



A P P E A R A N C E S

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A P P E A R A N C E S (Continued)

COUNCIL MEMBERS PRESENT:

- William Lynch - Chair
- Jaime Rossman, Department of Commerce
- Cullen Stephenson, Department of Ecology
- Joe Stohr, Department of Fish and Wildlife
- Dennis Moss, Utilities and Transportation Commission
- Dan Siemann, Department of Natural Resources

Local Government and Optional State Agency:

- Ken Stone, Department of Transportation
- Bryan Snodgrass, City of Vancouver
- Greg Shafer, Clark County
- Larry Paulson, Port of Vancouver

A P P E A R A N C E S (Continued)

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A P P E A R A N C E S (Continued)

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A P P E A R A N C E S (Continued)

FOR COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION:

Julie A. Carter  
Robert C. Lothrop  
COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION  
700 NE Multnomah Street, Suite 1200  
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ALSO PRESENT:

Amanda Kleiss, Paralegal  
Annalisa Provence, Paralegal

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EXHIBITS

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## 1 PROCEEDINGS

2 JUDGE NOBLE: Good morning, everyone. We're  
3 back on the record before the State of Washington Energy  
4 Facility Siting Council in the Matter of Application  
5 No. 2013-01, Tesoro Savage LLC Vancouver Energy  
6 Distribution Terminal.

7 Is there anything we need to take up on the  
8 record before we begin with the testimony for today?

9 MR. JOHNSON: Not from the applicant.

10 MR. LOTHROP: Not from the Columbia River  
11 Inter-Tribal Fish Commission.

12 JUDGE NOBLE: Mr. Lothrop, are you ready to  
13 call your first witness?

14 MR. LOTHROP: Yes, Your Honor. I would like  
15 to call Mr. Wilbur Slockish, Jr., to the witness stand.

16 JUDGE NOBLE: Mr. Slockish, am I pronouncing  
17 your name correctly?

18 THE WITNESS: Slockish.

19 JUDGE NOBLE: Slockish?

20 THE WITNESS: Yes.

21 (Witness sworn.)

22 JUDGE NOBLE: Thank you. Please be seated.  
23 You may proceed.

24 MR. LOTHROP: Thank you, Your Honor. Good  
25 morning, Your Honor, and members of the council. I

LOTHROP / SLOCKISH

1 would like to proceed with Mr. Slockish now.

2 WILBUR SLOCKISH,

3 having been first duly sworn,

4 testified as follows:

5 DIRECT EXAMINATION

6 BY MR. LOTHROP:

7 Q. Mr. Slockish, can you spell your first and last  
8 name for the court reporter.

9 A. W-i-l-b-u-r S-l-o-c-k-i-s-h.

10 Q. Thank you. I'd like to talk to you about some  
11 of your experiences growing up, to help give the council  
12 here an understanding of your relationship with fishing,  
13 your heritage as a tribal member and the importance of  
14 first foods and the places where these first foods are  
15 found, so I'm going to ask you a series of questions  
16 about these topics.

17 When were you born?

18 A. I was born on September 19th, 1944.

19 Q. And when was Celilo Falls inundated?

20 A. 1957.

21 Q. Can you please describe some of your experiences  
22 at Celilo Falls before it was inundated by the Dalles  
23 Dam in 1957.

24 A. Yes, I can. I was there after other fishing  
25 places that were utilized were flooded out by Bonneville

LOTHROP / SLOCKISH

1 Dam, so we utilized that area, my father and my family  
2 members. I did not actively fish there because I never  
3 conducted -- had my first salmon ceremony done yet. So  
4 I used to pack the fish and -- for the older fishermen  
5 and I would receive pocket change for doing this  
6 activity.

7 **Q. You mentioned your first salmon catch and**  
8 **ceremony. Can you describe what that means to the**  
9 **council?**

10 A. It's a very special time, because that's when  
11 you enter the fisherman's row. We never bothered the  
12 salmon until we were taken down to the river by our  
13 father and allowed to harvest the first one. And when  
14 we got the first one, it was put aside and then we had a  
15 dinner ceremony and that fish was preserved, either in a  
16 can, in jars or dried, or other forms, salted, and given  
17 to an older fisherman in the hopes that his knowledge  
18 and his fishing ability would be transferred to the  
19 young person that was doing his first fish ceremony.

20 **Q. Thank you. After Celilo Falls was inundated,**  
21 **where did your family mostly fish?**

22 A. We mostly fished on the Klickitat River. There  
23 was -- a lot of species of the same fish that was in the  
24 Columbia River were migrating up the river to spawn.

25 **Q. I think most of the council members know where**

**LOTHROP / SLOCKISH**

1 the Klickitat River is. It's prominent in the state of  
2 Washington, but could you describe, generally speaking,  
3 where the Klickitat Basin is.

4 A. It's centered there in Lyle, Washington. It  
5 empties into the Columbia there at Lyle. There's  
6 villages -- there's village sites and limited quarters  
7 up in Klickitat in a place called Wahkiacus and then  
8 on -- further on up the river to the Twin Bridges.

9 **Q. Thanks. Did you catch lamprey at the falls on**  
10 **the Klickitat River?**

11 A. Yes. I was able to harvest lamprey eels in a  
12 little stream called the Hungry Horse. It was a camp  
13 there where the people stayed. There was a little house  
14 on the hill and there was a little small stream, creek,  
15 or however you want to describe it, but there was a wall  
16 there and it was wet and the -- with water coming over,  
17 and they would suck their way up the hill there to get  
18 into the stream to go on up. So we was able to harvest  
19 the lamprey in that location.

20 And also under the family fishing scaffold up  
21 there at the main falls, I used to catch a few there  
22 that I was able to process right there and cook over an  
23 open fire, if I didn't feel like going to get something,  
24 so I would harvest the eels to eat right there off our  
25 fishing platform.

LOTHROP / SLOCKISH

1           **Q. Did the numbers of lamprey in the Klickitat**  
2 **River decline during your life?**

3           A. Very dramatically. There's very few in --  
4 there's a place called Swale Creek there at Wahkiacus,  
5 and there used to be all kinds of fish in that stream.  
6 And then the farming activities up on the plateau where  
7 Centerville, Washington, is by Goldendale, the farmers  
8 started utilizing that water and dried up the stream,  
9 and it's really a trickle. And the same thing happened  
10 there at the Hungry Horse camp. There's a gravel pit  
11 and there's other kinds of farming activities up there,  
12 and they dramatically altered the water for the lamprey  
13 to go into that area. And up there at a place called  
14 Twin Bridges, there was a sandbar and I used to follow  
15 my brother -- my deceased brother, up to that area there  
16 and we'd go trout fishing and all of that. The  
17 ammocetes were within that sandbar and we could see  
18 them. And when I first saw them, I thought they were --  
19 they're earthworms, but, no, they said, these are  
20 lamprey. They're ready to head out.

21           **Q. Mr. Slockish, you talked about eating lamprey.**  
22 **Did your parents feed you lamprey?**

23           A. Yes. That was one of the main foods, along with  
24 the salmon. It was utilized in memorials, dinners, also  
25 at the funeral, at death dinners, the last dinner that

LOTHROP / SLOCKISH

1 we would share with a deceased person. And as a child,  
2 the dried eels, one of the main things that I -- I don't  
3 remember, but my mother told me when I was a baby, that  
4 was what was used to break my teeth through when I would  
5 start suffering from the teething process. The eel  
6 tail, dried eel tail, was -- the oils would soothe the  
7 gum -- and as we chewed on it, then that would help  
8 break the teeth through.

9 **Q. After the decline of lamprey in the Klickitat**  
10 **River, did you fish elsewhere for lamprey?**

11 A. Yes. In the early to middle '50s, maybe '59 or  
12 so, we utilized the Fifteenmile Creek to gather eels.  
13 There was a large sum there. It's right next to where  
14 the Dalles Dam is now, and we used to go in there and  
15 get four, five sacks of eels, depending on how strong we  
16 were then, fill them maybe half full, because when they  
17 get in there, they're pretty heavy to pack and only the  
18 adult males could pack almost a full sack. But I used  
19 to be able to pack out a half of one. And they were  
20 distributed to the family members to do whatever they  
21 wanted to do, whether to dry them or store them or  
22 however, that was up to them, but we distributed them  
23 out to our family members.

24 **Q. Who introduced you to lamprey fishing at**  
25 **Fifteenmile Creek?**

**LOTHROP / SLOCKISH**

1           A.     My stepfather.  He's the one that introduced me  
2 to Fifteenmile Creek.

3           **Q.     Do you still fish for lamprey at Fifteenmile**  
4 **Creek?**

5           A.     There was a spill there and we were told to stay  
6 away from there and we would be informed when it was  
7 safe to go back into there, and we were never -- because  
8 they had fences up around it to keep people out while  
9 they were cleaning that.  And for a long time, there was  
10 a small -- I guess it was a chemical trailer because  
11 they told us to stay away from it, but we couldn't go in  
12 there and harvest the lamprey anymore and then they --  
13 that company that was doing it, said they would inform  
14 us when we would have the ability to go back in there  
15 and harvest lamprey again, and to this date, I have  
16 received no response saying it's safe to harvest in that  
17 area.

18           **Q.     After Fifteenmile Creek, where did you go**  
19 **fishing for lamprey?**

20           A.     I utilized the falls at Willamette, at the  
21 Willamette River falls, and I developed a rash on my  
22 hands.  I went there twice, and it still bothers me  
23 today because my head -- you get extremely wet in that  
24 area, and sometimes my head has that same sensation that  
25 my hands had at that time, and also around my eyes, and

LOTHROP / SLOCKISH

1 it itches and burns, but I put some lotions on it and it  
2 eases it. But today I won't go and harvest eels there  
3 because of the concern of those rashes.

4 **Q. Mr. Slockish, did you ever fish for lamprey**  
5 **commercially?**

6 A. No, I did not. They were to us for distribution  
7 to your family members. There's a little store in  
8 Dalles that I went into that's called Meyers Market, and  
9 in there, there was lamprey for sale for sturgeon  
10 fishermen to utilize to catch sturgeon. And when I saw  
11 that, I asked Homer, why is he doing that, and he says  
12 fishermen want it, they want to catch sturgeon. I said  
13 but these foods are very sacred to us because they're  
14 one of the first ones that come back in our meals with  
15 the salmon and they provide us with a lot of things, but  
16 I don't know where he was getting them, but they were  
17 sold for bait, and there's other of our food sources  
18 that are being commercially exploited and close to  
19 extinction.

20 **Q. How did it make you feel to see the lamprey**  
21 **being sold?**

22 A. It hurt my -- it's hard to describe the feeling  
23 because of -- it was a cultural and spiritual value that  
24 was deeply affected because of being used for something  
25 else than its purpose. Yeah, the sturgeon like to eat

LOTHROP / SLOCKISH

1 those, but it was up to them to harvest on their own  
2 when they would get them, not make them stationary for  
3 bait purposes and recreational activities. And to me  
4 that was insulting.

5 **Q. Today when you have the opportunity to eat**  
6 **lamprey, in what setting are they available to you?**

7 A. At -- we just had eels here last Sunday up in a  
8 longhouse at Hehe, Oregon, and lamprey on the table, and  
9 I was able to partake of them at that time. And it's  
10 very few and far between that -- I reluctantly -- they  
11 weren't Willamette River eels. I hope -- I think they  
12 were caught at Sheers Bridge up there on the Deschutes  
13 River. And those ones I have no problem partaking of  
14 there into my meal.

15 **Q. Mr. Slockish, you used the term "eels." Are**  
16 **those the same as lamprey?**

17 A. To -- when I was young, that's -- their name  
18 was -- what I learned was assum, and that translated to  
19 eel, so that's what we call them. And to me, the  
20 teachings that I had, that's what I still follow, the  
21 naming of those.

22 **Q. Mr. Slockish, did you review the video of**  
23 **Mr. Challenger's testimony?**

24 A. Yes, I did.

25 **Q. So in his written testimony, Mr. Challenger says**

**LOTHROP / SLOCKISH**

1 that federal laws guarantee that the -- to the public,  
2 that the loss of natural resources will be compensated.  
3 Was that your experience following the spill at  
4 Fifteenmile Creek?

5 A. No. I have received no compensation whatsoever,  
6 and I get asked a lot of times, well, what is the value  
7 of your loss? I can't place a monetary value on my  
8 spiritual being and my cultural awareness and my  
9 cultural teachings. To me, it's priceless. And when  
10 asked -- kept asking me -- sportsmen, how much would it  
11 take for you to ease your conscience? I told them, I  
12 said, you can bring me all the gold in the world, you  
13 can bring me all the gold, silver, all of your precious  
14 metals, you can print me hundred dollars bills for a  
15 thousand years and you would never have enough to pay me  
16 for my cultural spirit.

17 Just like at the Dalles Dam when it was created,  
18 we got \$3,000 for a one-time payment, but yet the value  
19 and the feeling that I have when I harvest these  
20 lamprey, these salmon and the animals that -- the deer  
21 and the elk is not -- no value can be placed on it from  
22 my perspective because it's priceless.

23 **Q. We're going to shift topics just a little bit.**  
24 **Some of the witnesses in this proceeding have made**  
25 **statements that seem to infer that the tribal fishery is**

**LOTHROP / SLOCKISH**

1 confined to Zone 6 of the Columbia River. What  
2 information was handed down to you by your elders with  
3 regard to the rights -- the fishing rights that were  
4 reserved in the treaty of 1855?

5 A. From the words of my grandfather, my father, we  
6 would access salmon clear down to the ocean mouth, and  
7 we've never abandoned that concept. We reserved those  
8 areas because they were utilized prior to contact, and  
9 that document confined us to an area, but those still  
10 retained the right to harvest the aquatic beings within  
11 those areas.

12 They're not a toy to us. They are life, the  
13 water and all of the animals. They said what they would  
14 do for us, and they would -- as long as we keep the  
15 water clean and all of that, they would return to take  
16 care of us spiritually. And it's not only that, but  
17 it's mental. It is so hard to express the mental part  
18 of it. When we're deprived of it, that is a mental  
19 stress that we endure and the physical, spiritual. What  
20 everybody seems to forget, we're mental beings too, is  
21 also connected with all of these cultural values.  
22 Because when you harvest it, your mind is very well  
23 connected to the animal making that sacrifice to feed  
24 you, to clothe you. So when we're limited into the  
25 areas, there have been -- that is a mental stress that

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1 we have to endure. But we have survived so far due to  
2 this limited capacity that we can travel to those areas  
3 because of the fences and private property can -- no one  
4 can enter. So that part is very disturbing.

5 **Q. Do you still fish for salmon?**

6 A. I wish that I was out there right now with my  
7 children. But my grandson, he said it was time for me  
8 to sit back and they would take over the duties and they  
9 would provide me with the fish that I needed whenever I  
10 needed it. And he said, you've earned that, grandpa,  
11 you just need to sit on the bank and we'll do this,  
12 we'll take care of it. You can do things for us. You  
13 can still patch the nets and hang nets and all of that,  
14 but the fishing, you're too old and you're too slow. So  
15 those were his words. And he's only ten years old.

16 **Q. Does your family bring you salmon?**

17 A. Yes, they do. I have -- my freezer is full.  
18 I've got 30, I think, hanging in the dry shed being  
19 dried. I've got another 20 being smoked. So I have --  
20 they've provided well for me.

21 **Q. And is this salmon an important source of food**  
22 **to you and your family?**

23 A. Yes, it is. Because, again, I state, when you  
24 catch one, that's a good feeling. And I can remember  
25 that, when I caught my first one and then when I caught

LOTHROP / SLOCKISH

1 my last one. And the feeling is -- it's undescrivable  
2 the feeling that you get when you harvest in there and  
3 giving him thanks that he's made the sacrifice to feed  
4 you, to utilize him in those ways of drying and smoking  
5 and meals. So they're very important in that aspect and  
6 that feeling is priceless.

