbine. Can you answer, Mr. Miller?
9 MR. CHUCK RENFRO: I have been to the La
10 Rance project, and I got a tour of that. And went
11 actually down into the bulbs.
12 MR. MONTE MILLER: We understand that.
13 No, the question, I think, that was raised initially by
14 our NOAA representative here, but I'm confused. You
15 are -- you know, the concern for noise and yet you are
16 talking about a high pressure air system which, you know,
17 many of us believe is going to be a continual thing
18 because that sediment is going to move. And that, in
19 itself, is a high noise situation that's going to be out
20 there in front of turbines, out where belugas or fish or
21 whatever are going to be found. I guess I'm a little
22 confused. On one hand, we're talking about quieting down
23 turbines. And on the other hand, you're going to
24 introduce huge amounts of noise through an air system.
25 MR. CHUCK RENFRO: Well, the noise that I

1 encountered and actually standing there above the system
2 watching it perform, there is certainly, like, a river
3 flow noise on the outside. Down inside the structure
4 where they actually have the turbines, they have a noise
5 buffer system, and then they have their -- all of their
6 maintenance.
7 MR. MONTE MILLER: I understand that in
8 the turbine, but it doesn't answer the question of your --
9 outside the turbine area along the project, you are up to
10 1,200 psi area.
11 MR. CHUCK RENFRO: I can't tell you the
12 decibel level or the level of the noise, but it was not
13 irritating.
14 MR. MONTE MILLER: They don't have that
15 system there, do they?
16 MR. CHUCK RENFRO: They have a bulb
17 system.
18 MR. MONTE MILLER: Do not have an air jet
19 system out there putting 1,200 psi into the water to
20 remove sediment.
21 MR. CHUCK RENFRO: I don't think they do.
22 They don't have a major sediment problem.
23 MR. DOMINIC LEE: Do it this way. We
24 don't even know there will be -- sediment is a problem
25 because the tide going in and out at almost ten to 15

1 miles an hour. If they let nature take care of the
2 sediment, that's fine. If not, we will study this issue
3 and -- and resolve it the best way we could.
4 MR. MONTE MILLER: The unfortunate problem
5 with that is once you are constructed it's very hard to
6 retrofit and go back to do something that doesn't damage.
7 You are talking about after it's constructed. We are
8 saying this needs to be decided before.
9 MR. DOMINIC LEE: We will find out what
10 the sediment accumulation be and -- also, using the jet to
11 blow the sediment is not continuously. It's only when we
12 see a pile of silt accumulate; then we will just like --
13 by a hose and blow it out and then --
14 MR. MONTE MILLER: So this system is in
15 roughly 60 feet of water. Your turbines are 30 feet down.
16 It is turbid water. You can't see down. Cameras aren't
17 going to do that. Are you going to be doing physical
18 inspections all the time out there in 15 mile an hour
19 tides? I don't see how you can put a diver down there. I
20 don't see how you can control camera gear down there. How
21 are you going to determine unless you physically see
22 sediment at the surface or your turbines are impacted and
23 not running? I guess there is a lot of things about
24 Turnagain Arm that are different than a lot of other
25 places in the world.

1 MR. DOMINIC LEE: Well, according to all
2 the underwater surface pictures I saw, there is no
3 sediment accumulate. They are all just a hot rock there
4 because the tide wash it out and scrape them away. They
5 are not like port of Anchorage accumulating lots of
6 sediment because, as well, they do not have the
7 Matanuska-Susitna River there bringing in the silt. But
8 we will study the issue.
9 MR. MONTE MILLER: It's also fairly well
10 documented and was addressed in your PAD that the channels
11 that occur in Turnagain Arm move around considerably.
12 This impact out in the middle is going to cause more
13 movement of those channels, and that will impact the
14 migration routes of both salmon and marine mammals.
15 The other question related to that in aesthetics
16 sticks is what's going to happen to the only bore tide in
17 the United States.
18 MR. DOMINIC LEE: The bore tides still
19 come and go every day.
20 MR. MONTE MILLER: You are taking energy
21 out. We don't know that it will still have a bore tide.
22 MR. DOMINIC LEE: No, the bore tide is 13
23 miles wide, and we only have one mile out of 13 miles of
24 the bore tide.
25 MR. MONTE MILLER: So you don't feel it

1 will affect the bore tide?

2 MR. CHUCK RENFRO: You are not removing

3 energy; you are expecting energy. You are not pulling in.

4 You are either removing energy, but you are not

5 interrupting the tide.

6 MR. DOMINIC LEE: Nobody can interrupt the

7 bore tide because that thing is 1 -- it can generate

8 16,000 megawatts power is a tremendous energy there.

9 MR. MONTE MILLER: That's the tidal flow

10 in general. That's not a bore tide.

11 MR. DOMINIC LEE: That's that area. But

12 we will resolve that. We will study the issue and get a

13 -- get a resolution for that.

14 MS. CASSIE THOMAS: It's not just an

15 energy dynamics issue, energy budget issue. It's an

16 actual geometry issue that produces a bore tide, or we

17 would have them everywhere. So even though you are only

18 talking about giving one cross-section cross the mouth of

19 Turnagain Arm one mile out of 1, you are taking two square

20 miles of area out of the mouth of Turnagain Arm and just

21 from my physical oceanography background, I mean, I tell

22 you, that could affect the bore tide. It could affect --

23 it's almost certainly going to affect where the channels

24 are in this very fine sediment. And who knows what effect

25 it will have. It could amplify the bore tide. It could

1 completely remove it. But it needs to be studied. We
2 don't know right now.
3 So any statement that we know what's going to
4 happen based on what I've seen in the PAD and the SD1,
5 there has been no science applied yet.
6 MS. BETSY MCCRACKEN: We are also
7 concerned with the bore tide and potential impacts to the
8 fisheries resources in Turnagain Arm, including salmon and
9 hooligan. And the bore tide is particularly important to
10 the trophic ecology and the mixing area.
11 MR. MATT CUTLIP: Just a quick point of
12 clarification. We are going to go in and do a pretty
13 detailed discussion here of the issues, so a lot of these
14 things are going to come up again. I know it's great, if
15 you have comments any time, just make sure you get them on
16 the record. But we will go into a detailed discussion of
17 each of these individual issues and then we can talk about
18 the specific issues that we've identified and add to those
19 and so on shortly. So it's forthcoming.
20 MS. KIM NGUYEN: Same thing with the
21 studies.
22 MR. MATT CUTLIP: I guess just to make it
23 clear, the goal today is really just to discuss the issues
24 so that, you know, when this application is developed, we
25 make sure that we analyze those issues in our NEPA

1 document, which could eventually form the licensing
2 decision. Before we ever get to that point, before a
3 license application has been developed, we will go through
4 a pretty extensive study planning period. So just to be
5 clear, the goal today isn't necessarily to hash out the
6 studies. Of course, we can talk them. It's really to
7 identify the issues and then at some point we will go
8 through the study planning process to make sure we have
9 the information necessary to analyze those issues in the
10 NEPA document. So that said, Monte.
11 MR. MONTE MILLER: The NEPA document, do
12 you have an idea whether you are looking at an EIS due to
13 endangered or threatened species.
14 MS. KIM NGUYEN: It's definitely an EIS.
15 MR. MONTE MILLER: It will be an EIS?
16 MR. MATT CUTLIP: Yeah, and it even
17 identifies in here that we do intend to prepare an EIS.
18 So are there any other questions specific to the
19 project proposal? Again, we really didn't talk about the
20 studies in lot of detail that were proposed, but there is
21 a very extensive comprehensive study planning process that
22 will follow this effort, so that's kind of what -- we
23 would like to reserve that discussion.
24 So really what we're trying this to do today is
25 just clarify the proposal, identify the environmental