7 **Q. Mr. Slockish, yesterday, Kathryn Brigham talked**  
8 **about -- a little bit about her relationship with Billy**  
9 **Frank, Jr. Did you know Billy Frank, Jr.?**

10 A. Yes, I knew him. He was a great man. But when  
11 he first started, the labels that people like him, when  
12 they're arrested, is not a good one. And he also  
13 assisted me in my court proceedings and reminded us  
14 that, you know, these animals, these fish, this aquatic  
15 creature is placed here for our use and benefit by the  
16 creator, and as long as we take care of them, it will  
17 take care of us. So, yes, he was a good man.

18 **Q. And where have you fished for salmon on the**  
19 **Columbia River?**

20 A. From above the tri-cities to Astoria. I didn't  
21 stay there too long because those big ships coming in, I  
22 thought they were trying to run over me, so I  
23 reluctantly pulled away from there because of -- just  
24 like the barges on the river now, they can't stop. So I  
25 didn't want to jeopardize myself and the people that

LOTHROP / SLOCKISH

1 were with me. So in the interest of our safety, I  
2 reluctantly went back up to -- into this area up here,  
3 on the Columbia River, I mean.

4 **Q. Earlier in this proceeding, Mr. Ernie Niemi**  
5 **testified about cultural values and how hard it may be**  
6 **to express those values in economic terms, and I believe**  
7 **that Mr. Challenger also testified about cultural values**  
8 **and the difficulty of translating that. In this regard,**  
9 **could you share with the council where you were**  
10 **yesterday and what you were doing.**

11 A. Yesterday I was up at Sheers Falls at a salmon  
12 culture camp, and within that little camp there was  
13 members of the Nez Perce, Umatilla, Warm Springs and  
14 Yakama Nation young people, and they asked -- I was  
15 asked to describe our fishing activities and all of --  
16 whatever else. And I pointed at the river, and I said,  
17 take a look at that water. What do you see? And they  
18 said, water. I said, do you know that when these salmon  
19 come back, they've swam a long ways from up around  
20 Alaska and other areas back down and they're coming up  
21 this stream to spawn. Take a look at that water, and  
22 our people understood this, and I said, what do you see?  
23 And they said, water flowing. I said, see that water  
24 that's going upstream? That's one of their trails.  
25 They will find that. And they look a little further up

## LOTHROP / SLOCKISH

1 and there's a little waterfall there. I said, there's  
2 numerous more obstacles to get over, so he conserves his  
3 energy following those trails and he's strong enough yet  
4 to go over that little falls because he has bigger ones  
5 ahead. So wherever he can find those water flows  
6 upstream, he will ride them and those are their trails.  
7 Out all of the other resources that are here, I  
8 explained to them about what the trees do for us, what  
9 the water does for us, the rock, everything, what the  
10 deer and the elk, how they provide us with clothing,  
11 tools, shelter, our shoes, our moccasins and the other  
12 things that we needed, the nettles, we utilized all of  
13 them in our life. We had to make our own. The trees,  
14 some of the oak tree and the willow tree provided us  
15 with the hoops that we utilized. So everything is  
16 connected in our daily life. The rock, he provides,  
17 combined with the tree, the wood through the fire to  
18 heat those rocks. The willows provide the frame for our  
19 sweat lodge where we put the rocks into. The antlers of  
20 the deer was utilized as our pitch forks to put those  
21 rocks into that little pit. So they're all connected.

22 So it is -- children, we need to revive this in  
23 our children, because they didn't seem interested and I  
24 said, when I was young, I had no electricity. I had --  
25 my light was a lamp, oil lamp. And we had a

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1 battery-operated radio. We could listen to it one hour  
2 a night because of the price of that battery. But you  
3 guys have your games, you guys have your TV and you need  
4 to put those aside and learn these values so you can  
5 protect them in the future.

6 And they started listening really closely then,  
7 and I -- they asked me an example. And I said, well,  
8 here's an example that I remember that my parents told  
9 me about the wolf. The wolf is very instrumental, they  
10 said, because he said, my role is here, is to take the  
11 old, the sick and the injured animal, the deer and elk  
12 and other species that are in different areas. He said,  
13 I will take care of them. So when you hunt, you will  
14 always have clean, healthy animals to feed yourself and  
15 your family, to utilize in the clothing that you will  
16 get out of those hides that were tanned.

17 So we need to bring all of those teachings back  
18 to the young people. I said, so they -- they said that  
19 they were going to go home -- because at the end of the  
20 session -- I talked with them for over two hours. And  
21 it is hard to express everything that role that they  
22 play in -- the cedar tree provided us with our canoe.  
23 Also the cedar roots were utilized in creating our  
24 baskets, water-tight baskets, that were part of our  
25 gathering of the water to take to our home quarters. So

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1 we need to take care of it.

2 And one of the things there is that -- just like  
3 modern day now, not everyone was a fisherman or a  
4 hunter. We've got all different talents. In those  
5 days, we had carvers that would carve the canoes out,  
6 utilizing fire to burn them out. Toolmakers to make --  
7 to clean the fire, the ash out of their -- and the rocks  
8 to smooth it. So even the tree provided us with some  
9 things of -- got a crack in there, the sap would be used  
10 to patch that canoe.

11 So everything has a role in our life. And it's  
12 hard to get them all out, what they do for us, it seems,  
13 what they said they would do for the coming people when  
14 we were placed here. And you can't do it in one hour,  
15 two hours, because everything in this world has a role  
16 in our life at that time before the contact altered our  
17 areas.

18 There was a wintertime activity that we went  
19 through, teachings, because from the spring to the fall,  
20 we were gathering our foods, processing and storing  
21 them, trading them for different areas. We had our  
22 trade routes and our school time was in the winter.  
23 Because we had our talents, like knowledge of the  
24 medicinal plants. Someone would have that talent and  
25 skill to use those medicines that the plants provided us

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1 with. So just like today, there's people that are --  
2 can draw, artists. It was the same back in that time.

3 And so they had a real interest in learning, and  
4 they all said, that they were going to go home --  
5 because I told them, I said, you need to question your  
6 older people, your elders, your grandparents, your  
7 mother and your father of what these roles, these  
8 plants, what are they -- what they did for our daily  
9 life. And they said, we're going to go home and start  
10 asking questions of our grandparents. And to me that  
11 was a good sign that our people are again thinking about  
12 our cultural, spiritual and mental well-being through  
13 the gifts of this land that the creator placed here for  
14 us.

15 MR. LOTHROP: I have a couple more  
16 questions, Your Honor.

17 BY MR. LOTHROP:

18 **Q. And I feel bad, I apologize, Mr. Slockish, for**  
19 **this next question. But does the loss of these first**  
20 **foods and first resources, does it make it more**  
21 **difficult to carry on these teachings and cultural**  
22 **practices?**

23 A. Yes, it is, because you don't have the materials  
24 there to physically show them because they have to see  
25 it in person, and it is very difficult. Because just

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1 like in the school system, they have these flash cards  
2 and they would display them to us. So it is very  
3 difficult if we lose a species, very hard. And one of  
4 the ones that I have a concern about now is the  
5 huckleberry. It's being badly vandalized up there for  
6 economic gains. There are people going in and using  
7 metal cones, killing the plant, breaking of the branches  
8 and that kills the plant. And I remember a teaching  
9 from my grandparents that all -- everything had a role.  
10 And fire would control the underbrush so the berries  
11 would always be strong and big and lots of them. And  
12 the whole village will do a control burn in the  
13 huckleberry area and the next year it would be big. And  
14 that's why when I see and hear of these big fires that  
15 are occurring currently, is because some of our  
16 teachings and all of that, there was never that events  
17 happening in ours. But our science has been ignored and  
18 called a fallacy and paganism and all of that, but we  
19 did know those things. The food was abundant with our  
20 science.

21 Q. So my final question, so, Mr. Slockish, you're  
22 involved in a number of forums dealing with salmon and  
23 lamprey, I believe. Can you briefly describe some of  
24 the work that's going on, just very briefly, to rebuild  
25 salmon, lamprey and other things, and is that important

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1 to view as a tribal person?

2 A. It's very important for me as a retired tribal  
3 fisherman. Because when they were here -- placed here  
4 and that comes down to that teaching, everything needs  
5 to be taken care of, whether it's the water -- and  
6 really, because with our science, we could drink water  
7 anywhere. Today, no, because of the things that  
8 happened. And the salmon, their habitat has been very  
9 degraded through all of the industry that practices. I  
10 always hear, well, this is a free market. I said, well,  
11 nothing is free. I said, my resources, what I called  
12 resources at that time, what are called resources now,  
13 whether it's a salmon, a tree, a rock, are being  
14 utilized to the detriment of our animal life, plant  
15 life, air. So, yes. And as long as we can take care of  
16 this water, we will always ensure that my children and  
17 the other grandchildren and everybody's grandchildren --  
18 because this land provides for not only my people but  
19 everyone that is here. So to me we need to take care of  
20 it.

21 All along these river drainages, the ocean, the  
22 economic gains, is it worth the cultural values? I live  
23 here. I'm not going anywhere. I've been displaced from  
24 harvesting my lamprey at the Klickitat River, at  
25 Fifteenmile, at Willamette because of my reluctance to

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1 endure the chemicals or whatever it is that is affecting  
2 me. I wish that they understand it. I don't want --  
3 all of us -- we all need to understand, we breathe this  
4 air, we utilize this water to cleanse our body, to cook  
5 with, all of the activities and water is utilized in  
6 everything that is done, whether it's in the mining  
7 industry, the nuclear industry, the chemical industry.  
8 All of them utilize water to generate the steam, and  
9 it's utilized in the dam building part to generate the  
10 power.

11 And when you mentioned Billy Frank, I always  
12 remember his one statement that he said, when you turn  
13 on the light, look at it as a salmon. And I'll never  
14 forget that, the words that he utilized, that saying and  
15 that phrase. So please be mindful of the ones that  
16 can't speak for themselves but we try to emphasize to  
17 importance of their value to us. It's priceless. No --  
18 nothing can replace those values. So I hope that is  
19 understood from my teachings that I've learned from my  
20 ancestors and I continue to hand down to my generations  
21 so that my future generations will be able to utilize  
22 the gifts of this land.

23 **Q. Thank you, Mr. Slockish.**

24 MR. LOTHROP: Your Honor, I have no more  
25 questions at this time.

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1 JUDGE NOBLE: Cross-examination?

2 MR. JOHNSON: No questions, Your Honor.

3 JUDGE NOBLE: Council questions?

4 Mr. Moss?

5 MR. MOSS: Mr. Slockish, thank you for being  
6 here today and giving us a lot of important insight into  
7 cultural values that you've talked about. I have one  
8 question for you that's more of a technical nature,  
9 though, and that is concerning the Fifteenmile Creek  
10 incident, you mentioned some sort of a spill occurred  
11 there. I don't believe you said when that spill  
12 occurred. Do you recall the year?

13 THE WITNESS: I can't recall the exact year,  
14 but it -- I think it was the late '80s.

15 MR. MOSS: All right. That's good enough.  
16 Thank you very much. It gives me a sense of  
17 perspective. Thank you.

18 JUDGE NOBLE: Any further questions, to my  
19 left? To my right?

20 I just have one, Mr. Slockish. I didn't  
21 hear what your tribal affiliation was. You may have  
22 said that, but what is your tribal affiliation?

23 THE WITNESS: My tribe is Klickitat.

24 JUDGE NOBLE: Thank you.

25 THE WITNESS: Located there around the Lyle,

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1 Washington, area and down to Bonneville and below.

2 JUDGE NOBLE: Thank you.

3 Are there any questions based upon council  
4 questions?

5 MR. JOHNSON: Just one.

6 CROSS-EXAMINATION

7 BY MR. JOHNSON:

8 **Q. Mr. Slockish, in response to Mr. Moss's question**  
9 **about the Fifteenmile Creek incident, was that the truck**  
10 **tanker spill, pesticide spill?**

11 A. Yes.

12 MR. JOHNSON: Thank you. Nothing further.

13 JUDGE NOBLE: Mr. Lothrop?

14 MR. LOTHROP: No further questions, Your  
15 Honor.

16 JUDGE NOBLE: Mr. Slockish, thank you very  
17 much for your testimony this morning and you are excused  
18 as a witness.

19 THE WITNESS: Thank you all for listening to  
20 me.

21 JUDGE NOBLE: You're welcome. Thank you.

22 Are you ready with another witness?

23 MR. SEXTON: Yes, Your Honor. Good morning,  
24 my name is Joe Sexton. I'm one of the attorneys  
25 representing the Yakama Nation, along with my colleague,

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1 who is present and you'll hear from shortly, Amber  
2 Penn-Roco. And at this time, I'd like to call Elizabeth  
3 Sanchey to testify.

4 JUDGE NOBLE: Could you please repeat her  
5 last name for me.

6 MR. SEXTON: Yes, Your Honor. Elizabeth  
7 Sanchey.

8 JUDGE NOBLE: Ms. Sanchey, would you raise  
9 your right hand.

10 (Witness sworn.)

11 JUDGE NOBLE: Thank you. Please be seated.  
12 You may proceed, Mr. Sexton.

13 MR. SEXTON: Thank you, Your Honor.

14 ELIZABETH SANCHEY,

15 having been first duly sworn,

16 testified as follows:

17 DIRECT EXAMINATION

18 BY MR. SEXTON:

19 Q. Good morning, Ms. Sanchey. I'm going to be  
20 asking you some questions regarding your work for the  
21 Yakama Nation and your experience as a Yakama Nation  
22 tribal member this morning, but first can you please  
23 state your name and spell your last name for the record.

24 A. Elizabeth Sanchey, S-a-n-c-h-e-y.

25 Q. Thank you. Are you an enrolled member of the

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1 Yakama Nation?

2 A. Yes, I am.

3 **Q. And do you fish, Ms. Sanchey?**

4 A. Yes, my family does fish in Zone 6.

5 **Q. And where is Zone 6?**

6 A. Zone 6 is in the area to the Bonneville Dam  
7 Pool. My family fishes at Bridge of the Gods which is  
8 at Stevenson, Washington.

9 **Q. How does your family fish there?**

10 A. We currently fish on platforms or scaffolds. We  
11 start in about March and then usually end in November.  
12 We follow the fish runs. The first catch of every type  
13 of fish, whether it's a spring Chinook or a summer  
14 Chinook or blueback, or sockeye we call them, that first  
15 catch, we always give away. We believe it brings us  
16 good luck, plus it helps feed the elders of our family  
17 that no longer fish.

18 **Q. Okay. I'm going to shift gears a little bit.**  
19 **What's your current occupation?**

20 A. I'm the environmental manager for the Yakama  
21 Nation. I'm almost the hazmat lead for the Yakama  
22 Nation.

23 **Q. And how long have you held this position?**

24 A. Six years.

25 **Q. What did you do before you became the**

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1 environmental manager?

2 A. I have a bachelor of science degree from  
3 Heritage University. Shortly after that, I worked as an  
4 EMT for a number of years, and then I worked for Wapato  
5 Irrigation Project as an irrigation systems operator,  
6 and then I moved into administrative duties.

7 JUDGE NOBLE: Ms. Sanchey, could you speak a  
8 little bit slower, please.

9 THE WITNESS: Sorry. Thank you.

10 BY MR. SEXTON:

11 **Q. Great. Do you have any -- you mentioned you**  
12 **worked on hazardous material and oil spills. Do you**  
13 **have any training specific to that?**

14 A. Yes. I have a 40-hour HAZWOPER, so it's a  
15 hazardous materials worker emergency response. I  
16 received that last year in May, and an eight-hour  
17 refresher is required to maintain that certification.  
18 I've worked in hazardous materials emergency response  
19 for a number of years, probably dating back to 2004,  
20 starting with the irrigation program and then in my  
21 current position.