1 issues.
2 MS. CASSIE THOMAS: Where the Anchorage
3 based connection comes ashore, it looks like it's part of
4 Kincaid Park, but there isn't a lot of detail on exactly
5 where that is. Something you would want to look at and
6 provide information about is whether it's any part of
7 Kincaid Park, which is a municipal park, for those who
8 aren't from Anchorage, that was acquired using Land and
9 Water Conservation Fund money which is a form of federal
10 funding that the Park Service administers to the states,
11 and it was with strings attached. You cannot concert LWCF
12 lands to any other use and that will potentially affect
13 the use of those lands for utility right of ways so you
14 will want to look into that issue and make sure you know
15 where you are coming ashore and whether there might be a
16 LWCF issue associated with that.
17 MS. KIM NGUYEN: What's the name of the
18 park again.
19 MS. CASSIE THOMAS: Kincaid,
20 K-I-N-C-A-I-D.
21 MR. MONTE MILLER: Mike, you are more
22 familiar the coastal wildlife refuge. Could you maybe
23 identify -- do you think this area crosses into that area
24 as well?
25 MR. MICHAEL DAIGNEAULT: Similar to what

1 Cassie was mentioning, there is very little detail right
2 now as to where the submerged cable from the project area
3 toward the Anchorage side would be, and just from the
4 slide in the presentation earlier, certainly appeared like
5 it would go through the coastal wildlife refuge, so there
6 would be some things to consider and issues for us to
7 discuss there. But without knowing where that's going to
8 be, there is not much issue in discussing that.
9 One other comment you brought up, try to get us
10 back to cumulative effects here, I'm curious if you guys
11 could maybe define the scope of where you've got Upper
12 Cook Inlet, and that's a little bit vague, so I'm
13 wondering if you have better boundaries for us to
14 consider.
15 MR. MATT CUTLIP: At this point we keep it
16 at a very conceptual level. That's kind of at scoping
17 meetings where we refine our cumulative effects analysis,
18 our geographic scope, the species considered. So I guess
19 we can go ahead and get back to cumulative effects now.
20 So I think -- I was thinking a very -- like I said, a very
21 broadly defined level. If you have any comments on what
22 you were thinking as far as Upper Cook Inlet, I was
23 basically assuming -- I didn't really define it with any
24 kind of geographic boundaries, but I was thinking the area
25 of, you know, Upper Cook Inlet down to below the project a

1 little ways, below Turnagain Arm there town towards Kenai.
2 MS. CASSIE THOMAS: Wouldn't it make sense
3 to, at a minimum, the area of geographic scope would be
4 the area affected by changes in flows and magnitudes and
5 timings of tides as a result of this project? I mean that
6 seems like it would be the physically impacted area. Just
7 as for a conventional dam project, you would look at all
8 of the area that might be inundated in a reservoir.
9 MR. MATT CUTLIP: I think we could do that
10 if we were considering physical habitat as a cumulative
11 effect in itself. So if we are talking about fisheries
12 resources, there are probably other effects on the fishery
13 resources within the project area or within Upper Cook
14 Inlet. For example, commercial fishing downstream, maybe
15 habitat development across the inlet.
16 MS. CASSIE THOMAS: I'm saying the
17 physical -- the area that would be physically -- the
18 physical footprint of the project would be all of the area
19 where the current tidal regime will change, including
20 bathymetry and range and timing of tides --
21 MR. MATT CUTLIP: Okay.
22 MS. CASSIE THOMAS: -- as a minimum. I'm
23 not saying that's what you should pick, but I'm just
24 offering that that would be to me the parallel with a
25 conventional dam-based project; you would include in the

1 scope at least a footprint of the reservoir.
2 MR. MATT CUTLIP: Gotcha. Okay. So the
3 way that this is set up right now in the scoping
4 documents -- not exactly accurate -- if you read it, it
5 says fishery resources, including the beluga whale. It
6 should be fishery resources and the beluga whale. When we
7 talk about geographic scope, there should actually be a
8 geographic scope for both fishery resources and beluga
9 whale that would be separate. So we will definitely clean
10 that up in the scoping document, too.
11 Are there any other comments on cumulative
12 effects? Are there any other resources that would be
13 cumulatively affected besides the ones we have identified
14 that folks want to talk about?
15 MS. MANDY MIGURA: Just to clarify, you
16 say the impacts are fishery resources and beluga whales.
17 So do other marine mammals fall in the fishery resources
18 category?
19 MR. MATT CUTLIP: No. If you believe that
20 there is a cumulative effect on other marine mammals in
21 addition to beluga whales, we would add that in and do an
22 analysis in the NEPA document.
23 MS. MANDY MIGURA: I think the most likely
24 potential is the harbor seals in the Chickaloon Bay area.
25 But I do see on page 14, and it looks like -- I don't know

1 if we are still in the cumulative effects section or not,
2 but it does mention harbor seals, harbor porpoise and the
3 beluga whales. So it was confusing to know if it was
4 excluded or included.
5 MR. MATT CUTLIP: It's not now, but we can
6 add other marine mammals, as well, and look at them from a
7 cumulative effects standpoint.
8 MS. MANDY MIGURA: I would encourage
9 discussion of other marine mammals.
10 MR. MATT CUTLIP: Not a problem. Yeah,
11 actually, if you look at the actual resource issues
12 starting with section 4.2 on page 13, these are separate
13 from cumulative effects. These are the site specific
14 resource issues. Within that framework, the ones that we
15 have identified should have an asterisk next to them for
16 cumulative effects. So for example, 4.2.2 fishery
17 resources, there is an asterisk there. That indicates
18 that we would also look at cumulative effects for that
19 resource. And then it's sort of unclear or not as clear,
20 but if you look at 4.25, under threatened and endangered,
21 there is an asterisk next to the beluga whale issues, so
22 in the scoping document, too, we will also have one next
23 to marine mammals under 4.2.3. Any other comments on
24 cumulative effects? Okay.
25 MS. KIM NGUYEN: Let's just get to the

1 issues, then. And we are going to start on page 13 of the
2 scoping document. So this is a preliminary list of issues
3 which we have identified. So we are going to go through
4 each one, and then let us know if there is something you
5 want to add modify or remove if it's not an issue.
6 MR. MATT CUTLIP: Okay. So I'm going to
7 start discussing section 4.2.1, and then Ian Smith is
8 going to discuss fishery resources. Then I will cover the
9 marine mammals and the T&E species, and Kim is going to
10 talk about the rest of the issues. So with that said, we
11 will get started.
12 For navigation, engineering, geomorphology, and
13 water resources, I've added a bullet there that is going
14 to say effects of the project on the bore tide. We have
15 identified the effects of installation and maintenance of
16 turbines on navigation. Duration of construction.
17 Frequency and duration of maintenance events. And flow
18 conditions expected or desired for construction and
19 maintenance operations.
20 We have effects of project construction,
21 operation and maintenance on utility crossings and bridge
22 crossings, if applicable. We have identified transmission
23 line cable safety for recreation and maintenance
24 activities. The survival of turbines under stress from
25 flood conditions and the impact of submerged debris,

1 adding stress associated with trapped debris or strike by
2 a vessel.
3 The effects of sedimentation and floating debris
4 on equipment function, mounting system, and efficiency.
5 The hydraulic effects of equipment on flooding, safety,
6 sedimentation and navigation. The effects of installation
7 of project structures and underwater transmission lines on
8 sedimentation and turbidity in Upper Cook Inlet. The
9 effects of anti-fouling coatings or accidental leaks of
10 hydraulic fluids on water quality.
11 And I have another one here. Actually I'm
12 proposing to move from fishery resources bullet, the first
13 bullet there, I'm going to move that item up and add to
14 it. That issue is now going to say effects of tidal
15 energy extraction on sediment transport and physical
16 habitat; examples, shoreline erosion, scouring et cetera.
17 MS. CASSIE THOMAS: I would just add to
18 that, it's not just the energy extraction. It's changes
19 in the geometry by the occupancy of two square miles that
20 is currently --
21 MR. MATT CUTLIP: Would channel geometry
22 work?
23 MS. CASSIE THOMAS: It may be more than
24 just channel -- I mean, it could change the timing of
25 tides elsewhere, so it could be more than just channel

geometry. You want to look throughout the water column in 3-D.

MS. MANDY MIGURA: I'm not sure if it should go into this section or maybe another one, but I didn't see any discussion -- and I might have missed it -- regarding any electromagnetic effects from the cable lines in the water.

MR. MATT CUTLIP: We have it under fishery resources.

MS. MANDY MIGURA: I would ask that it also be under marine mammals and T&E.

MR. MATT CUTLIP: Right.

MS. KIM NGUYEN: What about the ice issue? Should we add that here?

MR. MONTE MILLER: I was just going to ask that.

MS. KIM NGUYEN: Would you like to phrase that for us, Monte?

MR. MONTE MILLER: Effects of icing, both on the developed reservoir as well as the intake structures or turbine structures which appear to be deep enough not to be a problem. But icing in Cook Inlet and Turnagain Arm in particular, that ice moves around pretty violently, and it can be pushed into something and stacked up and forced down. It's not all going to stay at the

1 surface, particularly with that kind of a water draw into
2 a structure. Ice is going to be drawn down, and there
3 will be issues.
4 MS. KIM NGUYEN: How about the effects of
5 icing within the project area from -- affecting project
6 features?
7 MR. MATT CUTLIP: Ability of the project
8 to handle the ice load? Are there any other issues that
9 we missed pertaining to these -- to this resource?
10 MR. MONTE MILLER: The -- let's see. I
11 don't know if this is where you would put this. I don't
12 know if this is the section you would put it, but the -- I
13 guess my concern would be the landfall areas of
14 transmission lines across refuges and critical management
15 areas. I don't know where you would put that on this.
16 MS. KIM NGUYEN: Maybe 4.2.6 under
17 recreation land use.
18 MR. MATT CUTLIP: Does that work if we put
19 it in the land use?
20 MS. KIM NGUYEN: There is a first bullet
21 there already with the project construction, public
22 access, recreational land use within the area.
23 MR. MICHAEL DAIGNEAULT: The refuge is
24 actually created more for bird migrations and bird
25 nesting, so it would be better under terrestrial

1 resources.
2 MR. MONTE MILLER: Almost the second
3 bullet there.
4 MR. MATT CUTLIP: I'm thinking like
5 something like effects of siting of the transmission line
6 on the wildlife refuge. Okay.
7 MS. CASSIE THOMAS: By that token, and not
8 to speak for Fish and Wildlife Service, but the Kenai
9 connection appears to potentially affect the Kenai
10 National Wildlife Refuge, so that should be maybe covered
11 in the same bullet.
12 MR. MATT CUTLIP: Any other comments on
13 4.2.1? Okay.
14 MR. IAN SMITH: Moving on to section
15 4.2.2, fishery resources, it looks like we are going to
16 move that first bullet up. The effects of tidal energy
17 extraction on sediment, we are going to move that to
18 4.2.1. So we will start at the second one, second bullet.
19 And it's the effects of installation of project structures
20 and underwater transmission lines on benthic habitat.
21 Moving on, effects of the permanent removal of aquatic
22 habitat from powerhouse, reservoir and directing barrage
23 footprints.
24 Effects of electromagnetic fields from
25 underwater transmission lines on fish species. Effects of

1 project pumping systems and turbines, including
2 entrainment and mortality, on fish species. Effects of
3 the presence of project structures on fish behaviors and
4 migration. And the last one we have is, effects of
5 underwater noise during construction and operation of the
6 project on the fish species.
7 MS. BETSY MCCRACKEN: So can we add under
8 fisheries resources effects of the reservoir on fishery
9 resources, entrapment or entrainment? And also will the
10 effects of electromagnetic fields from underwater
11 transmission lines on fish species also include the
12 turbines themselves? I assume they have a magnetic
13 component.
14 MR. MATT CUTLIP: We can add turbines,
15 electrical generation systems.
16 MS. BETSY MCCRACKEN: And for the effects
17 of the presence of project structures on fish behavior and
18 migration, we don't know what that is, what those are
19 currently, so we would need to know that preproject to
20 understand what it might be post project.
21 MR. MICHAEL DAIGNEAULT: To follow up on
22 that same bullet, effects of the presence of project
23 structures, so that seems to be suggesting the physical
24 structures, but we have had a lot of discussion here about
25 tidal influence, recognizing that fish behavior and

1 migration in that area is highly influenced by tide timing
2 and tide heights. You need to get that concept in there.
3 MR. MATT CUTLIP: How would you propose to
4 sort of characterize that?
5 MR. MICHAEL DAIGNEAULT: To the extent
6 that we can -- that we are doing work on recognizing tidal
7 influences, how those tidal changes affect fish behavior
8 and migration.
9 MS. BETSY MCCRACKEN: And those may be
10 different during -- or slightly different during a bore
11 tide just because of the increase in up upwelling and
12 nutrient exchange and how the ecology is affected.
13 MR. MATT CUTLIP: Any further comments on
14 4.2.2? Okay. How does this sound? Effects of project
15 changes and tidal energy dynamics on fish species and
16 migration. Will that work? Okay. Any other comments on
17 fish? Okay.
18 I think we will move on to marine mammals and
19 seabirds. Another bullet immediately under 4.2.3 that
20 says effects of electrical magnetic fields on marine
21 mammals. Then the next one is the effects of the
22 permanent removal of aquatic habitat from the powerhouse,
23 reservoir, and directing barrage footprints on the killer
24 whale, harbor seal, harbor porpoise and stellar sea lion
25 foraging, migration, calving, and rearing habits and

1 available habitat. Effects of underwater noise during
2 construction and operation of the project on the killer
3 whale, harbor seal, harbor porpoise and stellar sea lion.
4 Effects of the permanent removal of aquatic
5 habitat from powerhouse, reservoir and directing barrage
6 footprints on seabird foraging habitats, including
7 Kittlitz murrelet. And effects of the addition of the
8 barrage as a potential haul-out for the harbor seal,
9 harbor porpoise and stellar sea lion, and a roosting and
10 nesting location for seabirds. That should not be the
11 harbor purpose. It should be the porpoise.
12 MS. KIM NGUYEN: Darn spell check.
13 MS. MANDY MIGURA: I would like to just
14 kind of point out, most of these seem to be talking about
15 effects to the habitat of marine mammals. I would like to
16 see effects to the behavior of the animals, as well. And
17 that can go for 4.2.5, as well.
18 MR. MATT CUTLIP: So similar to what we've
19 done with fishery resources where we talk about the
20 effects of the project, various components of the project
21 on migration and behavior, that sort of thing?
22 MS. MANDY MIGURA: Yeah. Not just the
23 effects. Like that long bullet is talking about the
24 effect to their foraging, migration, calving and rearing
25 habits and available habitat. So we will be looking at

1 habitat as one component, but we also need to look at the
2 direct and indirect effects to the animals themselves and
3 how that changes their behaviors.
4 MR. MONTE MILLER: In that last bullet,
5 Matt, are you referring to barrage as the entire project
6 or as the turbine bulb system? Does it include the
7 reservoir?
8 MR. MATT CUTLIP: When we say barrage, I
9 think what I was -- the way I'm interpreting that is this
10 is the actual mass of rock structures that will be built
11 for the reservoir. And isn't there two barrage that sit
12 out in front of it to sort of direct water into the
13 turbines like big jetties.
14 MR. MONTE MILLER: I didn't notice that on
15 the -- that's news to us.
16 MR. MATT CUTLIP: It's in the
17 preapplication document.
18 MR. MONTE MILLER: Would you also need to
19 then -- if in anticipation of a new haul-out for marine
20 mammals, is there -- and that this thing could be utilized
21 by marine mammals that will have a direct effect on
22 predation of salmon resources, hooligan, migratory fish
23 all going into or coming out of Turnagain Arm, you then
24 create another potential pick-off point for predation that
25 is not there.