22 **Q. And I'm sorry, you may have said, but I'm --**  
23 **perhaps didn't hear. Who gives the training for the**  
24 **certification that you have?**

25 A. The training that I received was certified by

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1 Region 10 EPA. It's based on the OSHA standards.

2 **Q. And again, how often is that training that you**  
3 **received?**

4 A. So once you receive the full 40 hours -- it's  
5 one week of intense training. Once you have received  
6 that, every year you're required to do an eight-hour  
7 refresher.

8 **Q. And in your work for the Yakama Nation, how**  
9 **often do you respond to hazardous material spills?**

10 A. We probably do maybe a dozen spills a month. We  
11 live in a high-traffic area because of highway 97 and  
12 I-82. There seems to be a lot of semi-truck accidents  
13 and that sort of thing. We're also an agricultural  
14 area, so there are pesticide spills and small diesel  
15 spills. So approximately ten to 12 a month.

16 **Q. In your capacity as an environmental manager and**  
17 **working with hazardous materials, do you regularly work**  
18 **with other governments?**

19 A. Yes. So we often work with Washington State  
20 Department of Ecology. Recently we've started working  
21 with Oregon DEQ and then, of course, with the EPA.

22 **Q. And do you sit on any other boards or groups**  
23 **with respect to these sort of responses to hazardous**  
24 **waste spills?**

25 A. Yes. I am currently the Yakama Nation

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1 representative for the Northwest Area Committee,  
2 Region 10 response team, and that consists of the US  
3 Coast Guard, EPA. Yakama Nation is one of two tribes on  
4 that committee. The other tribe is Makah. And we meet  
5 on a quarterly basis to look over disaster preparedness  
6 and regulations and rules added with -- having to do  
7 with hazmat.

8 **Q. As the Yakama Nation environmental manager and**  
9 **in your position responding to these hazardous material**  
10 **situations, how do you respond to them, I guess?**

11 A. If there was a spill?

12 **Q. Yes.**

13 A. So if there was a spill on the reservation,  
14 notification would either come from EPA or from Ecology,  
15 depending on the location of the spill -- sorry, that's  
16 really distracting.

17 MR. STONE: For us too.

18 A. We would either get a phone call, sometimes a  
19 text message. If it's in the middle of the night, a  
20 phone call goes to the Yakama Nation tribal police  
21 which, in turn, we have a system set up on who's on call  
22 and they'll notify us that way. We then go and get  
23 our -- I gather my hazmat team -- I have a team of  
24 ten -- and decide who wants to go, who can go.  
25 Fortunately or unfortunately, I'm not sure, we're on

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1 call 24/7, and so that limits our ability sometimes to  
2 have a personal life, but when you love what you do, you  
3 do it.

4 So once we gather a team, we report to the  
5 incident and decide what needs to be done. If we need  
6 to meet with law enforcement, say it's a truck accident,  
7 of course, the first concentration is to make sure the  
8 people involved are okay, and then towing of the vehicle  
9 and then the emergency response starts either in  
10 coordination with that or directly after the vehicle's  
11 been removed. We do a lot of vehicle accidents. So we  
12 will put in -- if it's in the middle of the night, which  
13 seems to happen quite often, we will just put in  
14 emergency measures for control until the daylight hours  
15 where we can gain a better understanding of what's going  
16 on. It's one of those spur of the moment, you have to  
17 make a decision very quickly and so we've gotten really  
18 good at making quick decisions.

19 JUDGE NOBLE: Ms. Sanchey, you're speeding  
20 up.

21 THE WITNESS: Am I? Sorry.

22 BY MR. SEXTON:

23 Q. So broadly speaking, in this facet of your job,  
24 you're tasked with responding to and then cleaning up or  
25 containing hazardous waste spills for the Yakama Nation?

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1 A. Sorry, can you repeat the question?

2 **Q. Sure. Broadly speaking in this facet of your**  
3 **job of working with your hazmat team, you're tasked with**  
4 **cleaning up hazardous waste spills for the Yakama**  
5 **Nation?**

6 A. Yes. The expectation from my tribal leadership  
7 is that any time there's a hazardous waste accident or  
8 spill on the reservation, my program is to be there from  
9 the beginning to the very end.

10 **Q. Can you describe the areas of your**  
11 **responsibility in terms of geography?**

12 A. Yes. The areas of responsibility on the  
13 reservation are boundary to boundary, if you will, from  
14 the north to the south of the town bridge, clear to  
15 Satus Pass at the summit, which is the southern  
16 boundary, to the face -- the east face of Mount Adams,  
17 which is the western boundary, and then down to Mabton,  
18 Washington which is the eastern boundary.

19 In addition to that, we also respond to any of  
20 the ceded areas where there may have been an accident  
21 off the reservation. And then if there is an accident  
22 in our reserved rights areas or our usual and accustomed  
23 areas, we respond to those also.

24 **Q. Can you describe -- you mentioned ceded lands or**  
25 **ceded areas. Can you describe what those are?**

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1           A.     Ceded areas are the areas that the Yakama Nation  
2 gave to the federal government during the treaty of 1855  
3 and in return we have our reservation, we have our ceded  
4 lands. Ceded lands remain to be able to fish and hunt,  
5 gather foods, medicines and practice our religion in  
6 those areas, although they are not part of our  
7 reservation.

8           **Q.     So we have the reservation, you respond to ceded**  
9 **lands and then you mentioned other areas, reserved**  
10 **areas. Can you describe those areas please?**

11          A.     Reserved rights areas are areas outside of the  
12 reservation, outside of the ceded areas, but areas that  
13 we have practiced collecting our fishing, our hunting,  
14 gathering foods, medicines. These areas are often  
15 outside of the state of Washington, but we still have  
16 reserved rights as guaranteed by the treaty.

17          **Q.     Again, shifting gears a little bit, when you go**  
18 **to a larger spill or situation, can you describe how you**  
19 **work with other governments.**

20          A.     When we arrive on the scene, normally it's  
21 emergency response. And so once the emergency's gotten  
22 under control and the cleanup is beginning to get set  
23 up, we often form what we call a unified command. And  
24 that unified command, it's -- I think of it as a  
25 triangle. We'll have the federal entity which is often

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1 the US EPA, they'll have the state ecology normally and  
2 then the tribe. And so I'm the tribal on-scene  
3 coordinator for the Yakama Nation. And we set up this  
4 group, much like you, a board that makes decisions for  
5 the cleanup and for the actions that take place during  
6 that event.

7 **Q. And were you involved at a hazardous material**  
8 **spill or situation that happened at Sulfur Creek?**

9 A. Yes. That incident happened March 2015. There  
10 was a used oil -- used motor oil holding tank on a farm  
11 that was breached. The wind caused damage to the fill  
12 port and it began to leak. It traveled, I believe,  
13 14 miles through an irrigation system to a natural creek  
14 and then out to the Yakima River. Initially, Ecology  
15 contacted me to say, hey, we have a problem. My staff  
16 and I responded. I believe it was on a Sunday. And we  
17 arrived shortly before Ecology arrived, secured the  
18 confluence of the Yakima River and then began to  
19 backtrack, and it took us approximately three hours to  
20 figure out where the oil was coming from. That cleanup  
21 went on for two weeks. Because, as you can imagine,  
22 going through the irrigation system's piped areas  
23 through the town of Sunnyside, out through the grates,  
24 there was a lot of natural vegetation damage. There  
25 were 50 barnyard geese that we thought were black, ended

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1 up they were actually white but covered in oil. So we  
2 had to do a lot of cleanup. And we formed the unified  
3 command. We sat with Ecology, US EPA and the  
4 responsible party to get that cleanup accomplished.

5 **Q. So aside from Mosier, which I'll get to in a**  
6 **moment, have you had any experience with hazardous**  
7 **materials involving trains that you've responded to?**

8 A. Yes. In September of -- I believe it was 2013  
9 or '14, there was a Burlington Northern train traveling  
10 near McNary Dam. They were heading west, and a boulder  
11 had come off the side of the hill, punctured the  
12 locomotive's diesel tank. That train continued on for  
13 an additional 14 or 15 miles, leaking diesel fluid all  
14 the way through, till it could get to a place where the  
15 train could be serviced. That's pretty rocky terrain in  
16 that area, not a lot of places -- flat areas to get  
17 equipment in.

18 Once the train stopped, it lost -- I can't  
19 remember -- maybe 300 gallons in one spot. And the  
20 funny thing about that is, we were never able to locate  
21 all of the diesel on the bank of the river. We have  
22 monitoring wells in place. We know that the diesel --  
23 some of it we were able to pull out of the immediate  
24 ground, but the basalt layer is holding that diesel in  
25 place. So that's an ongoing -- that's an ongoing

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1 cleanup, I guess you could call it. All we can do is  
2 monitor. Oftentimes they will put -- they'll pump  
3 oxygen through the wells to add bugs to help break down  
4 the diesel that's in the ground. But that was one of  
5 the weird ones where you know it's there, but you just  
6 can't find it.

7 **Q. Did you respond to the Mosier train derailment**  
8 **on Friday, June 3rd of this year?**

9 A. Yes.

10 **Q. And where does Mosier fall in the areas we**  
11 **described previously as areas of your responsibility?**

12 A. So Mosier is in Oregon. It's on the bank of the  
13 Columbia River, what I would call the reserved area for  
14 the Yakama Nation.

15 **Q. And in terms of initial notice and your**  
16 **response, can you describe what happened in Mosier.**

17 A. Mosier occurred on a Friday afternoon, around  
18 noon actually. I had taken the day off from work. It  
19 was my six-year anniversary of my position, so I was  
20 taking a break. I got a text message from one of our  
21 tribal councilmen saying, hey, I heard there's a train  
22 on fire in the Columbia Gorge; what do you know? So  
23 then I began calling Ecology and EPA, trying to figure  
24 out what was going on. At that time, Ecology had no  
25 knowledge of what was going on. EPA did. Shortly

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1 thereafter I started getting e-mail after e-mail, phone  
2 call after phone call saying, we have a problem, it's an  
3 oil train, it's on fire and it's on the banks of the  
4 Columbia.

5 **Q. So you received notice. What time did you leave**  
6 **to head to Mosier?**

7 A. I believe we left around 1:30, 2:00.

8 **Q. And you headed straight to Mosier at that point?**

9 A. Straight to Mosier. We did stop in Goldendale  
10 and meet up with Department of Ecology emergency  
11 response team. We knew it was going to be a struggle to  
12 get access to the community of Mosier because of  
13 traffic, so at that time we were trying to figure out  
14 how we were going to do that. Ecology decided that they  
15 were going to go on to Bingen, Washington. At Bingen  
16 they were going to take a boat and go across to Mosier.  
17 Because my crew and I were pulling our response trailer,  
18 and in our response trailer we have 800 feet of river  
19 boom in addition to other absorbents, I can't pull that  
20 across the river. So we went on ahead and accessed I-84  
21 to get to Mosier, which was an absolute nightmare.  
22 Traffic was backed up for miles bumper to bumper. So we  
23 took it upon ourselves to drive on the right shoulder,  
24 having to get out and often direct traffic around a  
25 disabled vehicle or a construction area. We finally

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1 caught up to an Oregon State Trooper, said, hey, we need  
2 some help. And he said, I can't help you, keep going,  
3 keep doing what you're doing. He did radio ahead to the  
4 next officer and tell them, you know, these guys are  
5 coming through, they're on the way to the oil spill. It  
6 ended up taking us about two and a half hours to get to  
7 Mosier.

8 By the time we finally got to the turnoff to  
9 Mosier, it was my -- my truck with a response trailer,  
10 my crew vehicle behind me, an additional two to three  
11 cars behind us, where the other firefighters responding  
12 seen us going, so they jumped in line behind us. That  
13 was probably one of the most difficult responses I've  
14 ever been involved in. The traffic delayed the response  
15 to the incident.

16 **Q. So what happened once you arrived in Mosier?**

17 A. Once we arrived in Mosier, we got off at the  
18 off-ramp, talked to the state patrolmen there that was  
19 stationed and we pull up and you see this huge cloud of  
20 just black smoke, flames. And the officer tells us, you  
21 have to access across the bridge and that's the bridge  
22 over the rail, and he said don't stop, just go, just go,  
23 just go. And so we went on forward and there was a  
24 change in temperature, probably 10 to 15 degrees, just  
25 going across that bridge because of the heat. You could

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1 feel the heat coming off that fire through your windows.  
2 We pulled into town and it was absolutely apocalyptic.  
3 There were fire trucks everywhere. There were exhausted  
4 firemen just sitting here and there. It was absolute  
5 chaos. We parked our response vehicle and went to the  
6 incident command. At that time, the incident commander  
7 was with the governor of Oregon, so we waited. And I  
8 have to give credit to the firefighters that were there,  
9 but there was no organization. Everybody -- it was  
10 chaos. It was absolute chaos.

11 **Q. So what happened at that point? You're waiting**  
12 **to speak with incident command?**

13 A. Yeah. We're waiting for incident command. We  
14 needed to check in and let them know what kind of  
15 resources we have, personnel and then what kind of  
16 equipment we have, an extra trailer for use. One of the  
17 fire chiefs, I believe he was from Hood River, came up  
18 to me and said, hey, we're going to go ahead and start  
19 pulling water out of the Columbia, to which I think we  
20 have an active fishery going on, there's endangered  
21 species, we've spent millions upon millions of dollars  
22 restoring the lamprey, or some population, we need to  
23 protect those things. So I asked him, do you have a  
24 permit from the Army Corps to pull water out of the  
25 river. I realize it's an emergency situation, but I was

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1 concerned. Of course, he didn't. And then about that  
2 time a gentleman from the Army Corps of Engineers who  
3 happened to be on site came up and approached me and  
4 said, hey, I'm here. I understand we have a trust  
5 responsibility to the Yakama Nation, as your federal  
6 partner, what can we do to help? So once that happened,  
7 we were more welcomed to be there. Before that all they  
8 wanted us to do is write down our cultural concerns and  
9 then send us on our merry way. I know my direction from  
10 my leadership. I know that my -- the expectation they  
11 have on me is to be there. So I dug my heels in, I put  
12 my elbows out and we maintained our position, eventually  
13 becoming part of the unified command at Mosier as the  
14 tribal on-scene coordinator.

15 **Q. So how long did you stay on scene that night on**  
16 **June 3rd?**

17 A. That night I believe we stayed until maybe 2 in  
18 the morning. There wasn't a whole lot we could do. It  
19 was -- at that time it was fire. It was fire response.  
20 It was dangerous, so we just kind of held back. For one  
21 thing, we didn't want to access that bridge to get out  
22 of town. We were nervous to do that. And time just  
23 flew by, and we realized how exhausted we were. So we  
24 returned home that evening or morning, what have you.  
25 And then the next day, Saturday, we got up, got on a

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1 conference call with EPA, Ecology, DEQ, all the involved  
2 parties, kind of formulated a game plan and then we  
3 headed back down to Mosier.

4 **Q. And how long overall were you at Mosier during**  
5 **this time?**

6 A. Our initial arrival was about 4:00 on June 3rd,  
7 and I believe the last day we were on site was  
8 June 17th.

9 **Q. So that's about two weeks?**

10 A. Two weeks, yeah.

11 **Q. Thank you. Can you describe the work you did**  
12 **throughout those two weeks.**

13 A. Myself, I was the tribal on-scene coordinator,  
14 so I was stationed at unified command. We had a meeting  
15 about every hour, so I wasn't really allowed to leave  
16 the area. My staff, however -- I had cultural resource  
17 monitors in place, so any digging, any type of ground  
18 disturbance, my cultural monitors were there. I also  
19 had staff that would go out and monitor the booms that  
20 were put out in the Columbia River. We did have some  
21 oil reach the river. So we would look for anything  
22 additional, anything outside the booms; they would do  
23 that twice a day. I also had staff working with the EU,  
24 the environmental unit. That unit would go out and look  
25 at the water sampling, the sediment sampling, check the

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1 vegetation, that sort of thing.