1 MR. MATT CUTLIP: Okay. Give me one
2 second to sort of get that down on paper.
3 MR. MONTE MILLER: Yeah. I'm just trying
4 to figure out where it should be, whether it's under that
5 or -- the potential haul-out could impact predation on
6 many, many species, in addition to additional bird area to
7 predate on young-of-year migrants, juvenile out-migrant
8 fish.
9 MR. MATT CUTLIP: I'm going to just get it
10 down here now under marine mammals. It will probably
11 eventually show up under fish species because that's
12 really where the ultimate effect -- that's what we are
13 looking at is the effect on fish, the predator/prey sort
14 of relationship. We will probably look at it under fish.
15 It also potentially has ramifications for marine mammals,
16 as well. So --
17 MR. MONTE MILLER: It does. It's both.
18 Thank you.
19 MS. MANDY MIGURA: Regarding the potential
20 for a haul-out, I guess I would just have some concern or
21 request that a design be built that if the animals are
22 able to get up and into the reservoir, that there is a way
23 for them to get out, as well. It's not just a slope in
24 and then a straight cliff. That would be an entrapment
25 issue. And I don't know the inside design, but I wouldn't

1 want them trying to go out the pump tank or something like
2 that or through one of those gates. So there is -- if
3 this is -- if there is a potential for them to use that as
4 a haul-out site and they're going to be climbing all over
5 it, then just recognize there is potential for injury.
6 And then I second the point that, yes, the
7 effects of fish will also have effects on the marine
8 mammals. So any effects of fish, there will be a tie-in,
9 a correlation.
10 MR. MATT CUTLIP: Can we say something
11 like effects of project reservoir on entrainment of marine
12 mammals? Entrapment? And any measures to reduce those
13 effects obviously would be a consideration when we get to
14 that point.
15 MS. BETSY MCCRACKEN: We would want to be
16 able to quantify those. Some of those Turnagain Arm
17 salmon are caught in the Upper Cook Inlet commercial
18 fishery, as well, so they contribute to that. I don't
19 know if you want that under fisheries or socioeconomics,
20 but --
21 MR. MATT CUTLIP: Good question. Maybe
22 associate economics. So you are talking about the effects
23 of potential removal of fish from the population because
24 of the project, how that has a corresponding effect on the
25 commercial fisheries?

1 MS. BETSY MCCRACKEN: Yep.
2 MS. CASSIE THOMAS: That point Betsy just
3 raised, there is an interrelationship with recreation, as
4 well. It's recreational sport fisheries, so it's both
5 commercial and recreational fisheries are affected,
6 potentially.
7 MR. MATT CUTLIP: Okay. Got it. So I
8 just added that under socioeconomics.
9 MR. MONTE MILLER: I think it also needs
10 to be added back into the fisheries issue in that there is
11 recreational fisheries that occur along Turnagain Arm at
12 the majority of the creeks all the way down from Bird
13 Creek down through 20 Mile, Ingram Creek, Portage. They
14 all support recreational fisheries, which could be
15 impacted by this.
16 MS. BETSY MCCRACKEN: For both salmon and
17 hooligan.
18 MR. MONTE MILLER: Multiple anadromous
19 species, both salmon and hooligan. Under the same
20 section, Mr. Lee pointed out that this could become a
21 roosting area for sea birds. I'd like to point out that
22 you have an area, Potter Marsh, associated nearby on the
23 Anchorage side which does support large populations of,
24 among other things, terns and gulls. And if we get a tern
25 or a gull colony started out there, that could have

1 devastating impacts to the localized resources passing
2 through that area as far as young-of-year fish.
3 MR. MATT CUTLIP: So this is again kind of
4 a two-pronged issue. You have the effects of the project
5 on the potential establishment of a gull or tern colony,
6 and then corresponding effects on --
7 MR. MONTE MILLER: We know what's happened
8 in the Columbia River with islands that have been formed
9 by dredging debris and now tern colonies have now become a
10 major focus of removal down there. I think, Kim, you have
11 dealt with some of that.
12 MS. KIM NGUYEN: Thanks for the reminder.
13 MR. MONTE MILLER: I'll point out that on
14 the Columbia River system, I worked on the -- above Grand
15 Coulee Dam, and the majority of our Floy tags and the
16 majority -- well, not Floy tags -- our coded wire tags on
17 fish that entrained through Grand Coulee and Chief Joseph
18 and went down the river were recovered on the bird island
19 having gone through birds. So it is a major factor even
20 100 miles away or more.
21 MR. MATT CUTLIP: Okay. Anything else for
22 marine mammals and sea birds? Okay. I think we are going
23 to move on to terrestrial resources.
24 MS. KIM NGUYEN: Okay. Under terrestrial,
25 the first bullet I have is the effects on the transmission

1 line corridor construction and maintenance on terrestrial
2 resources, including vegetative communities, wildlife and
3 wetlands. The second bullet we are adding the effects of
4 siting of the transmission line and its construction on
5 inter-tidal and shoreline communities and habitat,
6 including habitats of wildlife refuges. The effects of
7 transmission line as a bird collision and electrocution
8 hazard. The effects of the transmission line construction
9 and maintenance activities on the establishment and spread
10 of invasive species.
11 And we are also moving up -- we added to the
12 first one already. Okay. Never mind about moving
13 anything up. But any other effects or issues for
14 terrestrials that you would like to add? Okay. Then on
15 to T&E.
16 MR. MATT CUTLIP: So at this point I think
17 the only endangered species we have identified is the
18 beluga whale.
19 MS. MANDY MIGURA: Actually, I didn't
20 catch this before. In your marine mammals section you
21 have listed stellar sea lion. If you are going to analyze
22 the effects of stellar sea lion, that is an endangered
23 marine mammal.
24 MR. MATT CUTLIP: Okay. So we will likely
25 just remove stellar sea lion from the larger marine mammal

1 resource area and just move it to T&E species and look at
2 the same things that we have identified above, but under a
3 different area, different resource.
4 MS. BETSY MCCRACKEN: I just wanted to
5 mention -- maybe you have already done this, but bald
6 eagle surveys in the area will need to be conducted, also.
7 MR. MATT CUTLIP: I think we can note that
8 bald eagle would be one of the wildlife species that we
9 will look at. We have them lumped in there as opposed to
10 a marine mammals and seabirds. So I guess we'll make sure
11 we add bald eagles. There will be a lot of other birds
12 and wildlife that will be considered, too, under that
13 resource area. I'll definitely make sure that bald eagle
14 is pointed out.
15 MS. BETSY MCCRACKEN: And the surveys are,
16 you know, specific to the bald eagles and need to be
17 conducted.
18 MR. CUTLIP: Yeah, we will definitely --
19 we will be looking at those kinds of considerations,
20 specific protocols for various species during the study
21 planning phase. Are there any other T&E species or issues
22 that we missed here?
23 MS. MANDY MIGURA: I just wanted to
24 clarify that things that I brought forth under the marine
25 mammals section, those will just be added to this section?

1 Okay.
2 MR. MONTE MILLER: EMF.
3 MR. MATT CUTLIP: I've got EMF down,
4 effects of EMF on the beluga whales.
5 MS. BETSY MCCRACKEN: It's related to the
6 fisheries again, and I just wanted to note that there are
7 a few species in Turnagain Arm that are considered species
8 of concern to the State of Alaska. And so there may be
9 specific study requests related to those species.
10 MR. MATT CUTLIP: Okay.
11 MS. KIM NGUYEN: Okay. On to 4.2.6,
12 recreation and land use. There are two bullets here for
13 issues. The effects of project construction operation on
14 public access, recreational opportunities and land use
15 within the project area, including the transmission line
16 corridor. The effects of the project operations on
17 boating safety, e.g., hydraulic effects, entanglement
18 meant with anchor lines or fishing gear within the project
19 area. Any other issue you would like to add.
20 MS. CASSIE THOMAS: I have a couple of
21 comments on that. One is the issue of public access. Two
22 things. And I didn't ask this question before, but I'm
23 wondering if there will be any kind of exclusion zone
24 around the -- the marine portions of the project; in other
25 words, areas where the public would not be allowed to

1 approach the project. So you know, is there going to be
2 an exclusion zone? And if not, what would the policy be
3 on folks who might try to moor or anchor right off the
4 project or even land on the project? So that needs to be
5 looked at.
6 Then the terrestrial portions of the project
7 where the two transmission lines are coming ashore, again,
8 what kind of public access would there be in these areas.
9 Would there be -- would the public be allowed to go -- to
10 continue along the coast or the beach, or would there be
11 some sort of interruption to their access laterally along
12 the beach? You see what I'm saying? You know, would
13 this -- would it be -- would the submarine cable come
14 under the beach and then come up to some sort of an
15 intertie that does not interrupt public -- public
16 recreational use up and down the beach on both shores?
17 And then I'll let you catch up because I also
18 have a refinement on the boating safety, the second
19 bullet.
20 MS. KIM NGUYEN: Okay. How about this:
21 The effects of the project and the transmission line
22 corridor on public access, including any exclusion zones.
23 MS. CASSIE THOMAS: Yeah, and policies
24 regarding recreational access to the project itself. In
25 other words, you build this two-square-mile reservoir with