2 **Q. Did Yakama tribal elected leadership ever go to**  
3 **the Mosier site?**

4 A. Yes. The Monday following the train accident,  
5 my tribal chairman and a handful of other council were  
6 allowed to go out on a VIP tour of the area to look at  
7 the damage. It was kind of quick. And at that time,  
8 they were able to look at the derailed trains, the  
9 disturbance to the wastewater treatment plant and then  
10 they were able to access the beach.

11 **Q. Was that the only time they went to Mosier?**

12 A. No. On Thursday, June 9th, Yakama Nation held a  
13 healing ceremony in Mosier on the banks of the Columbia  
14 River. We had a religious ceremony, and we invited all  
15 of the responders that were able to attend to be there  
16 with us. In our religion we use singing and drums. And  
17 so they came down to the banks of the Columbia and we  
18 sang seven songs and kind of released ourselves and  
19 asked for prayers for the area.

20 I'm tasked with -- my task was tasked for  
21 speaking for those things that cannot speak for  
22 themselves, protecting the environment, some may say,  
23 but we feel that that healing ceremony, that cleansing  
24 ceremony needed to happen. Up till that point there was  
25 problem after problem, equipment breaking down, people

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1 getting heatstroke or heat exhaustion. It was triple  
2 digits all week long, of course. And once we had our  
3 healing ceremony and prayed on the area, things happened  
4 to go very smoothly. There was no more equipment  
5 failure. It's our beliefs that we have to protect the  
6 land and the land will protect us, so having that  
7 religious ceremony was important.

8 Following that ceremony, there was a press  
9 conference held that the Yakama Nation hosted. We had a  
10 very, very good response to the press conference. It  
11 was for leadership of what we call the four river  
12 tribes: Yakama, Umatilla, Nez Perce and Warm Springs.  
13 It also happened that Robert F. Kennedy, Jr. was in the  
14 area and he came and spoke. And it was -- it was good.  
15 I think that needed to happen to move the project along.  
16 Everybody needed to clean their hearts and minds.

17 **Q. Following Mosier, have you been given direction**  
18 **to do anything else with respect to that incident?**

19 A. Yes. My tribal leadership has asked me to  
20 prepare a letter to Gina McCarthy, who is the  
21 presidential appointee head of the US EPA. There's a  
22 lot of concerns. Oftentimes when people think of  
23 fishing on the river, they think of salmon. And  
24 although salmon's important, it's important to our diets  
25 as native people, we also have to think of the lamprey

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1 or the eels. And when the oil was reaching the river,  
2 it was coming through an outflow pipe from the  
3 wastewater treatment plant. That outflow pipe was about  
4 eight feet offshore. So when the oil bubbled up, it  
5 bubbled up eight feet offshore. One of my main concerns  
6 was the lamprey. They live in the sediment. So we know  
7 that there is some damage there. We've asked for a  
8 government-to-government consultation with Gina McCarthy  
9 to share our concerns, to share our concerns not just  
10 with the Mosier incident, but with all transportation of  
11 fossil fuel through the Columbia River Gorge. It's not  
12 just a scenic area to us, it's our lifeblood.

13 Although the Yakama Nation is located in central  
14 Washington, we are river people. We always have been.  
15 Since time immemorial, we've been fisher people. And  
16 we've been raised -- I've been raised that if we don't  
17 take care of our foods, they won't take care of us. If  
18 we don't go and catch the salmon and provide them in our  
19 diet and bring them to the table, they won't be there  
20 for us anymore. So if we're not going to protect them,  
21 then we're not Yakama people. So that's the lifeblood  
22 of who we are. And we want to make sure that Gina  
23 McCarthy understands that, that it's not just -- it's  
24 not just commerce. It's not just something we do  
25 because we can. It's something we have to do. It's

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1 something we've been trained to do. It's in our blood.

2 **Q. Have your leadership given you direction in your**  
3 **work regarding these matters with respect to mitigation**  
4 **for these impacts that you described?**

5 A. Yes. Immediately following Mosier wrapping up,  
6 Union Pacific reached out to me and offered to mitigate  
7 damages received. While Mosier was occurring, during  
8 the first week, the pool -- the Bonneville pool was held  
9 static by the US -- by the Army Corps. And that  
10 thinking was, if there was oil in the water, let's keep  
11 it within the booms, let's keep it off the shore. So  
12 they held the pool static, which was fine in the  
13 beginning, but when that pool is held static and the  
14 water's not moving, people aren't catching fish. And so  
15 there was -- there was a subsistence impact and there  
16 was an economic impact. Union Pacific was aware of  
17 that. I brought it up at one of our unified command  
18 meetings that Union Pacific was at, and I asked that  
19 since we've eliminated the threat to the Columbia River,  
20 if we could get the water moving in the pool again. And  
21 so there was a consensus vote, which is how we do things  
22 at unified command, and we opened the gates and the  
23 water started moving again, which so happened that  
24 evening my dad was able to catch six salmon, which was  
25 great. Before he wasn't catching anything.

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1           But Union Pacific, knowing that we've been  
2 impacted, wanted to mitigate. Well, there's no word in  
3 the Yakama language for mitigation. Mitigation is not  
4 something we do. Much like my elder who spoke before me  
5 said, you could offer us a million, trillion dollars for  
6 the rest of our life and it's not going to be enough.  
7 Mitigation is not part of our language.

8           **Q. Earlier in your testimony, you mentioned you**  
9 **have cultural monitors. Can you describe, I guess, why**  
10 **or the nature of the Yakama Nation's concerns with**  
11 **respect to cultural resources?**

12           A. As I stated, Yakama people have been river  
13 people since time immemorial, and not just Yakama  
14 people, Warm Springs, Umatilla and Nez Perce and  
15 Klickitats. There's been several tribes in that area.  
16 And with people being in the area comes tragedy, death,  
17 loss, but also village sites and homesites. So  
18 throughout that area, there's cultural sites every step  
19 of the way. Twenty miles upriver from Mosier on the  
20 Washington side is a significant site called S'kin  
21 Village, something that we just met with the Bonneville  
22 Power Administration over a fairly large site that is on  
23 the records, it's in the maps, it's -- we're aware of  
24 it. Well, there's also sites throughout that we, as  
25 Indian people are aware of, that aren't on the maps that

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1 Department of Archaeology doesn't know about. So while  
2 we were onsite, there was a discovery made which I  
3 will -- I'm not able to speak about, but just because on  
4 the map there was no sites doesn't mean there wasn't  
5 anything there, and that's important to understand.  
6 Often we don't publish or make people aware of our sites  
7 because of looting or damages. It's a way of  
8 protection.

9 **Q. Thank you, Ms. Sanchey.**

10 MR. SEXTON: That's all the questions I have  
11 for you.

12 JUDGE NOBLE: Cross-examination?

13 CROSS-EXAMINATION

14 BY MR. JOHNSON:

15 **Q. Ms. Sanchey, I'm Dale Johnson. I'm one of the**  
16 **attorneys for the applicant. Thanks for being here this**  
17 **morning.**

18 **With regard to the McNary Dam diesel spill that**  
19 **you discussed, BNSF is responsible for paying for that**  
20 **monitoring and cleanup effort, is it not?**

21 A. I believe they are. They used an environmental  
22 consultant firm, Kennedy Jenks, who was on site and has  
23 put the monitoring wells in place. So my belief is that  
24 BNSF is responsible for that.

25 **Q. Okay. And do you -- as part of your hazmat**

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1 responsibilities, do you coordinate with BNSF regularly,  
2 or is there a program that you participate in?

3 A. The short answer is no. BNSF is very difficult  
4 to work with. They like to keep us at bay. They don't  
5 prefer to meet with us. They actually hired a Yakama  
6 tribal member as the tribal liaison in efforts to reach  
7 out to the Yakama Nation, I'm assuming, but, no, not at  
8 all.

9 Q. Okay. So you don't think that liaison effort  
10 has been productive?

11 A. No.

12 Q. Okay. Are there other tribes, either in or  
13 outside Washington, that have similar hazmat  
14 capabilities to the Yakama?

15 A. Possibly. Not within the state of Washington  
16 that I'm aware of.

17 Q. Okay. So in your general geographic area on  
18 both sides of the river, so to speak, is it primarily a  
19 Yakama Nation responsibility?

20 A. When you're looking at the four river tribes, it  
21 would be Yakama Nation.

22 Q. Okay. All right. And with regard to the Sulfur  
23 Creek incident, do you know how long it took to identify  
24 that a leak had even occurred?

25 A. I'm unsure how long it took to identify. The

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1 way it was -- was identified is the community started  
2 noticing blobs of black oil coming down the creek, not  
3 knowing where it came from. So I am unsure how long it  
4 had been leaking before the calls from the community  
5 started coming in.

6 **Q. Okay. And that was -- it was identified by**  
7 **private citizens who noticed it?**

8 A. Yeah. People out walking their dogs.

9 **Q. Okay. All right. You also, in discussing the**  
10 **Mosier incident, talked about your first -- your first,**  
11 **I guess, notice of the incident, I thought you said**  
12 **coming from a tribal member. And then you said you**  
13 **received a number of e-mails and calls. Were those**  
14 **e-mails and calls, or some of them, part of activation**  
15 **of a response plan?**

16 A. I don't believe so. When you get into hazmat  
17 work and you form a team and you have an emergency  
18 response, it kind of becomes a brotherhood and we all  
19 look out for each other. So as things start to pop up  
20 and as notifications start to go out formally, everybody  
21 reaches out to each other to make sure everyone is on  
22 the same page. An official notification did not occur  
23 until late in the afternoon. I believe we were already  
24 in route to the scene when we were officially notified.

25 **Q. Okay. And as part of your duties as the hazmat**

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1 coordinator, you are part of a regional response plan;  
2 isn't that correct?

3 A. Whose regional response plan?

4 **Q. Well, a regional response plan.**

5 A. We do serve on the Northwest Area Committee  
6 regional response team for EPA. So as far as federally,  
7 yes, we are.

8 **Q. Okay. But do you coordinate at all with the --**  
9 **I thought you said you coordinated with the Oregon**  
10 **Department of Environmental Quality and the Washington**  
11 **Department of Ecology. Is that --**

12 A. Mosier was the first time we've ever worked with  
13 Oregon DEQ. And we have worked with Ecology in the  
14 past. As far as having a response -- a regional  
15 response or a coordinated effort with Ecology, that's  
16 something I've worked very hard on within the last year.  
17 So it's difficult to understand because the Yakama  
18 Nation works at a federal level, we're federal partners  
19 with the federal government, we're not partners with the  
20 state, and so building those relationships is something  
21 I have been working on.

22 **Q. Okay. And just to confirm, and I think I know**  
23 **the answer to this at this point, but the Yakama -- you**  
24 **were the only tribal entity as part of the unified**  
25 **command during the Mosier incident; is that correct?**

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1           A.     We were the only tribal on-scene coordinator at  
2 Mosier.  However, Umatilla did come by and take a look  
3 and share their concerns, as did Warm Springs.

4           **Q.     Okay.  And you described some -- when you --**  
5 **your arrival at the scene there in Mosier and you -- I**  
6 **think you used the word "chaos."  Have you reviewed the**  
7 **testimony of the Mosier fire chief, Jim Appleton, in**  
8 **this proceeding?**

9           A.     Yes, I have.

10          **Q.     Okay.  And do you dispute his opinion that the**  
11 **response actually went quite well that day?**

12          A.     I do not dispute that.  I have a different  
13 perspective.

14          **Q.     Okay.  And what resources were on scene when you**  
15 **arrived?**

16          A.     A dozen or so different fire units.  The  
17 firefighting effort assumingly went well, but my view is  
18 more from a hazmat perspective, environmental  
19 perspective.  I'm not a trained firefighter, so I can't  
20 speak to that.

21          **Q.     Fair enough.  And at the time you arrived and**  
22 **you got inside the incident command center, were there**  
23 **representatives of the Department of Ecology there?**

24          A.     When I arrived at the overpass to access Mosier,  
25 the Department of Ecology team was just coming across

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1 the river in the boat. So they arrived shortly after  
2 us.

3 Q. I'm sorry. I keep forgetting this was on the  
4 Oregon side of the river.

5 A. Yes.

6 Q. So how about DEQ representatives? Were they  
7 there?

8 A. I do not recall them being there at that time.

9 Q. And a corps of engineer -- you talked about a  
10 corps of engineers representative approaching you. Were  
11 there corps representatives there when you arrived?

12 A. There was one.

13 Q. And was the BNSF reaction team on site when you  
14 arrived?

15 A. This wasn't a BNSF issue.

16 Q. So is it your testimony that there was not a  
17 BNSF -- I'm sorry. I apologize. As I told the council,  
18 it's been a long four weeks. The Union Pacific reaction  
19 team, was there a representative on site at that point?

20 A. When I arrived?

21 Q. Yes.

22 A. Not to my knowledge.

23 Q. Okay. Do you feel that your efforts and your  
24 response made a meaningful contribution to the overall  
25 response at the Mosier incident?

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1 A. Absolutely.

2 Q. You also talked about equipment failure. What  
3 specific equipment failures were you referring to?

4 A. I don't recall talking about equipment failure.

5 Q. I'm sorry, I thought that you talked about in  
6 the aftermath of the incident, that there were equipment  
7 failures and there were people who succumbed to heat  
8 exhaustion and some other things, and I was just  
9 wondering what equipment failure you were referring to?

10 A. If I said that, I apologize. I don't recall  
11 saying that.

12 Q. Okay. Fair -- sorry. I didn't mean to cut you  
13 off. Was there something else?

14 A. There were people with heat exhaustion. It was  
15 triple digits. It was an oil train fire. It was hot.

16 Q. Okay. And you also talked about oil bubbling up  
17 in the river. Can you just describe that more fully.  
18 What specifically was bubbling up?

19 A. So when the train derailed, it took out the  
20 wastewater treatment plant. It cracked and destroyed at  
21 least three of the manhole covers, and I believe 10,000  
22 gallons of Bakken crude accessed the treatment plant.  
23 The outflow pipe from that treatment plant was eight  
24 feet offshore into the Columbia River. That's how the  
25 oil entered the river, was through the outflow pipe. So

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1 it was coming out of the outflow pipe and bubbling up to  
2 the surface.

3 Q. So when you say "bubbling," so there was crude  
4 oil bubbling up?

5 A. Yes.

6 Q. Okay. And that was contained by an oil  
7 containment boom, correct?

8 A. A series of three.

9 Q. Okay.

10 MR. JOHNSON: No further questions.

11 JUDGE NOBLE: Cross-examination? Excuse me.  
12 Redirect? I apologize.

13 MR. SEXTON: Your Honor, just one really  
14 brief, brief question, just for clarification.

15 REDIRECT EXAMINATION

16 BY MR. SEXTON:

17 Q. I believe, Ms. Sanchey, you had mentioned  
18 equipment failures in the context of the religious  
19 ceremony -- the cleansing ceremony that had taken place,  
20 and the difference between -- I don't know if you have  
21 personal knowledge of those failures, but I just wanted  
22 to refresh your recollection with respect to that and  
23 see if you had anything to add on that.

24 A. Thank you. I did say that. I apologize. The  
25 reason I said that is one of the gentlemen, the head of

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1 the hazmat team from Union Pacific, a gentleman by the  
2 name of Rob -- Robert -- I can't recall his last name --  
3 he said that they been experiencing equipment failures  
4 up to that point. That's not something I witnessed.  
5 That was something that I was told when he come to thank  
6 me for having the religious ceremony, come to me with my  
7 leadership at that.