1 riprap space, the public may want to tie up to it, may
2 want to land on it, may want to climb on it. So what
3 would the -- what would the policy be on that?
4 And then so the second bullet, when we are
5 talking about boating safety, the known uses out there
6 that I know about -- but this is not necessarily the only
7 uses that happen there -- would be -- would include wind
8 surfing, kite boarding and bore tide surfing. And bore
9 tide surfing happens in kayaks. Some people use a long
10 board to do it. So when we say boating, I think we want
11 to include those various kinds of recreational equipment
12 that people use out there, and not just be thinking in
13 terms of power boats. I don't think there is a lot of
14 power boating out there, but I know there is kite boarding
15 and wind surfing and bore tide surfing.
16 MS. BETSY MCCRACKEN: And just to follow
17 up to Cassie's comment that Point Campbell area is a
18 popular waterfowl hunting area.
19 MS. KIM NGUYEN: Is that on the Anchorage
20 side?
21 MS. BETSY MCCRACKEN: Uh-huh.
22 MS. KIM NGUYEN: Okay. Anything else on
23 recreation and land use? Okay. On to cultural. The
24 effects of the proposed project on properties included in
25 and eligible for inclusion in the National Register of

1 Historic Places. This is a pretty general issue in effect
2 that we have for all of our projects. Any comments?
3 Okay. Then we will go on to Aesthetic resources. The
4 effects of project construction and operation on the
5 aesthetic/visual experience of visitors and residents
6 using project lands, waters and air.
7 MS. CASSIE THOMAS: When it says project
8 lands and waters, I think that the affected areas where
9 people would have an aesthetic effect are actually going
10 to be on shorelines on both sides. So within -- within
11 the viewshed of this project, you have everything from
12 municipal parks like Kincaid, and there is other municipal
13 parks that are right along the coastline. I think it's
14 John's Park. Is that one of many parks in South
15 Anchorage. There are a number of parks. There is the
16 State Coastal Wildlife Refuge. There is Chugach State
17 Park. There is the Kenai National Wildlife Refuge, and
18 also the Chugach National Forest. There are lands within
19 the national forest especially near Hope where you would
20 be able to see this area.
21 And then there is a National Scenic Highway,
22 which is the Seward Highway, and the Alaska Railroad,
23 which, as we know, carries a lot of tourists right by that
24 area. So I think that we need to be evaluating aesthetic
25 impacts from viewers in these various places various doing

activities, including hiking, rock climbing, car sightseeing. Wildlife viewing, huge.

And I think we also need to add, assuming there will be some sort of safety and/or navigational lights on this project, what the impact of that is on night skies.

MS. KIM NGUYEN: I'll make sure we add all that.

MS. CASSIE THOMAS: That's a lot. We are going to submit some written comments, too, by the September deadline.

MR. MATT CUTLIP: Great.

MR. MONTE MILLER: I guess I'd reflect the same concern with the definition of, you know, project boundaries because typically project boundaries is the footprint of the project. I think this goes way beyond that, and that's the point I think that Cassie was making, and I would second that point, as well, that it goes well down Turnagain Arm, if not all the way to the end.

MS. CASSIE THOMAS: I can see it from my house. I live up at 1,500 feet up on the Hillside, and I can see this area, and hundreds of Anchorage residents will be -- this will change the view from your kitchen window.

MS. KIM NGUYEN: Maybe we'll add that stop tomorrow.

1 MS. CASSIE THOMAS: Maybe today is not a
2 good day. Tomorrow will be better.
3 MS. KIM NGUYEN: Let's go on to
4 socioeconomics. The effects of the project, energy costs
5 and project-related recreation on the local economies of
6 the Anchorage and Kenai Peninsula areas. And I've added
7 the effects of the project on the local fishing and
8 recreational fishing industry. Does that pretty much
9 cover it? Anything else you would like to add?
10 MS. BETSY MCCRACKEN: Could you repeat
11 that?
12 MS. KIM NGUYEN: The effects of the
13 project on the local fishing/recreational fishing
14 industries.
15 MR. MONTE MILLER: Commercial.
16 MS. BETSY MCCRACKEN: Upper and Lower Cook
17 Inlet.
18 MS. CASSIE THOMAS: By that token, would
19 there be a socioeconomic effect on tourism? I mean, if we
20 are affecting the fishery, we may aesthetically be
21 affecting tourism, as well.
22 MS. KIM NGUYEN: Okay.
23 MR. MONTE MILLER: One of the things that
24 I did not see in any of the documentation is the -- this
25 is kind of a deep water area that you are looking at out

1 there below Fire Island. The shipping coming out of the
2 Anchorage port, how close does it pass to this area? What
3 would the effect of this area be on shipping or on -- I
4 don't know if they do any cargo transference out there or
5 whether they short-haul out and then long-haul, set up
6 barges and things like that. I don't know how this whole
7 area of the inlet works with regards to commercial
8 activity, and I think that's a question that should be
9 answered.
10 It's a fairly narrow pathway coming into Upper
11 Cook Inlet, and I don't know if this would possibly impact
12 some of that -- that commercial activity.
13 MS. KIM NGUYEN: So the effects of the
14 project on commercial shipping channels?
15 MR. MONTE MILLER: Correct.
16 MS. KIM NGUYEN: Anything else? Okay. On
17 to 4.2.10, developmental resources. The effects of
18 project maintenance on the energy and capacity benefits of
19 the project and the effects of funding various protection,
20 mitigation, and enhancement measures on the cost of the
21 project power. This is also really standard. And we also
22 look at the need for power of the project in our NEPA
23 document, so that would also be discussed under the
24 developmental resources section.
25 MR. MONTE MILLER: Just a note. I know

1 Mr. Lee is probably aware, the State is pursuing licensing
2 of the Susitna hydro project. I won't speak to the
3 ability of that project to be successful, but it is
4 another project on the board at 600 megawatts, which would
5 affect the need for the power on this project, as well.
6 MS. MANDY MIGURA: Along those same lines,
7 then, NMFS is aware of a project also being pursued on the
8 northwest end of Fire Island, another hydro tidal
9 project.
10 MR. MONTE MILLER: As well as another
11 project on the east forelands of Kenai Peninsula. There
12 is two different projects out there that are also
13 proposed. So there are many proposals within this area
14 that would affect or within the Railbelt -- let's just say
15 that -- that would affect the need for power. Not saying
16 that any one is better than any other, but we need to be
17 aware that they are out there.
18 MS. KIM NGUYEN: And when I say need for
19 power in our NEPA document, we talk about a regional need
20 for power, not necessarily just Anchorage.
21 MR. MONTE MILLER: Correct.
22 MS. KIM NGUYEN: Okay. Anything else on
23 any of the issues?
24 MS. CASSIE THOMAS: I have a question that
25 I probably already know the answer to, but I'm just

1 assuming this project, that you are not going to be
2 applying for a -- there is a -- FERC allows a pilot
3 license for marine hydro kinetic projects, but given the
4 amount of construction for this, I imagine you are just
5 going to do a conventional ILP process. Is that a correct
6 assumption?
7 MS. KIM NGUYEN: That's what we have
8 before us, unless Mr. Lee --
9 MR. MONTE MILLER: Makes a request
10 change.
11 MS. KIM NGUYEN: That would be up to the
12 applicant.
13 MR. MATT CUTLIP: 240 megawatts is way
14 above and beyond a pilot scale.
15 MS. MANDY MIGURA: And I'm not necessarily
16 looking for an answer on this, but something to consider,
17 and I didn't see it necessarily addressed is, assuming we
18 get to the point where construction has begun, we need to
19 pay really close attention on understanding how any
20 effects to inwater resources will be determined. It was
21 pointed out it's very turbid water. We've got winter
22 darkness. We've got ice cover. So it leads to the
23 question how would you know if an effect occurred to an
24 underwater or inwater resource short of having changes in
25 productivity of the equipment or a turbine shut down