8 MR. SEXTON: Thank you. That's all the  
9 questions I have at this time.

10 JUDGE NOBLE: Council questions?

11 Mr. Snodgrass?

12 MR. SNODGRASS: Good morning, and thank you  
13 for coming to testify. A couple of questions.

14 One, in terms of the -- you mentioned  
15 earlier in your testimony of a spill from the, I  
16 believe, Sulfur Creek, if I'm getting my locations  
17 right, from the motor oil container. Do you know what  
18 the total gallons spilled is, ballpark?

19 THE WITNESS: I believe it was in the  
20 ballpark of 2500 gallons.

21 MR. SNODGRASS: Okay. What sort of  
22 cleanup -- how was -- was in -- was that removed from --  
23 how did the cleanup on that work?

24 THE WITNESS: That's -- the cleanup -- there  
25 was a lot of environmental damage at that point in time

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1 along the banks of the river. And then there happened  
2 to be a marsh that had the inflow pipe open, so there  
3 was damage to the marshlands. There was a lot of  
4 on-the-ground moving tumbleweeds that were covered in  
5 oil and having to remove soil that had been  
6 contaminated.

7 In addition to that, there was having to  
8 clean out the entire irrigation system in that area.  
9 That's -- that probably took a good week and a half.  
10 And then also we had to bring in an avian cleaner to  
11 take care of the birds that were there. And it wasn't  
12 just the barnyard geese, but there were native ducks and  
13 other geese in the area that were covered in oil. It's  
14 interesting, when they get covered in oil, they start  
15 to -- they float on the water, but they'll go in circle  
16 after circle after circle exhausting themselves. So  
17 although this occurred on the Oregon side, there were  
18 impacts clear to Prosser in Washington.

19 MR. SNODGRASS: I think you mentioned that  
20 was in 2015 or '14. So what is the current status of  
21 the river? Are there fish in it?

22 THE WITNESS: I believe the status of the  
23 river is -- has repaired itself. There were -- there  
24 was no work done within the mainstem of the Yakima River  
25 at that time. Disturbance to access the sites that were

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1 contaminated would have caused more harm than good.

2 MR. SNODGRASS: I see. And just some  
3 questions about your experience in the Mosier incident.  
4 You said it took two and a half hours. Was that to get  
5 from Goldendale to Mosier?

6 THE WITNESS: Roughly.

7 MR. SNODGRASS: And in that trip, were most  
8 of the other vehicles in front of you emergency -- as  
9 best you could tell, emergency responders or other  
10 traffic or --

11 THE WITNESS: It was other traffic. And  
12 they were basically at a standstill.

13 MR. SNODGRASS: How long would that drive  
14 normally take, if you know?

15 THE WITNESS: Let me backtrack. First, I  
16 can -- I believe we left Toppenish at 1:30, and I  
17 believe we got on the site at Mosier between 4 and 4:30  
18 so that would have been three hours. That trip normally  
19 from Toppenish would have taken us an hour and a half.

20 MR. SNODGRASS: And it sounded like you had  
21 a little bit of assistance in that you said you had --  
22 you talked to one Oregon trooper who couldn't  
23 necessarily wave you up but at least could talk to the  
24 people in front of him.

25 THE WITNESS: The initial ask from us to the

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1 trooper was to have an escort. And he basically said, I  
2 can't do that; you're going to have to keep doing what  
3 you're doing. However, he did radio ahead to the next  
4 trooper to let him know we were coming so that that  
5 trooper just waved us through and didn't stop us at that  
6 roadblock.

7 MR. SNODGRASS: And then later you said you  
8 somehow -- I missed that part of the testimony or I  
9 forgot it. But you were able to use -- you know, use  
10 the shoulder or something and you said some of the other  
11 fire trucks followed you at that point?

12 THE WITNESS: We were, from just past Biggs  
13 all the way to approximately Hood River, driving on the  
14 shoulder exclusively. And we had firefighters and  
15 personally owned vehicles following us, not fire trucks.

16 MR. SNODGRASS: Thank you.

17 JUDGE NOBLE: Other questions, to my right?

18 Mr. Stone?

19 MR. STONE: Good morning, Ms. Sanchey. I'm  
20 sorry if I missed this in your testimony, but you  
21 mentioned that on your first trip to Mosier, you were  
22 hauling your hazmat response trailer which contained a  
23 boom. Is that the boom -- was that eventually used to  
24 put out in the river that we saw in the aerial  
25 photographs?

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1           THE WITNESS: No. Two environmental cleanup  
2 companies, Clean Harbors and NRC Environmental arrived  
3 on site. They deployed their boom. We had our boom  
4 there as an extra.

5           MR. STONE: Okay. Were those response  
6 companies called on site by Oregon DEQ or the Union  
7 Pacific Railroad or --

8           THE WITNESS: I'm not sure.

9           MR. STONE: Okay. Thank you.

10          JUDGE NOBLE: Other questions? To my right?  
11 My left?

12          Mr. Stephenson?

13          MR. STEPHENSON: Thank you. I'm interested  
14 in the unified command, and I'm not an attorney on these  
15 things, but it seems to me that you brought unique and  
16 important authority perspectives, expertise and also  
17 another person to the command, and so I'm wondering are  
18 there things we can do to make that -- not because of  
19 you, but because there's many people there that need to  
20 be part of that command, are there things that we can  
21 think about, drills or tabletop exercises or something,  
22 and are you invited to those, are there things that we  
23 can think about to make that smoother so when we have  
24 these incidents that require fast response, we can have  
25 a fast response?

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1           THE WITNESS: Thank you. Initially when we  
2 arrived on site, local jurisdictions had no idea what to  
3 do with us. What do we do with the tribe? Do we just  
4 talk to them, take notes and send them on their way? It  
5 wasn't until our federal partner and this partner, being  
6 Army Corps of Engineers, knew what to do with us, knew  
7 that we had a place -- we had a right to be there and  
8 that we needed to have a seat at the table. I believe  
9 it would help in the future -- preferably we don't have  
10 another one of these incidents, but if we do in the  
11 future, that local jurisdictions understand how tribes  
12 fit into the equation. We do get invited to tabletops,  
13 but it's always at the federal level, very rarely at the  
14 state level, and definitely not at local jurisdiction  
15 levels. So just an understanding of how tribes -- not  
16 just the Yakama, but tribes fit into the equation is  
17 important.

18           MR. STEPHENSON: Thank you.

19           JUDGE NOBLE: Any further questions?

20           Mr. Rossman?

21           MR. ROSSMAN: Thank you for your testimony.

22           We've heard earlier testimony that the  
23 applicant in this case has done tabletop exercises to  
24 model a spill response in the river associated with this  
25 project. Do you know if the Yakama Nation was invited

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1 to participate?

2 THE WITNESS: I don't believe so.

3 MR. ROSSMAN: And I know from the  
4 application, that there were some letters sent to  
5 cultural resources officers in your tribe requesting  
6 information about cultural resources on site or any  
7 cultural resource concerns. Have you at all been  
8 involved in any conversations about that with reference  
9 to this project?

10 THE WITNESS: No, I have not. I don't do  
11 the cultural resources portion. I have a member of the  
12 cultural resources program that works with my hazmat  
13 team, but as far as any response, I'm not aware of that.  
14 That's not my program.

15 MR. ROSSMAN: So to your knowledge, there  
16 haven't been conversations about sort of the interaction  
17 between hazardous material response and cultural  
18 resources within your tribe relative to this project or  
19 with the applicant relative to this project?

20 THE WITNESS: I don't feel comfortable  
21 answering that because I don't have that knowledge.

22 MR. ROSSMAN: Got it. Thank you.

23 JUDGE NOBLE: Further questions to my left?

24 I just have one clarification, Ms. Sanchey.  
25 You were mentioning about the 2014-2015 event that you

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1 responded to, and you said that you saw -- talking about  
2 the bird -- impacts to the birds and geese and other  
3 native birds. You said you saw impacts all the way to  
4 Prosser, and Prosser is quite a bit far from the river  
5 and uphill. Can you describe what impacts you're  
6 talking about there?

7 THE WITNESS: So we were able to launch  
8 boats -- well, actually let me back up. In the middle  
9 of the night this happened, towards evening, so then we  
10 had an evening -- had to go out in the middle of the  
11 night and track it. For whatever reason, there was  
12 pools of oil traveling to Prosser.

13 The reason Prosser is so -- sticks out in my  
14 mind so much is we have a fish hatchery there that takes  
15 in river water for the habitat. So we had to go and  
16 make sure -- first of all, secure that area with booms  
17 and then have that hatchery switch from river water over  
18 to well water. There was sheening up on the banks and  
19 in some of the vegetation. But like I said, because of  
20 the way the -- the access point, we didn't get involved  
21 in the river work; it would've done more harm than good.

22 JUDGE NOBLE: And that would have been the  
23 Yakima River, not the Columbia River?

24 THE WITNESS: The Yakima River.

25 JUDGE NOBLE: Thank you for that

1 clarification.

2 Any questions based on council questions?

3 MR. JOHNSON: No, Your Honor.

4 MR. SEXTON: No, Your Honor.

5 JUDGE NOBLE: Ms. Sanchey, thank you for  
6 your testimony this morning. You are excused as a  
7 witness.

8 THE WITNESS: Thank you.

9 JUDGE NOBLE: Thank you.

10 I think this is a good time for the morning  
11 break. It's about a quarter till 11. We will be in  
12 recess for 15 minutes or a little less, till 10:55.

13 (Recess taken from 10:44 a.m. to 11:01 a.m.)

14 JUDGE NOBLE: We're back on the record.

15 Mr. Sexton, do you have another witness?

16 MR. SEXTON: Yes, Your Honor. I would like  
17 to call Randy Settler to testify, please.

18 JUDGE NOBLE: Mr. Settler, would you raise  
19 your right hand, please.

20 (Witness sworn.)

21 JUDGE NOBLE: Thank you. Please be seated.  
22 You may proceed.

23 MR. SEXTON: Thank you, Your Honor.

24

25



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1 community chair for the Yakama Indian Nation from 1997  
2 to 2001. I've worked in fish processing and marketing  
3 most of my life. Served on the Pacific Salmon Treaty as  
4 a southern panel alternate for 15 years. So I've pretty  
5 much worked around the fishing side of things most of my  
6 life.

7 **Q. And you were present this morning for**  
8 **Mr. Slockish's testimony; is that right?**

9 A. Yes, I was.

10 **Q. Okay. And you heard him talk about the**  
11 **Fifteenmile Creek herbicide spill; is that right?**

12 A. That's correct.

13 **Q. Did you -- did you have any experience with that**  
14 **spill?**

15 A. Well, not personally, but I resided near  
16 Fifteenmile for all my grade school and high school  
17 years and I fished Fifteenmile for lamprey and steelhead  
18 and bass and in other areas. So I know that river --  
19 that Fifteenmile Creek quite well, yes.

20 **Q. Did you know any other tribal fishers who were**  
21 **impacted by that spill?**

22 A. Oh, yes. That particular spill, as the outflow  
23 meets the Columbia, it goes downriver along a large  
24 platform area which is commonly referred to as the Lone  
25 Pine in-lieu treaty fishing area. And so there's 30 or

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1 40 tribal members. A lot of my family still reside in  
2 that area. And so those platforms were all shut down  
3 and people were told they could not fish because of the  
4 contaminates in the water there. So, yes, I do know.

5 **Q. What happened to some of those people who were**  
6 **unable to fish during that herbicide spill at**  
7 **Fifteenmile Creek?**

8 A. Well, they couldn't earn any money, and there  
9 was gillnet fishery going on, and several of them took  
10 old boats that they probably would have never been on  
11 and they moved upriver and they went gillnetting. A few  
12 of them I know, they drowned during that -- just shortly  
13 after that chemical spill in that Fifteenmile. They  
14 would've never left those fishing platforms if there  
15 wasn't a chemical spill. So they drowned in the  
16 Columbia upriver as a result of having to move and try  
17 something else to make a living.

18 **Q. How many people do you know, sir, that passed**  
19 **away in that respect?**

20 A. From the chemical-related spill?

21 **Q. Yes, sir. You described people that had -- that**  
22 **took to boats from their platforms because they couldn't**  
23 **fish their platforms.**

24 A. Well, I believe there was three in that boat  
25 that capsized. But two were from the platforms. The

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1 other fellow was -- was a set-net fisherman. So the two  
2 from the platforms went up to assist that person who was  
3 fishing already upriver and they drowned in that -- that  
4 boat accident.

5 **Q. Shifting gears a little bit, sir, were you**  
6 **present at or near the site of the Mosier derailment on**  
7 **June 3rd of this year?**

8 A. Yes, I was.

9 **Q. What were you doing that day, sir?**

10 A. Well, I serve on the Columbia River Inter-Tribal  
11 Fish Commission, much like our chief, Wilbur Slockish,  
12 Jr. I'm a commissioner as well, and I work closely with  
13 the Yakama Nation fishing staff because I am a Yakama  
14 Nation commissioner, and I received a text message as I  
15 was traveling east on Highway 14. Highway 14 is on the  
16 Washington side of the Columbia, and I was going to my  
17 fishing location, Stanley Rocks Treaty Fishing Access  
18 Site, which is one mile east of the Hood River bridge  
19 there on the Oregon shore. And my location was -- I was  
20 in the tunnels on Highway 14 and I received this text  
21 from one of the fishery staff, Mr. Steve Parker, and he  
22 said -- the text says, I have a train derailment with a  
23 car leaking; are you near your fishing location? And I  
24 texted him back and said, I'm on route, and he asked me  
25 to take pictures if I could.

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1           **Q.     So you're on route to your fishing location**  
2 **nearby, relatively speaking, Mosier, and you receive a**  
3 **message regarding the derailment. What happens after**  
4 **that?**

5           A.     Well, we immediately noticed the traffic  
6 situation getting a lot worse, and they closed 84 and  
7 the traffic crossing the bridge at Hood River became  
8 congested. And we were able to make it to the Oregon  
9 side, and I parked my vehicle in the Hood River marina.  
10 I called my family members who fish with me who were at  
11 Stanley Rock one mile east of Hood River, and I had my  
12 fishing camp there and my boat, and I asked them to  
13 drive up to the Hood River marina and pick me up because  
14 84 -- Highway 84 was closed. And I knew the only way  
15 that we were going to get around was by boat. So they  
16 came up to pick me up at the Hood River marina.

17           **Q.     So your family picks you up at Hood River**  
18 **marina. And where do you go from there, sir?**

19           A.     Well, we fueled up. You know, we didn't know  
20 what our day was going to be like, and I have an  
21 80-gallon tank on my boat. So we pulled up to the fuel  
22 dock and started trying to get the fuel attendant to  
23 come down and give us fuel, and we were there with the  
24 Sheriff's Department and they were doing the same thing.  
25 They were trying to fuel up their boat.

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1           **Q.    After you fuel up, did you take -- did you go**  
2 **back out on the river somewhere?**

3           A.    Oh, yes.  We then immediately traveled upriver  
4 about five or six miles to the oil train derailment, and  
5 we took pictures as we went up to the oil train  
6 derailment near Mosier there.

7           **Q.    What were you doing besides taking pictures?**  
8 **Was there any other reason you went up there to see the**  
9 **derailment?**

10          A.    Well, we were fishing our set nets, which are --  
11 they're just like a ring on your finger, but they're  
12 24-inch -- 24 feet in circumference.  And then we tie a  
13 bag net on that metal ring, which is five-sixteenths  
14 spring steel, and the bag net, you set it in the back.  
15 And as the fish are moving upriver in their migratory  
16 travels, they swim into those hoop nets, and we check  
17 them and we take the fish out and harvest them.  And  
18 that's why I was originally going back up to this site  
19 when I got the text message, was to tend to the gear --  
20 the hoop sets.  So we -- instead of tending to our gear,  
21 we drove straight up to Mosier because it was -- by that  
22 time I had received phone calls and -- from the  
23 Inter-Tribal Fish Commission staff, and they were all  
24 very concerned.  I had received calls from the chairman  
25 of the Yakama Nation.  A number of people were

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1 already -- been notified about the oil train derailment.