1 entirely. So some sort of adaptive management or kind
2 of -- some sort of live realtime management or near time
3 management.
4 So some of these effects that we are talking
5 about that -- I'm personally thinking of effects to my
6 trust resources and the marine mammals. If we get a
7 marine mammal stuck in one of those -- between gates for
8 some reason or a harbor seal gets stuck in the reservoir
9 storage area, how will we know, which is something to keep
10 in mind.
11 MS. KIM NGUYEN: Okay. Let's move on to
12 the initial study proposals by the applicant. And I've
13 identified three from their PAD. One is the geology and
14 soils, geotechnical study to support the foundation design
15 of the project. One under aquatic resources, review of
16 data on safety of turbines for fish and sea mammals. I
17 know this is very general. And then the third one under
18 terrestrial resources is study the effects on wetland
19 habitat in the area leading to the Anchorage Wildlife
20 Refuge and the entrance to Possession Point for
21 transmission line corridor.
22 And I know we have talked about a couple of
23 studies that we want them to add, so we should probably
24 add them here now. The first one I have is for noise.
25 MR. MATT CUTLIP: Well, wait a minute.

1 I'm confused. Sorry. We don't want to -- is he committed
2 to doing something?
3 MS. KIM NGUYEN: That's what I'm asking.
4 MR. MATT CUTLIP: Okay. That's what I was
5 asking about. I guess if he's committed to doing
6 something and he wants to come forward with that now, then
7 we could add it, but --
8 MS. KIM NGUYEN: I've heard a couple of
9 times you said, we are going to look into this. So if we
10 could, we'd like to pinpoint it here so we could have --
11 all have a complete understanding of it when the SD2 comes
12 out.
13 MR. DOMINIC LEE: Say the question again.
14 MS. KIM NGUYEN: Some studies that we
15 talked about earlier that you kind of committed to doing
16 or saying you will look at the effects of this stuff, we
17 want to add onto the three that you have already proposed
18 in your initial PAD.
19 MR. DOMINIC LEE: I have to talk with my
20 environmental consultant, see what they think they can do.
21 I cannot commit to any study --
22 MS. KIM NGUYEN: We will save it for --
23 MR. DOMINIC LEE: -- beyond what I
24 proposed here.
25 MS. KIM NGUYEN: We will save it for the

1 study plan process.
2 MR. DOMINIC LEE: That would be fine.
3 MR. MATT CUTLIP: I guess before we go any
4 further, does everybody have an idea or clear how the ILP
5 works with regard to the study planning process? Do you
6 want to talk about that?
7 MS. KIM NGUYEN: We are going to talk
8 about that later. We can talk about it now. Can you
9 bring up the ILP. It's on my thumb drive. We have the
10 processing plan on.
11 MR. MATT CUTLIP: So this is the next very
12 important step in the ILP process, and it happens very
13 quickly. With your comments on the scoping document, you
14 would also need to submit your study requests. And then
15 the applicant will analyze and evaluate those study
16 requests and consider them when they develop their
17 proposed study plan. And this moves very quickly. So the
18 take home point here is we need study requests within the
19 next 30 days, along with your comments on the scoping
20 document.
21 MR. MONTE MILLER: The ILP process has not
22 successfully been used in Alaska prior to -- well, there
23 is three applications that I'm aware of that will be
24 either on the board or in the future shortly. Two
25 currently on the board. The study plan process under the

1 ILP requires the agencies to identify many, many things
2 within the study request. Can you highlight what is
3 expected of the agencies? Because it even asks us to
4 determine what the costs of studies are going to be. This
5 puts a very, very hard position on the agencies to
6 determine, you know, studies or study requests and needs.
7 Further, under the process, only mandatory
8 conditioning agencies are able to dispute study
9 determinations, and state agencies are not part of the
10 mandatory conditioning agencies. Only the federal
11 agencies are.
12 MR. MATT CUTLIP: Well, there would be --
13 MR. MONTE MILLER: Other than under Clean
14 Water Act with DEC, and DEC has in 1999 waived their
15 comments typically for all hydropower projects.
16 MR. MATT CUTLIP: So in your scoping
17 document you have a sheet on page 26, Appendix A, called
18 study plan criteria, and this is what I think you are
19 talking about, Monte. This is -- every study that you
20 request formally through the ILP process, you should give
21 lip service to every one of these criteria or your study
22 request may be difficult for us to ultimately make a
23 determination on. So it's very important that you address
24 these criteria. Now, it doesn't have to mean that you
25 have a 30-page study request for every study to make sure

1 that you address these. It's just make sure that you do
2 something to sort of -- for example, give an estimate of
3 the level of effort or cost. Is this --
4 MR. MONTE MILLER: Basically what this is
5 forcing us to do is to develop the study plans that we
6 request; I mean, to develop the goals, objectives,
7 methods, the timing and all of those things to even be
8 able to identify or begin to compute a cost. And you ask
9 us to do this inside of 30 days?
10 MR. MATT CUTLIP: I understand your
11 concerns.
12 MR. MONTE MILLER: The ILP was designed
13 for relicensing projects in the Lower 48 where you have
14 several years of studies that are done prior to any
15 application. The ILP process does not work for new
16 construction. It throws everything into a two-year
17 period, essentially. It puts agencies at odds because we
18 now have to run a different method. The ALP has typically
19 been used in Alaska, and we have had problems with it, as
20 we have had with the TLP in the past. So nothing is
21 perfect. We recognize that. But the ILP was not designed
22 for new project construction and new development.
23 It frontloads everything, which it may or may
24 not be a bad thing with regard to the EIS and EA
25 determinations, but it really puts undue pressure on State

1 and federal agencies to do the work of the applicant.
2 MR. MATT CUTLIP: I understand your
3 concern. At this point I don't know that we can modify
4 the situation. You know, when they filed their NOI and
5 PAD, they elected to fall to the ILP unless we had
6 comments stating otherwise.
7 MR. MONTE MILLER: I don't know that we
8 were ever given an option. The ILP, my understanding
9 under the FERC process, is the default process. We cannot
10 make a statement with regard to their choice of the ILP.
11 If they request a traditional or an ALP, we then can state
12 our objections or our comments, but not under the backfall
13 of the ILP.
14 MR. MATT CUTLIP: You are correct. And we
15 are under the default process. That is the ILP. That is
16 completely out of my control at this point. I don't know
17 what to tell you. I understand that this is a very
18 frontloaded difficult process, but it does keep licensing
19 processes moving along. That's why it was designed.
20 MR. MONTE MILLER: At a rate that most
21 agencies cannot comply with.
22 MS. CASSIE THOMAS: I just want to
23 elaborate on Monte's statement, which I totally agree
24 with. And I guess, you know, really, not just to make the
25 point that this is difficult for resource agencies, but

1 FERC actually is in a position here where you will need to
2 make a decision within ILP deadlines. And there is going
3 to be a lot of skepticism about whether you have enough
4 data with which to make a decision.
5 So especially where we are talking about an
6 untested technology, not only Monte's points about an
7 original project where there hasn't been a resource study,
8 but we are talking about a technology, the effects of
9 which we really don't know, as we found out today.
10 Several years of reconnaissance studies in order to refine
11 actual resource studies would be the way I, as a
12 scientist, would approach trying to eliminate some of the
13 uncertainties here.
14 So you know, not to make this adversarial, but I
15 would strongly encourage the project applicant to be aware
16 that that is likely what you are looking at here where two
17 field seasons is not going to be long enough to even ask
18 the right questions, less answer them given the inter-year
19 variability in the resource conditions of some of these
20 resources we are looking at, such as salmon and whales.
21 So you know, I'm just saying this on the record.
22 I can't make you use the ALP, but if FERC doesn't have
23 enough data to make a decision and tries to make a
24 decision, I think my department will probably be quite
25 skeptical about that.

1 MS. MANDY MIGURA: I agree with the
2 sentiments. It's putting us in a very, very difficult
3 situation. My agency is not in the practice of developing
4 study plans. We don't develop methods. We don't develop
5 cost estimates. We solicit that from applicants, and then
6 we fund research. So to say that we are responsible for
7 telling you how much it's going to cost, how to do it is
8 beyond my expertise. And I can throw out a number and I
9 can have no clue if I'm even close.
10 So given that in mind, you know, given the
11 constraints that we are all under right now and we have to
12 get something to you in 30 days, knowing that if I give
13 you a number it might not mean anything, how is that going
14 to weigh into this criteria? Because we are used to
15 posing, here is the questions we need answered.
16 MR. MATT CUTLIP: I understand that.
17 MS. MANDY MIGURA: I guess we can try to
18 do our best to address these seven criteria.
19 MR. MATT CUTLIP: That's all we are asking
20 for. And I would encourage you to -- if there is a study
21 out there that you think you might need, I would encourage
22 you to come up with some kind of a conceptual level study
23 and file it to make sure it's on the record because this
24 does move very quickly traditionally under an ILP. The
25 study planning process moves quickly. If you think you

1 are going to need something, then by all means ask for it
2 and do the best you can to address the criteria.
3 MS. MANDY MIGURA: And if our answers to
4 these criteria are just completely off, is that going to
5 be -- because I know you said you are looking for this
6 information to weigh in what you are requesting. So if
7 the information I provide you, because it's outside of my
8 realm of expertise, is completely off, does that bias your
9 judgment on whether to include that information?
10 MR. MATT CUTLIP: So if you look at
11 appendix B, the process plan schedule -- I understand what
12 you are saying. These are valid concerns. We have from
13 the time that you -- from the time that you file your
14 study requests, which are due on September 9, the
15 director's study plan determination doesn't come out till
16 the end of next March. Between September 9th and March
17 23rd, we have a whole process of basically developing a
18 study plan that will be approved by FERC. So throughout
19 that six- to eight-month period, whatever it is, we will
20 be working through and dealing with these kind of issues.
21 So we can further refine things as we move along. It's
22 just the study request, basically.
23 MS. KIM NGUYEN: It's just an initial
24 start for us.
25 MR. MATT CUTLIP: It sets the pale for the

1 whole process. So if you think there is a study you might
2 need, I encourage you, by all means, to file a request for
3 it.
4 MS. MANDY MIGURA: I can tell you there is
5 some questions that I need answers, but I don't know the
6 how or how much of that. I can give you those questions.
7 We need this X, Y and Z addressed.
8 MR. MATT CUTLIP: Could you say just like
9 very conceptually, like, we need this question addressed,
10 here is the kind of methodology I would envision could be
11 used?
12 MS. MANDY MIGURA: I could potentially do
13 that, but I wouldn't -- I'm not -- I'm a manager. I'm not
14 a researcher. So that's really pulling me outside of my
15 area of expertise. My job is to say what question and not
16 how to get to the answer.
17 MR. MATT CUTLIP: Are there other NOAA
18 folks that are --
19 MS. MANDY MIGURA: To get it within the 30
20 days, probably not because most of them are out in the
21 field right now. This is our very short field season, and
22 all of our researchers are researching. So it's going to
23 be very challenging to darn near impossible to be able to
24 get this level of specificity. I think I'm kind of
25 hearing a lot of the same sentiment because we don't do

1 this. We don't develop study plans. We tell the
2 applicants or contractors, here is the information we are
3 going to need to be able to review the effects of this
4 project on our trust resources.
5 MS. KIM NGUYEN: We sympathize, and I
6 understand -- we are on the same strict time frame. We
7 also have to make study plan requests on our own, not just
8 yours. So everything will be evaluated.
9 MS. MANDY MIGURA: So my original
10 question, I guess, was: If I don't have the details of
11 all this, is that going to be held against me in your
12 judgment weighing process of what study plans to include?
13 MR. CUTLIP: I can't answer that question
14 until there is something actually pending before us. I
15 mean, all I can tell you, again, is just to please do the
16 best you can and we will do the best we can and we will
17 hopefully work together on this, this study planning
18 process. I don't know what else to say. I don't want to
19 say --
20 MR. DOMINIC LEE: May I make a suggestion?
21 You see the schedule we have as the applicant because by
22 date, if you miss one day, we will be -- I don't know if
23 they will kick us out of the program, but at least we will
24 get a nasty letter from FERC that we missed our deadline.
25 MR. CUTLIP: We don't miss ILP deadlines.

1 ILP is very structured.
2 MR. DOMINIC LEE: They are very
3 structured. So if you are not certain on something, you
4 can call me and I can talk to you person to person, you
5 know, and I can at least address your concern and
6 everything. But by all means, if you have any questions,
7 please ask because I want to -- like I've already said, I
8 want to do it right. This project, we have been applying
9 a long time ago, three years ago, way before other
10 projects come on-line. So we are not going to back down
11 from any information request we could handle ourselves.
12 Is that okay to you?
13 MS. KIM NGUYEN: And also note that we
14 also have a dispute resolution team that's separate,
15 that's separated from our staff, but they are still within
16 Commission staff that you can use should you have a
17 dispute.
18 MR. MONTE MILLER: Only mandatory
19 conditioning agencies.
20 MS. CASSIE THOMAS: That's right. And
21 only those with the political will and staff resources to
22 afford to go through that process while also working on
23 ongoing projects.
24 MR. MATT CUTLIP: But we are not there
25 yet. So let's keep that in mind moving forward.

1 MR. MONTE MILLER: Basically after the 8th
2 of March of 2012, Fish & Game has no more ability to, you
3 know -- well, actually, you know, comment on anything.
4 If -- if we don't agree with some studies or if our
5 studies that we request are not included, we are out of
6 the process. We give up what I refer to as State
7 sovereignty, and that bothers me greatly, and I think
8 that's an issue the State of Alaska is not real happy
9 right now with federal government dealings. I hope it
10 doesn't get to that point, but I have no confidence in the
11 ILP to function and -- for this project because of the
12 needs to be able to complete itself under the ILP.
13 I would strongly recommend that the applicant
14 look at the alternative licensing process which provides
15 more flexibility. That would just be a request from me to
16 consider that. It's more flexibility on timelines for the
17 applicant, as well. And I think that may be a major
18 factor in getting information for any of the agencies to
19 make comment or determination for the EIS to be
20 successfully completed.
21 MS. BETSY MCCRACKEN: I'd like to go on
22 the record as the Service having concerns related to the
23 ILP process, as well. We have very little resource
24 information specific to the salmon stocks in Turnagain
25 Arm. The Department of Fish & Game has minimal escapement

1 and index information for the area. It's very biocomplex
2 related to the fisheries, particularly the salmon. And we
3 are also concerned with the ability to refine studies or
4 request additional studies. And the scoping document
5 reflected that there was a lot of unknown information yet
6 to be available or studied. So we would also appreciate
7 consideration of the ALP.
8 MS. KIM NGUYEN: Okay. Any more questions
9 on the schedule? Can we go back to the PowerPoint,
10 please, Ian. So request for information and studies. I
11 think we have gone through this a lot but, like I said, if
12 you have any information, any study, any type of
13 information or any study for us, please file your comments
14 or you can give it to the court reporter if you have a
15 copy here. Please make it available and part of the
16 record. You can mail it to us. You can mail it -- file
17 it electronically.
18 So here is our tentative schedule. Any
19 questions on this? Like Matt said, this is the ILP
20 schedule, so it's pretty stringent, and we really can't
21 miss any of these dates. Okay.
22 MR. MONTE MILLER: May I ask a question?
23 If a date is missed in this, does that kill the project,
24 essentially?
25 MS. KIM NGUYEN: We never have missed an