2 **Q. So how long were you there in the water near**  
3 **Mosier during the derailment?**

4 A. Well, it was a pretty calm day, so we can travel  
5 55 miles an hour, 60 miles an hour on my boat. And we  
6 only stayed around probably an hour. We went to the  
7 outflow of Rock Creek to see if we could view any oil  
8 that was seeping out. There was no visible oil that  
9 was -- we observed, and we took pictures of the train  
10 and the smoke plume and we got as close as we felt that  
11 we wanted to be because we were worried about  
12 explosions. We didn't know if there was going to be an  
13 explosion. And we could witness, you know, the Columbia  
14 River Inter-Tribal enforcement vehicle traveling up and  
15 down the bank. That was the only enforcement vehicle  
16 that we saw.

17 **Q. In the water?**

18 A. No. They were on the bank.

19 **Q. Okay.**

20 A. They were driving back and forth on the road  
21 there with their lights on.

22 **Q. So you were there at the Mosier -- or near the**  
23 **Mosier derailment site for about an hour. What did you**  
24 **do after that?**

25 A. Well, while we were there, we talked with the

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1 Oregon State Police. They brought their boat in about  
2 45 minutes after we arrived. And then we figured there  
3 wasn't anything we did -- we could do. We offered to  
4 help the county deploy the deployment booms because  
5 we're all, you know, fishing people that get in and out  
6 of the banks and work on the Columbia River commercially  
7 so we're pretty skilled at what we do. They told us  
8 that they didn't need any help, so we traveled, you  
9 know, four miles from the oil train derailment to our  
10 fishing camp, which is called Stanley Rock Treaty  
11 Fishing Access Site. And there we parked our boat and  
12 we got off and started doing our normal activities.  
13 Well, we checked the hoops as soon as we got back there  
14 to take the fish out of the nets.

15 **Q. And then what happened after you checked the**  
16 **hoops for fish at your camp?**

17 A. Well, I mean, it was -- you know, we basically  
18 stared at the traffic because the traffic was completely  
19 stopped and people were being rerouted over to the  
20 Washington side, and the traffic was just all up and  
21 down Washington Highway 14, and did, you know, our  
22 normal activity. And other tribal fishermen in that  
23 camp, there's about 30 of us that reside at that treaty  
24 fishing access site in trailers and tents. You know, we  
25 all were there and talking about, you know, the oil

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1 train derailment.

2 One of the longest standing fishing families,  
3 the Georges, they were stuck in the traffic and they  
4 couldn't get across to the Oregon side and they sent me  
5 a text message and said, we're stuck on the Washington  
6 side, we want to come back to our camp, because they  
7 were actively fishing with hoops themselves, and they  
8 asked if I could send my boat over to the Bingen marina,  
9 which is right across the river from my camp and then  
10 bring them back so they could take care of the fish that  
11 they caught. And so I sent my two nephews across river  
12 with my boat and picked them up and they came back.

13 **Q. So this is all around mid-afternoon on June 3rd;**  
14 **is that right?**

15 A. That's correct.

16 **Q. And you -- I believe earlier in your testimony,**  
17 **you had mentioned that there is -- it was relatively**  
18 **calm; is that right?**

19 A. That's correct. It was an easterly wind.

20 **Q. Was there any smoke from the fire from the**  
21 **derailment at the camp?**

22 A. Yes. I'm sorry. Yes, there was a considerable  
23 amount of smoke. I don't know what to -- how to  
24 describe it, but the smoke that was coming off was  
25 billowing out and it was black. And as you -- my camp

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1 is downriver of that location and we had a light,  
2 easterly wind that was blowing the smoke due west down  
3 the river right over Highway 84. And below that smoke,  
4 you could -- it wasn't as dark. Where the black smoke  
5 was, you couldn't see through it, but below it, there  
6 was almost like a reddish discoloration below that and  
7 it was traveling all the way over the top of our fishing  
8 site. And that was something we were all observing  
9 there at the camp.

10 **Q. Did you feel any effects of -- from that smoke?**

11 A. Yes. My conversation with the other fishing  
12 crew when they came in on my boat when they had to be  
13 transported across the river was -- the conversation  
14 went, can you taste the burning tire, because we've  
15 all -- grew up together and we know what -- as kids we  
16 set tires on fire before. And we were, like, yeah, it  
17 tastes like a burning tire, you know, and we were  
18 talking about that. And we're all tribal fishing guys  
19 so we get dirty so we just wear tank tops, and then we  
20 can go to the shower and shower up. And I mentioned to  
21 the other tribal fishermen, I said, can you feel that?  
22 And we started talking about actually having something  
23 on our skin. And I grabbed a towel and stuff and said,  
24 I'm going to take a shower, and I'm telling our  
25 fishermen that fish for me that we're pulling out of

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1 here because, you know, the taste and the feeling of  
2 the -- almost like a flake that was coming down on your  
3 skin.

4 **Q. And what happened later that evening at the**  
5 **camp?**

6 A. Well, everybody left. I mean, the price of fish  
7 at that time was about \$7.50 a pound. So if the fish  
8 averages 15 pounds, it's about \$100. And some people  
9 catch more fish than others and some people make a  
10 harder effort at it. And for my catch, there was other  
11 tribal fishermen that was catching twice as much as what  
12 I am, but they have five times more fishermen fishing  
13 and they're running a lot more of the big hoops than I  
14 am. And the location where I am located, it's about  
15 four miles, and in between that four miles from the  
16 train derailment and in between that location, there's  
17 several platforms a mile and a half closer to the train  
18 derailment on the Oregon side and they have a lot more  
19 platforms there and they fish a lot more hoops there.  
20 That fishing family is made up of Warm Springs and the  
21 Yakama tribal members.

22 And we were talking, and I said, well, I'm  
23 leaving. And Glenn George, who is -- I consider one of  
24 the oldest ones, I think he is the oldest one, like I  
25 am, in that fishing family, he said, I'm leveraging too, I

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1 don't want my guys tasting burned tire or having  
2 anything on their skin from the oil train derailment.  
3 So as far as I know, my nephews who run their own hoops,  
4 they left. There's three of them. And five of the  
5 Georges, myself. So about nine -- nine of us that was  
6 fishing on that side, we all left.

7 **Q. So everyone left that evening. That's still --**  
8 **we're talking about the evening of June 3rd; is that**  
9 **right?**

10 A. Well, I think we left in the -- right around  
11 4:00 everybody was trying to get out of there.

12 **Q. Okay. And you mentioned a feeling on your skin**  
13 **and the taste in your mouth. How did you feel that**  
14 **evening?**

15 A. Well, I don't go to doctors. I don't know -- my  
16 mother's 83 and she doesn't go to a doctor at all unless  
17 she's near dying. And it's just something that we as  
18 tribal people try and stay away from it. I developed a  
19 sore throat and started coughing. 9:00, 10:00, I  
20 started feeling like I had an empty stomach and I drank  
21 too much coffee or something like that, and then I  
22 didn't feel well. So that persisted about three days,  
23 you know, where I was coughing and a little bit of a  
24 sore throat; not an extreme sore throat, but enough that  
25 I noticed it.

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1 Q. Is that usual for you?

2 A. No. I don't get sick.

3 Q. So you-all stopped fishing on that Friday. Did  
4 you suffer any direct economic impact from stopping  
5 fishing, then, because of the derailment?

6 A. Well, I was catching about seven salmon a day.  
7 When I went to my hoops, they had been checked earlier,  
8 I had two salmon in. So seven salmon times 15 pounds or  
9 so. That's about 100 pounds. 7.50 a pound, you know,  
10 which is about \$750, maybe, times two. So we lost out  
11 on fishing time. But I didn't feel that I wanted people  
12 that -- in my family exposed to those kinds of  
13 conditions. I was concerned about the people in Hood  
14 River as well because the plume -- if it goes by me, it  
15 had to go by the people in Hood River as well.

16 Q. So you stopped fishing Friday. Did you fish  
17 Saturday?

18 A. No, I didn't.

19 Q. Okay. When did you return to start fishing  
20 again?

21 A. We came back Monday.

22 Q. Okay. And you mentioned other fishers -- well,  
23 first of all, let me back up. Do you fish on Sundays,  
24 sir?

25 A. By tribal law we cannot fish on Sunday.

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1           **Q.    Is that specific to Yakama law?**

2           A.    Yes, it is.  And Warm Springs or Nez Perce or  
3 Umatilla, they can fish on Sunday, but Yakamas are  
4 prohibited.

5           **Q.    So that other family you mentioned, the George**  
6 **family I believe it was, did they return Saturday?**

7           A.    No, not that I'm aware of.  I returned on Monday  
8 and I witnessed them on Monday, but they weren't  
9 fishing.

10          **Q.    Do you know whether they returned Sunday to**  
11 **fish, sir?**

12          A.    No, I think they returned Monday as well.

13          **Q.    You -- earlier in your testimony you mentioned**  
14 **you took a couple of photos of the derailment and**  
15 **resulting fire.  I would like to take a look at a couple**  
16 **of those and talk about them with you.**

17          A.    Okay.

18                   MR. SEXTON:  So if I can, first, I would  
19 like to talk about what's Exhibit 5302.

20 BY MR. SEXTON:

21          **Q.    Can you see that picture okay, Mr. Settler?**

22          A.    Yes, I can.

23          **Q.    Can you describe what this picture is?**

24          A.    Well, this is a picture taken from my boat.  
25 This is as close as we got to the mouth of Rock Creek,

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1 and we're looking south, kind of like southeast from the  
2 front of the boat. And there's an opening there for the  
3 mouth of the Rock Creek to flow into the Columbia, and  
4 we were trying to observe if there was any oil that was  
5 coming out of the mouth of Rock Creek. That was about  
6 2:20, I think, in the afternoon.

7 **Q. 2:20 in the afternoon on June 3rd?**

8 A. Yes, it is.

9 **Q. Thank you.**

10 MR. SEXTON: And if we can pull up  
11 Exhibit 5300, please.

12 BY MR. SEXTON:

13 **Q. Can you see that picture okay, Mr. Settler?**

14 A. Yes, I can.

15 **Q. Can you describe, is this a photo that you took?**

16 A. Yes, it is. It's from my camp there at Stanley  
17 Rock Treaty Fishing Access Site. And that is a view of  
18 the oil train derailment and the smoke that is traveling  
19 west from an easterly wind. And you can see the bluff  
20 there on the Oregon shore and parts of I-84 and the rail  
21 that travels there.

22 **Q. And, again, this was June 3rd; is that right?**

23 A. Correct.

24 **Q. When you returned to camp after you had been at**  
25 **the site of the derailment?**

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1       A.     Right, that's correct.

2       **Q.     And are there fishing sites between that camp**  
3 **and the site of the derailment?**

4       A.     Yes.  There is one mile and a half --  
5 approximately one mile, one mile and a half, there's a  
6 point where that rock -- footing of the mountain there  
7 comes down to the river.  On the point there, there's  
8 several fishing platforms and that's fished by the other  
9 family that stays in the camp.  There's the Warm Springs  
10 and Yakamas that fish together right off that point.  
11 They have several platforms, I'd say three or four, five  
12 platforms off that point.

13       **Q.     And once again, sir, really quickly, you**  
14 **mentioned winds were light that day.  Is that in your**  
15 **experience usual?**

16       A.     Well, I live near the wind surfing capital of  
17 the world.  That's what I'm told.  I do know that people  
18 come to the Hood River area because there's winds that  
19 blow there 265 days of the year.  That's what is  
20 advertised in -- that is truly a reason they come there  
21 is because of the high winds.  And so the -- my  
22 experience is winds from 15 to 35 miles an hour are real  
23 common.  So, yes, I think that's kind of uncommon to  
24 have such a light wind, you know, but it does happen  
25 some days.

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1           **Q.     Thank you.**

2                   MR. SEXTON:   Your Honor, that's all the  
3 questions I have at this moment.

4                   JUDGE NOBLE:   Cross-examination?

5                                   CROSS-EXAMINATION

6 BY MR. JOHNSON:

7           **Q.     Mr. Settler, I'm Dale Johnson. I'm one of the**  
8 **attorneys for the applicant. Have you sought any**  
9 **compensation for the economic damages that you discussed**  
10 **from the railroad or anyone else?**

11           A.     No, I haven't, Dale.

12           **Q.     Okay.**

13           A.     No, I haven't.

14                   MR. JOHNSON:   Thank you. Nothing further.

15                   JUDGE NOBLE:   Any redirect?

16                   MR. SEXTON:   No, Your Honor.

17                   JUDGE NOBLE:   Council questions?

18                   Mr. Shafer?

19                   MR. SHAFER:   Mr. Settler, thank you very  
20 much for your testimony.

21                   This is a difficult question, but I just --  
22 with you here, could you please share your thoughts and  
23 feelings, if there were some type of an incident which  
24 impacted your business to the point that it put you out  
25 of business, what would this do to you? Could you --

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1 are you okay to share some thoughts and feelings about  
2 that? You spoke to how many generations in your family  
3 have been fishing and obviously this is your work and  
4 your business, so could you share some thoughts with us  
5 on that?

6 THE WITNESS: Well, yes, Greg, and I see  
7 you're a commissioner with Clark County. The location  
8 that I fish at, we had a fishing site dispute with  
9 another tribe there and my brother was beaten severely  
10 with steel bars. And I lost my brother. He's the only  
11 one I had. And we grew up together. We slept in the  
12 same bed. He was older than me. He was an athlete,  
13 well liked, and he looked out for me. And after he was  
14 beaten, you know, we continued to fish, and I fish not  
15 because so much that it's the only thing I do, because I  
16 do construction work, other types of work and make good  
17 money. But the Inter-Tribal Fish Commission have four  
18 tribes, and of those tribes, I fish ceremonial for three  
19 of the tribes, the Yakamas, the Nez Perce and the  
20 Umatillas, I have assisted over the course of my life.  
21 I currently do that right now.

22 When we die -- when we lose our life here on  
23 this earth, we take our family into a longhouse, and I'm  
24 a ceremonial fisherman for a longhouse. And it's truly  
25 something when you can see the detail from the tribal

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1 perspective of having a ceremony for someone that you  
2 love and they passed on. So it might not mean a lot to  
3 some people, but when you have that kind of recognition  
4 from more than one tribe and many bands and we all come  
5 together and we share in that kind of ceremony, it's  
6 important.

7           And even though I lived most of my life or  
8 all my life along the Columbia River and I have  
9 generations of family that lived in that same area, the  
10 Hood River area, we don't leave, you know. The only  
11 ones that we've got recorded documentation of leaving,  
12 they were sold as slaves by the army and relocated in  
13 Idaho -- or recognized in Idaho in Nez Perce country,  
14 and we came back to our land.

15           But it's different, you know, when you ask a  
16 question of a native person, you know, the price or how  
17 it would mean to someone, it's not the same response  
18 that you'd have, because you're a citizen of the United  
19 States and you're a citizen of the state of Washington.  
20 And this world has been affected by the relationship  
21 that the United States government has and the states off  
22 of the resources of this land. And these resources to  
23 me, I believe, were God-given to our people. They were  
24 aboriginal rights, and we were placed on this land by  
25 our creator. And so when we witness things like the

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1 degradation of our water, like the degradation of our  
2 air, we don't want to relocate, we don't want to go to  
3 some other place. We want those things to stop. We  
4 want to have this land for the generations of our  
5 younger people.

6 And so I don't know if that answers your  
7 question, Greg, but, yes, it would be devastating. It  
8 would be devastating if we'd seen an accident like this  
9 that truly went into the river and leaked out a lot of  
10 oil into the river. I think this is a fortunate  
11 accident given its location, was easy to contain, but  
12 it's not over.