1 ILP date. You mean from FERC or from the applicant?
2 MR. MONTE MILLER: From FERC's point of
3 view if a date is missed, that's a major thing.
4 MS. KIM NGUYEN: Uh-huh.
5 MR. MONTE MILLER: And I know that the ILP
6 has been used and was due out for relicensing projects
7 where you have 50 years of data pertinent to the area.
8 You have studies that start five to seven years before
9 they ever seek a relicense. They form work groups and
10 develop everything. Everybody is in agreement. So when
11 that license application is submitted, everybody is on
12 board with it, or at least 99 percent of the problems have
13 been worked out. And that allows that two-year process to
14 go through and be completed timely. That's my concern.
15 And I just -- you know, from the standpoint of
16 someone initiating a process, any applicant, is going to
17 spend a large sum of money to that. Regardless of whether
18 an application is good, bad, or neutral as far as the
19 validity of the application or the value of the project, I
20 just hate to see people expend large sums of money if
21 they -- if they aren't going to get to a successful
22 conclusion one way or the other. It leaves too many
23 questions. Just -- that's just my concern.
24 MS. KIM NGUYEN: Comment noted, and I
25 understand, but I mean, this whole licensing process, it's

1 the -- it's the risk that the applicant is willing to
2 take.
3 MR. MONTE MILLER: I totally agree. We
4 have another project that I think we have discussed where
5 regards -- I've made reference to hydropower is a
6 speculative investment, and it -- I mean, it's speculation
7 on a developer. So --
8 MS. KIM NGUYEN: And we have had in the
9 past gotten a couple of extensions of times of things,
10 even within the study request period and stuff. So we
11 look at it on a case-by-case basis. It depends what we
12 have before us, what kind of request is before us and the
13 reasoning behind that request if we were to grant
14 extensions of time or missing a date. Usually they don't
15 miss a date. They will call and tell us this is what's
16 happening, we need to extend, if you could, please,
17 request an extension of time, and we look at that on a
18 case-by-case basis.
19 MR. MONTE MILLER: And we do note that
20 Mr. Lee was granted an extension of time to file his PAD
21 document, which I'm hoping that his health conditions have
22 improved and everything is good to go. So we did note
23 that. However, I think the PAD more or less determined
24 the license -- or was it predetermined before that that
25 they were going after an ILP?

1 MS. KIM NGUYEN: Their request was -- they
2 didn't request an ALP or TLP when they filed their notice,
3 so the default is always the ILP.
4 MR. MATT CUTLIP: You are always welcome
5 to file comments and say you don't think an ILP -- we can
6 consider those. You are always welcome to file comments
7 if you are adamantly opposed to the process. We will
8 consider any comments filed in the record for the
9 proceeding.
10 MS. BETSY MCCRACKEN: Is there a timeline
11 for that?
12 MS. KIM NGUYEN: File it with your scoping
13 document comments.
14 MR. MONTE MILLER: By September 9th.
15 MS. BETSY MCCRACKEN: Along those lines,
16 I'm a little concerned about my ability to evaluate the
17 cumulative impacts of the study and recommend -- of the
18 project and recommend studies that will consider all those
19 comments and also concerns about my ability to recommend
20 appropriate and effective mitigation without having all
21 the information I need and being able to recommend studies
22 in that short time frame.
23 MR. MATT CUTLIP: We aren't really --
24 obviously your study needs to go down the road and the
25 protection enhancement -- mitigation measures appropriate

1 for the project. At this point in the licensing process,
2 we aren't really focused on that.
3 MS. BETSY MCCRACKEN: It's just something
4 that's part of my process, and it's what I need to be able
5 to do, which --
6 MR. MATT CUTLIP: We do -- there isn't --
7 there is not a lot of time, obviously, in the existing ILP
8 schedule, but after the initial -- so say we get through
9 the study planning process. You get through the first
10 study season. After the first study season is complete,
11 we'll re-evaluate everything, all the data collected. At
12 that time you have the opportunity to recommend additional
13 study based on the initial results or proposed
14 modifications to the study.
15 So there is that sort of -- the process sort of
16 evolves. And if needed under an ILP, you can have a
17 third-year study. I imagine you could have a fourth-year
18 study, if it's warranted. So those are things to
19 consider, too. There is opportunity to sort of tweak the
20 study planning process, and it involves moving forward.
21 Just depends on the project and the issues and the
22 information collected or the lack of information
23 collected. If studies are unsuccessful, they don't need
24 the objectives of the study through the data collection
25 effort and the goals of the study or the objectives are

1 not achieved, it's not unreasonable to have them go back
2 out and collect another year of data. There just would
3 have to be good cause for it.
4 And there is another check in the system. After
5 the second-year study, the updated study report, and we do
6 the same kind of evaluation again and decide whether
7 another year of study is warranted. It's probably
8 difficult to get a handle on all this right now. It will
9 probably become more clear as we go through the process.
10 MS. BETSY MCCRACKEN: I'm a little
11 concerned about it and -- I guess we have stated that.
12 MS. KIM NGUYEN: Anything else? We
13 have -- this is the last slide, I think, summarizing when
14 the information is due, how to file it, if you want to
15 electronically file it or send it in. And then I also
16 want to note that we are going to try to see something
17 tomorrow, right, Mr. Lee?
18 MR. DOMINIC LEE: Yes.
19 MS. KIM NGUYEN: And I think we are
20 meeting here?
21 MS. TAMMIE SMITH: Yeah. We were going to
22 meet outside here. We will distribute the maps and see
23 how many people there are. And I guess for insurance
24 reasons, everyone probably needs to take their own
25 vehicle, but form a little caravan.

MS. KIM NGUYEN: So if you -- we would love for you to join us.

MS. MANDY MIGURA: Can you just explain a little more what tomorrow is?

MS. TAMMIE SMITH: Well, we are just going to go up to a point of -- where the Anchorage AWWU has up off of Goldenview Drive. There is a nice overlook area so you have a high view of the area out there. You can see across to point -- Possession Point. So we can kind of look at the area.

MS. MANDY MIGURA: You are going to point out --

MS. TAMMIE SMITH: You have that view every day.

MS. MANDY MIGURA: Thank you.

MS. TAMMIE SMITH: Just so you can look at the whole area.

MS. KIM NGUYEN: That's our only stop?

MS. TAMMIE SMITH: Well, it's kind of depending on the weather. If not, we can also go down -- there is a -- at the end of Potter's Marsh, there is a little park area where the train is, for you guys in the area. It's right next to the inlet, and you can see out over that area.

MS. CASSIE THOMAS: You talking about the

1 Potter Section House?
2 MS. TAMMIE SMITH: Right. You can see out
3 there. It's just with a low elevation, there is not a
4 whole lot to see other than water.
5 MR. MONTE MILLER: I'd like to ask one
6 follow-up question regarding structure. Your wet method
7 that you talk about -- and either Mr. Lee or the engineer.
8 I'm sorry.
9 MR. CHUCK RENFRO: Chuck.
10 MR. MONTE MILLER: You indicated that your
11 reservoir will have a concrete core with rock pile. Will
12 that core be built on land and moved out there as well and
13 then placed and then rock put around it, or will the --
14 that 60-foot core be poured in place.
15 MR. CHUCK RENFRO: I'm assuming it would
16 be poured in place.
17 MR. MONTE MILLER: So the one mile by two
18 mile reservoir is not wet construction -- or not dry --
19 it's not built somewhere else. Its actual physical
20 construction going to take place out in the inlet.
21 MR. DOMINIC LEE: We have not decided
22 which way to go yet. It will probably will be precast and
23 taken to the site. Our engineer is ABAM Engineering from
24 Seattle. We will ask them what's the best method and get
25 back to you.

1 MR. MONTE MILLER: The reason I ask that
2 is you made a big issue and statement about how nothing is
3 going to happen out there except being placed. And if it
4 is going to be precast, that changes that whole outlook on
5 construction in the area to a certain extent.
6 MR. DOMINIC LEE: Dry construction means
7 you stop all the water, dry up the land, and build your
8 stuff in the dry land. We are not doing that because that
9 will kill lots of fish.
10 MS. KIM NGUYEN: Is there anything else?
11 Well, thank you very much for coming and participating.
12 It's helped a lot, and hopefully we will see you tomorrow.
13 MR. MONTE MILLER: And there is an
14 additional meeting this evening?
15 MS. KIM NGUYEN: Yes. It's going to be in
16 the theater instead of this one.
17 (Proceedings adjourned at 11:36 a.m.)
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