13 MR. SHAFER: Thank you very much.

14 JUDGE NOBLE: Other council questions?

15 Any questions based upon council questions?

16 MR. JOHNSON: No, Your Honor.

17 MR. SEXTON: No, Your Honor.

18 JUDGE NOBLE: Mr. Settler, thank you very  
19 much for your testimony this morning. You are excused  
20 as a witness.

21 THE WITNESS: Thank you, Your Honor.

22 JUDGE NOBLE: Thank you.

23 MS. PENN-ROCO: Good afternoon, Your Honor.

24 My name is Amber Penn-Roco and I represent the Yakama  
25 Nation. The intervenors would like to call Roger Dick,

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1 Jr.

2 JUDGE NOBLE: Mr. Dick, would you raise your  
3 right hand, please.

4 (Witness sworn.)

5 JUDGE NOBLE: Thank you. Please be seated.  
6 You may proceed.

7 ROGER DICK,

8 having been first duly sworn,

9 testified as follows:

10 DIRECT EXAMINATION

11 BY MS. PENN-ROCO:

12 Q. Roger, just a reminder to speak slowly as we  
13 have a court reporter here that's taking down your  
14 testimony. Can you please state and spell your name for  
15 the record.

16 A. My name is Roger Dick, Jr. My first name is  
17 R-o-g-e-r, and the last name is Dick, D-i-c-k, and  
18 Junior is spelled in the normal way.

19 Q. And you're an enrolled member of the Yakama  
20 Nation?

21 A. Yes.

22 Q. Can you please describe your current position  
23 and duties.

24 A. I am the harvest coordinator for Yakama Nation  
25 fisheries, so I handle the day-to-day fishery management

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1 duties. I supervise the collection of fishery data. I  
2 generate the harvest estimates. I also generate fishery  
3 models, fishery modeling and I advise the tribal  
4 council.

5 Additionally, I'm a member of the US versus  
6 Oregon Technical Advisory Committee. Technical Advisory  
7 Committee forecasts the salmon runs on the Columbia.  
8 The Technical Advisory Committee reaches consensus on  
9 in-season harvest management with run size updates and  
10 catch updates. And TAC, or the Technical Advisory  
11 Committee, also reconstructs the runs both seasons.

12 **Q. And how long have you been in this position?**

13 A. I started in this position in September of 1999,  
14 so a little over 16 years.

15 **Q. And prior to your current position, what did you**  
16 **do?**

17 A. I started at the biologist level with the Yakama  
18 Nation in October of 1997. I started on the Satus  
19 Watershed Restoration Project. Before that I was a  
20 student.

21 **Q. And can you please describe your educational**  
22 **background.**

23 A. I have a bachelor of science in fisheries from  
24 the University of Washington.

25 **Q. Can you please describe your experience in**

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1 fisheries and working with tribal fishers.

2 A. So much like Wilbur and Randy that testified  
3 earlier, I grew up along the Columbia River in a fishing  
4 family. So I've been fishing since a very young age and  
5 been around fisheries. I've mostly fished platforms and  
6 gillnets on the Columbia. And also my father worked for  
7 Yakama Nation fisheries since 1977, and I used to ride  
8 along with him to work when he would go monitor the  
9 tribal fishers.

10 JUDGE NOBLE: Ms. Penn-Roco, I've noticed  
11 that you are reading the questions that are identical to  
12 the prefiled testimony, and I want to make sure you knew  
13 that the council has already been able to read the  
14 prefiled testimony.

15 MS. PENN-ROCO: Yes. And that was my last  
16 question that was from the prefiled.

17 JUDGE NOBLE: Thank you.

18 MS. PENN-ROCO: My apologizes.

19 BY MS. PENN-ROCO:

20 **Q. Have you reviewed your prefiled testimony?**

21 A. Yes.

22 **Q. And was the testimony accurate?**

23 A. Yes.

24 **Q. And you stand by your testimony?**

25 A. Yes.

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1           **Q. Can you briefly summarize your testimony.**

2           A. So my testimony was about the impacts that the  
3 proposed terminal would have on treaty fisheries. The  
4 two biggest impacts would be on access and safety. So  
5 the current fisheries in Zone 6, like has been  
6 mentioned, the railroad tracks run along the river and  
7 the tribal members have to cross the tracks in a lot of  
8 cases to access their fishing sites. So access itself  
9 is affected by the amount of train traffic. So if  
10 there's going to be more trains from the oil being  
11 transported through, that will have an impact.

12           And then also there's a safety issue with  
13 crossing tracks, because a lot of the treaty fishing  
14 sites are often remote areas and there's not always, you  
15 know, railroad crossings and that type of thing. But  
16 that's the basic summary.

17           **Q. Earlier it was suggested that in response to a**  
18 **spill, tribal fishers could merely move to a different**  
19 **fishing site. Could you explain why this would be**  
20 **difficult?**

21           A. Okay. So the two main fishing methods in the  
22 treaty fisheries are the platform fishery and the set  
23 gillnet fishery. And both of these are shore-based  
24 where the tribal fishers establish the fishing sites,  
25 like we just heard from Mr. Settler. He kept referring

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1 to Stanley Rock, kept referring to a specific site. So  
2 the tribal members develop and establish their fishing  
3 at very specific sites, very specific locations, and it  
4 has to do with the way the fishing is done and catch  
5 rates. And so you can't just go anywhere along the  
6 river and, you know, put up a platform and put hoop nets  
7 in, like Mr. Settler described, and expect to have good  
8 catch rates. There's very specific conditions and  
9 Mr. Settler referenced back eddies and deeper water and  
10 stuff like that.

11 So the Yakama Nation actually registers the  
12 commercial gillnet sites. So those are registered all  
13 up and down the river. The platforms are not registered  
14 but they're established through the traditional means of  
15 recognized usage and the sites are associated with --  
16 either with an individual or a family and that was --  
17 Mr. Settler referenced that and he kept referring to  
18 this family and this individual to the site. And the  
19 tribal fishers are very territorial. And so most all of  
20 the good spots in Zone 6 have already been taken. So if  
21 there were an area to be closed and fishers had to  
22 relocate, it's not as simple as just picking up and  
23 going to a different area as say it would be like the  
24 sport fisher or something. That's going to be a lot  
25 more difficult to go to a different area and, you know,

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1 there's already fishers -- you know, they've already  
2 taken up the good spots. So the fishers coming in would  
3 have to seek out new spots, and it's a long and  
4 difficult process.

5 **Q. And there are differences in catch rates between**  
6 **fishing sites; is that correct?**

7 A. Yes.

8 JUDGE NOBLE: Mr. Dick, wait -- there's a  
9 mower going on behind us and so it's difficult for us  
10 and the court reporter to hear you. So if you could  
11 speak up just a little bit -- the mower is gone.

12 THE WITNESS: Yeah, earlier I think it was a  
13 weedwacker, but now they've moved on to mowing. But,  
14 yeah, I'll speak into the microphone and speak louder.  
15 I'm sorry.

16 JUDGE NOBLE: Good. Thanks.

17 BY MS. PENN-ROCO:

18 **Q. We were talking about whether there are**  
19 **differences in catch rates at different fishing sites.**

20 A. Oh, yes. Yes, that's exactly what I was getting  
21 at. That's how the tribal fishers establish their  
22 sites, based on where they could have the best catch  
23 rates. And so the water depth, the flow of the water,  
24 you know, whether it's a back-eddy or not, you know,  
25 things like that all affect the catch rates.

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1           **Q.    How difficult is it to assign a monetary value**  
2 **to cultural resources?**

3           A.    This is a very interesting question.  And I've  
4 heard this question quite a bit over the years,  
5 especially in my job because we do have commercial  
6 fisheries.  And like Wilbur and Randy testified earlier,  
7 this concept of assigning a value to the treaty fishing  
8 is very difficult to describe.  It's very difficult to  
9 try to convey it.  When I think about it, you know, the  
10 treaty fishing is really integral to who we are as a  
11 people.  And it would be the same thing -- the best I  
12 can explain it is it would be like asking the average US  
13 citizen what kind of value would you put on the right to  
14 vote, the right to free speech, the right to freedom of  
15 religion, you know, the things that are integral that  
16 make a US citizen a US citizen.  That's the level that  
17 treaty fishing has for the tribal people.

18           **Q.    And for those tribal fishermen that try to**  
19 **obtain compensation for the closure of a fishing site,**  
20 **how difficult is it for them?**

21           A.    Okay.  So I was involved in an attempt to file  
22 claims.  There were some military jets that collided  
23 above the Columbia River -- they fell into the river in  
24 the proximity of Arlington, Oregon, and Roosevelt,  
25 Washington.  And so we had our summer gillnet fishery

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1 going at the time, and there was a portion of the river  
2 that was closed and there was an attempt to file claims.  
3 And what we found is that it's very difficult with the  
4 tribal members -- the difficulty comes from two reasons.  
5 The first is the tribal members are not very good about  
6 documentation, and there's a specific reason for that.  
7 So there is -- the most documentation is with commercial  
8 fisheries, and for fish that are sold directly to  
9 wholesale buyers, there's receipts or -- they're  
10 referred to as fish tickets. And so there are those.  
11 But a lot of the sale can come from buyers that don't do  
12 the fish tickets. If they're sold directly to  
13 retailers, restaurants, casinos, et cetera, if they're  
14 sold directly to the public, a lot of times there won't  
15 be a receipt or documentation of any kind. And that's  
16 just on the commercial side.

17 With subsistence fisheries, that's the fish that  
18 people take home and eat and distribute to other family  
19 members and things like that, there's usually not much  
20 documentation on that part at all.

21 And then the ceremonial part of the catch, the  
22 part of the catch that will be used for ceremonial  
23 purposes, there's -- again, there's really not a lot of  
24 documentation.

25 On the harvest management side, we do collect

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1 data. You know, we subsample the fisheries and we  
2 expand for -- in the normal ways fish -- catch estimates  
3 are developed, but, you know, going to specific fishers,  
4 the data isn't specific down to that level and anonymity  
5 is really big -- it's a really big concern with the data  
6 collection. So our data monitors are not writing down  
7 the families or the names or stuff. They just go into  
8 different areas and they're collecting just the data on,  
9 you know, the number of fish that were caught and how  
10 many piers and how much time and that sort of thing.  
11 They're not writing down any names. So that's not a  
12 good way to document things.

13 The big reason the tribal members are not very  
14 good about documenting their catch, documenting their  
15 sales is there's a lot of fear that the information will  
16 be somehow used against them in the future. So income  
17 derived from treaty-related activities, like fisheries,  
18 are not taxable, but the tribal fishers are very fearful  
19 that, you know, that may not hold or that somehow -- you  
20 know, if they keep a lot of records and stuff, that  
21 somehow it's going to be used against them.

22 The second thing that made it difficult is  
23 that -- kind of going along with what Randy and Wilbur  
24 talked about, there's a really big negative view on the  
25 idea of selling our treaty rights. And from the time I

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1 was a young kid, and I think this is pretty typical for  
2 most of the tribal fishers, we're told a lot that it's  
3 really bad to take compensation in lieu of fishing. It  
4 kind of goes back to the Dalles Dam payment. When the  
5 Dalles Dam was constructed, there was a payment and it  
6 was distributed to the tribal members, and I think there  
7 was -- the lesson from it is that the value of money  
8 that comes from that is not -- you know, it's really  
9 small compared to what is actually lost to the tribal  
10 people. And so from those two things, you know, it was  
11 really difficult to get the tribal members to fill out  
12 the claims and it was really hard to document things  
13 properly and it was really difficult.

14 **Q. Shifting gears a bit, how do oil spills impact**  
15 **fishing sites?**

16 A. So the most immediate effect would be if an area  
17 was closed, then the -- whatever sites in the closed  
18 area are not accessible for fishing. You know, and like  
19 has been spoken about, you know, that could be a shorter  
20 duration in a smaller area.

21 The other impact would be if -- you know, how  
22 the oil moves through and what happens to it, you know,  
23 if it is in the sediment or adheres to the aquatic  
24 plants or that type of thing, you know, if there's  
25 residual oil. You know, the fish have a really strong

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1 sense of smell and are probably going to avoid that  
2 area.

3 The last thing is there's a big stigmatism with  
4 spills and contamination, and the tribal fishers will be  
5 really leery, really cautious of going back into the  
6 area to fish again. Like Randy was saying, a lot of  
7 times they'll even just vacate the area themselves. So  
8 both the catch rates and also the effort can be  
9 affected.

10 **Q. Can you please explain what in-lieu treaty**  
11 **fishing access sites are.**

12 A. Okay. So in the analysis that was done by  
13 Carrico -- I'm not sure if I'm pronouncing that  
14 correctly, but there was a lot of reference to the  
15 in-lieu and treaty fishing access sites. And what those  
16 are is they're sites that have been built by the corps  
17 of engineers to replace sites -- fishing villages that  
18 were flooded by the construction of Bonneville Dam. And  
19 there was -- I don't remember the details off the top of  
20 my head, but there was a number of acres that were  
21 promised to the tribal fishery for the villages that  
22 were flooded, but it's only for the effects of  
23 Bonneville Dam, so it wouldn't carry down to the project  
24 area in Vancouver.

25 An interesting thing about the construction of

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1 the in-lieu treaty fishing access sites is, I think  
2 there were six original sites that were built, you know,  
3 a long time ago, like the 1950s or so, but it was -- it  
4 wasn't nearly the acreage that was promised. And so  
5 there was a whole bunch of new sites that were built  
6 starting back in the late 1980s and through the '90s and  
7 2000s, and I think the last one was completed about  
8 five years or so ago. And it's interesting, you know,  
9 if you think about -- you know, there was a lot of  
10 impact to a lot of communities when the dams were built  
11 and some whole towns and homesteads and things. And  
12 those were, you know, relocated immediately, my  
13 understanding of it. But the treaty fishing access  
14 sites, it took decades.

15 And so my understanding of it is the corps of  
16 engineers basically had to find land that was available  
17 that they could try to purchase. And so a lot of the  
18 sites are close to a lot of the treaty fishing areas,  
19 but a lot of them are not. So just looking at the  
20 in-lieu treaty fishing access sites themselves, it's not  
21 completely representative of where the actual fishing  
22 sites are. So a fishing site is where a platform would  
23 be built or where a gillnet would be attached to the  
24 shore. That's a fishing site. But the in-lieu treaty  
25 fishing access sites, they're more like campgrounds, and

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1 the tribal members do use them when they're fishing but  
2 they're different from a fishing site, per se.

3 **Q. So do tribal fishers only fish in areas around**  
4 **these sites?**

5 A. No. There are some in-lieu treaty fishing  
6 access sites that are really close to a lot of the  
7 fishing areas, but there's a lot that are not. And the  
8 tribal members are accessing the river, you know, all up  
9 and down, you know, throughout -- so a lot of times  
10 they're, you know, driving off on, you know, the remote  
11 dirt roads that run along the tracks or other roads to  
12 access their fishing sites.

13 **Q. So those sites are not necessarily a good gauge**  
14 **of the location of all of the tribal fishers fishing**  
15 **sites?**

16 A. That's correct.

17 **Q. What do you have to say to those who believe the**  
18 **tribe's interest is limited to the Zone 6 fishing zone?**

19 A. So I think Elizabeth Sanchez covered some of  
20 this in her testimony, and I'm pretty sure Wilbur and  
21 Randy touched on it also. So most of the treaty fishing  
22 is in what's referred to as Zone 6, from McNary Dam to  
23 Bonneville Dam. We've also recently established some  
24 bank fishing as far down as Beacon Rock, but, you know,  
25 my understanding, the position of the Yakama Nation is

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1 that none of the usual and accustomed fishing areas have  
2 been relinquished. And so the U&A areas extend over a  
3 much larger area, you know, that go downstream of  
4 Bonneville Dam, you know, quite a ways. They go  
5 upstream, you know, up the Columbia, even out in the  
6 lower Snake.

7 And so most of the fishing in the Columbia does  
8 occur in Zone 6 and right below. But there's a lot of  
9 fishing in other areas. Especially -- so if there's not  
10 fishing in the mainstem Columbia, a lot of times they'll  
11 be fishing in tributaries that are really close. So  
12 like we have a fishery up on the Icicle River, which is  
13 a tributary to the Wenatchee River, but we don't do a  
14 lot of fishing out in the Columbia River, you know, say,  
15 up around Wenatchee or Brewster or that area. So the  
16 Yakama Nation has maintained fishing in the Cowlitz  
17 River for smelt in Southwest Washington and also for  
18 lamprey in the Willamette at Willamette Falls.

19 **Q. And would you say that the Yakama Nation's**  
20 **interest is not just in the harvest of fish?**

21 A. Yes. So harvest is the most visible and, you  
22 know, there are several court cases governing the  
23 harvest, but I think, like Elizabeth Sanchey testified,  
24 you know, really the Yakama Nation and the other tribes  
25 are working to establish comanagement. And the really

1 big thing that the tribes are trying to do is we're  
2 trying to rebuild the runs. So all the aspects of the  
3 salmon's life cycle come into play, not just the  
4 harvest. The habitat side -- and I think Elizabeth  
5 works a little more on that side. There's, you know,  
6 the hydro component. The hatchery component or the  
7 production component is really big with the tribes. I  
8 know all four tribes have production programs that are  
9 all aimed at rebuilding the runs. And, you know, the  
10 sentiment always is, on the tribal side, that we're not  
11 just rebuilding the runs for the tribes; we're working  
12 to rebuild them for everybody.

13 MS. PENN-ROCO: Thank you. Those are all my  
14 questions.

15 JUDGE NOBLE: Cross-examination of Mr. Dick?

16 CROSS-EXAMINATION

17 BY MR. JOHNSON:

18 Q. Morning, Mr. Dick. I'm Dale Johnson  
19 representing the applicant. Just a couple quick  
20 questions. The military jet collision that you  
21 described, was that -- that was the claim against the  
22 United States; is that right?

23 A. Yes.

24 Q. Okay. And do you happen -- I realize you're not  
25 a lawyer, but do you happen to know what process that

1 involved? Was it, for instance, do you know if that was  
2 under the Federal Tort Claims Act or some other federal  
3 law?

4 A. I believe it was. And my reason for saying that  
5 is -- like I was saying, it was really difficult to get  
6 the information from the tribal members, and from what I  
7 remember being told by the attorneys was the time ran  
8 out and it was -- that tort claims sounds familiar.

9 Q. Okay. Thanks. Have you personally ever been  
10 involved on behalf of the tribe relating to a claim  
11 against a responsible party under the Oil Pollution Act?

12 A. I can't recall any.

13 Q. Okay. And a similar question, have you ever  
14 been involved on behalf of the tribe as part of a  
15 natural resource damages assessment as a tribal trustee?

16 A. I haven't been involved directly in that, but I  
17 know different parts of our program, those terms do  
18 sound familiar. I know different parts of the program  
19 do work on issues like that, but I haven't been involved  
20 personally, myself.

21 Q. Okay. Thank you. And related to your  
22 discussion of the difficulty of -- involving claims,  
23 has -- are you aware of any outreach efforts by the  
24 tribe or even any federal agency to dispel the concerns  
25 that result in a lack of recordkeeping or the idea that

1 **acceptance of compensation will result in forfeiture of**  
2 **a right?**

3 A. Yes. Salmon marketing became a huge issue  
4 during the '90s. The runs got really low and the prices  
5 got really low. So the recordkeeping -- so we had a lot  
6 more tribal fishers starting -- selling a lot of their  
7 catch over the bank and directly to retailers, and so  
8 there's been a long effort to educate the tribal fishers  
9 on the benefits of recordkeeping and issuing receipts  
10 and things, not only for themselves but also for their  
11 customers. And some of that has taken hold and they  
12 will issue receipts and stuff, but there's just this  
13 long -- it's been really difficult. They're really  
14 leery of the idea of being told one thing and then later  
15 finding out it's something different. And the salmon  
16 marketing has done really well and I think they do issue  
17 more receipts and things than they used to, but they're  
18 not -- I don't know how long they hold onto those  
19 receipts and it's really difficult to get them, you  
20 know, to divulge that type of information.

21 MR. JOHNSON: Thank you. Nothing further,  
22 Your Honor.

23 JUDGE NOBLE: Redirect?

24 MS. PENN-ROCO: Just a clarification.  
25

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REDIRECT EXAMINATION

1  
2 BY MS. PENN-ROCO:

3 Q. There would be typically no proof of sale for  
4 salmon consumed personally or used for ceremonial  
5 purposes?

6 A. That's correct.

7 MS. PENN-ROCO: That's all.

8 JUDGE NOBLE: Council questions?

9 Mr. Snodgrass?

10 MR. SNODGRASS: Good morning. I guess we're  
11 almost in the afternoon. Just a couple of quick  
12 questions.

13 In terms of the -- I was struck by there's  
14 some additional information on rail incidents that's  
15 been provided over the last couple of days, as we  
16 learned about the case of the train hitting a rock and  
17 not the rail and having a spill. To your knowledge,  
18 in -- have you heard of any cases of a train derailing  
19 in the general area where we're talking about but not  
20 spilling? Not having any release of oil in that area?  
21 Are you aware of any?

22 THE WITNESS: No. No.

23 MR. SNODGRASS: Turning to the issue of the  
24 safety of crossing the tracks, can you give us a general  
25 sense of what is the status of warnings of coming

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1 trains. There's none? There's some?

2 THE WITNESS: So it really depends on  
3 whether there's an established actual crossing or not.  
4 And so like with reference to the in-lieu treaty fishing  
5 access sites, those would all have the normal railroad  
6 crossings, you know, have the lights or even the gates  
7 that come down. When the tribal fishers get out into  
8 the more remote areas to access sites, a lot of times  
9 there's really nothing. They're just going along the  
10 tracks and then crossing where they need to, that type  
11 of thing. So there could be really no safety apparatus  
12 at all.

13 MR. SNODGRASS: Are there longstanding  
14 platforms or tribal fishing sites that have that status  
15 where there's no warning at all?

16 THE WITNESS: Yes. There's a good number of  
17 them. There's a lot of fishing that occurs up and down  
18 the river. And depending on which side of the river  
19 they're on, especially with the freeway on the Oregon  
20 side, the freeway, you know, there's not a lot of  
21 smaller roads and things that would have the normal  
22 safety apparatus on them. It's just more the -- I think  
23 it's more like a service road for the railroads that the  
24 tribal fishers are just using.

25 MR. SNODGRASS: Is sort of the danger of the

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1 use of the road or your sense of it, any different for  
2 trains that are heading westbound versus eastbound?

3 THE WITNESS: I haven't really thought about  
4 that. But I can't think of any reason why there would  
5 be a difference. You know, a train is a train.

6 MR. SNODGRASS: In this case is your concern  
7 mostly -- we heard testimony recently that there -- I  
8 can't remember exactly what it was, but there would be  
9 some of -- some of the trains will return via the  
10 eastbound route, oil trains will return empty. And I  
11 don't know to what extent it was. I do not remember it.  
12 Were you aware of that or is your concern just about the  
13 oil trains going through heading into Vancouver?

14 THE WITNESS: With relation to the fishery,  
15 the concern is going to be both. It's going to be  
16 both -- the trains traveling in both directions and, you  
17 know, whether the trains are filled with oil or whether  
18 they're empty, it doesn't make that much difference  
19 except there's a bigger danger of a spill if they're  
20 carrying oil. But otherwise, there shouldn't be much  
21 difference. The danger is there both ways.

22 MR. SNODGRASS: Thank you.

23 JUDGE NOBLE: Other council questions?

24 Mr. Siemann?

25 MR. SIEMANN: Good afternoon now. Thanks

DICK

1 for being here.

2 In your prefiled testimony and today, you've  
3 talked a lot about the risk of crossing the railroad  
4 tracks and the risk of -- well, mostly of the risk  
5 crossing the railroad tracks and the effects of the oil  
6 spills. And the applicant's lawyers, counsel, have  
7 often talked about the fact that, in fact, already there  
8 is oil -- there are oil trains coming along the tracks;  
9 there are already quite a number of trains crossing the  
10 tracks. And so in effect this is not a change from  
11 nothing to something; this is a slight change in the --  
12 well, potential change in the volume because they in  
13 some ways disputed that even, but it would also be an  
14 increase in the amount of oil.

15 Can you help us understand how you think  
16 about that change, and how we should think about that  
17 change relative to the concerns that you've voiced  
18 today?

19 THE WITNESS: Right. So the way I would  
20 characterize it is it's not a situation where I would  
21 consider it to be really low risk or really safe as it  
22 is. You know, growing up on the river and fishing, you  
23 know, I was always taught from a young age that the  
24 train tracks are very dangerous and stay off of them.  
25 It's a very dangerous situation as it is. And any

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1 increase is going to make that danger even more so and,  
2 you know, especially if the trains are carrying oil. So  
3 there's danger even, you know, no matter what they're  
4 carrying, if it's sawdust or grain or whatever. But,  
5 you know, carrying oil, there's a lot more danger,  
6 especially from a fire or spill or that type of thing.  
7 You know, even if the increase in train traffic is, you  
8 know, marginally an increase, it's -- the only way I can  
9 put it is it makes an already dangerous situation even  
10 that more dangerous.

11 MR. SIEMANN: Thank you.

12 JUDGE NOBLE: Other council questions?

13 Are there questions based on council  
14 questions?

15 MR. JOHNSON: No, Your Honor.

16 MS. PENN-ROCO: No, Your Honor.

17 JUDGE NOBLE: Mr. Dick, thank you very much  
18 for your testimony today. You are excused as a witness.

19 THE WITNESS: Thank you.

20 JUDGE NOBLE: And it's time for our noon  
21 break. We will be in recess until 1:15.

22 (Recess taken from 12:15 p.m. to 1:18 p.m.)

23 JUDGE NOBLE: Everyone ready to go back on  
24 the record?

25 MR. LOTHROP: Yes, Your Honor.

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1 JUDGE NOBLE: Would you please call your  
2 next witness.

3 MR. LOTHROP: Your Honor, members of the  
4 council, I would like to call Dr. Zachary Penney.

5 JUDGE NOBLE: Dr. Penney, would you raise  
6 your right hand, please.

7 (Witness sworn.)

8 JUDGE NOBLE: Thank you. Please be seated.  
9 Mr. Lothrop.

10 MR. LOTHROP: Thank you.

11 ZACHARY PENNEY,

12 having been first duly sworn,

13 testified as follows:

14 DIRECT EXAMINATION

15 BY MR. LOTHROP:

16 Q. Dr. Penney, do you adopt your written prefilled  
17 direct testimony as a true and correct version of your  
18 testimony in this proceeding?

19 A. Yes, I do.

20 Q. Thank you. I'd like to acquaint you with the  
21 council a little bit as we proceed. I think your  
22 qualifications are unique, in my experience, and worthy  
23 of a little bit of time in your testimony. So can you  
24 please describe your educational background.

25 A. Sure. I did my bachelor's degree in science at

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1 Sheldon Jackson College in Sitka, Alaska, which is a  
2 wonderful place to study salmon.

3 JUDGE NOBLE: Dr. Penney?

4 THE WITNESS: Yes.

5 JUDGE NOBLE: You are speaking too fast for  
6 the court reporter.

7 THE WITNESS: Okay. I'll slow it down.

8 JUDGE NOBLE: Thank you.

9 A. For my master's degree, I did that at the  
10 University of Victoria in Victoria, British Columbia, in  
11 earth ocean sciences.

12 BY MR. LOTHROP:

13 **Q. Slower.**

14 A. Wow. And I did my Ph.D. at the University of  
15 Idaho in 2013, and that was in natural resources with an  
16 emphasis in fisheries.

17 **Q. Thank you. Does your family have history**  
18 **working with salmon or fishing for salmon?**

19 A. Yes, they do. I am an enrolled member of the  
20 Nez Perce tribe. I grew up in Idaho. The Nez Perce are  
21 one of the four member tribes of the Columbia  
22 Inter-Tribal Fish Commission.

23 **Q. Slow.**

24 A. My brother -- most of my family are educators,  
25 but a lot of my family are involved in the restoration

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1 of fisheries, particularly salmon and steelhead in  
2 tributaries to the Columbia, that includes the Snake  
3 River, the Clearwater and others, and so my family has a  
4 deep investment in salmon and steelhead restoration. I  
5 grew up -- this is something you won't find on my CV.  
6 Being a Nez Perce tribal member, unlike Wilbur Slockish  
7 and others that fished in the lower Columbia, my family  
8 fished in the tributaries of Idaho using traditional  
9 methods that includes dip net, gaff and spear. And so  
10 my relationship to the salmon is in a different area,  
11 but it's also quite old. So in a way I kind of grew up  
12 in two different worlds; one in academics and the other  
13 one from the Nez Perce culture.

14 **Q. Are any of your family members directly involved**  
15 **with the fisheries for the Nez Perce tribe?**

16 A. Many are, but if I were to keep the list low, my  
17 brother is the hatchery manager for Nez Perce Tribal  
18 Hatchery which is a fall Chinook hatchery.

19 **Q. What's the migratory pathway of Snake River fall**  
20 **Chinook?**

21 A. Like a lot of Pacific salmon, Snake River fall  
22 Chinook, generally, when they leave freshwater out of  
23 the Columbia, the majority of them turn north and swim  
24 as far as the Gulf of Alaska. Migration routes vary by  
25 salmon species, but fall Chinook are often feeding in

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1 herring-rich areas like in -- near Sitka, where I did my  
2 bachelor's, and they'll spend several years feeding,  
3 putting on size before they return back to freshwater to  
4 spawn. So a lot of our fish go north, but there are  
5 some stocks, like there are some coho that do turn  
6 south. They're generally smaller populations. And then  
7 steelhead have a tendency to go a variety of places.  
8 They've found steelhead as far, I guess in this case,  
9 west as Japan and in parts of Asia in ocean migration.

10 **Q. So is it just coincidence that your educational**  
11 **background followed the migratory pathways of the Snake**  
12 **River fall Chinook?**

13 A. I think it's coincidence, although it was  
14 quite -- you know, it's always nice to see where they  
15 go. As some of the tribal testimony this morning  
16 described, we're very intimately connected with those  
17 fish. And so in the Nez Perce culture, we were always  
18 told that salmon would leave our native areas to go out  
19 to far off places and bring back gifts back to the  
20 people. So that was a good part of my education, to  
21 actually go see where they go and who -- it isn't just  
22 the Nez Perce people they enrich, but residents of  
23 British Columbia and Alaska and all sorts of places.

24 **Q. Let's talk a little bit about your areas of**  
25 **study and your master's and Ph.D. programs, if you**

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1 wouldn't mind. Can you talk about those generally and,  
2 if necessary, we can have a conversation about that, and  
3 if you use some technical terms, you may need to help  
4 the court reporter through them.

5 A. Okay. I'll try not to speak too esoterically.  
6 You know, bachelor's, kind of your basic core courses in  
7 fisheries. But for my master's degree, I specialized in  
8 Sockeye salmon, Sockeye salmon stocks that will trail to  
9 southeast Alaska. A lot of my focus as a researcher in  
10 academics has been related to life history. And what  
11 that means is the overall life cycle in terms of  
12 spawning, generally, so the adult portion, as we say, of  
13 the salmon life cycle. I'll try to keep it slow.

14 So for my master's, I studied otolith  
15 microchemistry of Sockeye, which is essentially ear  
16 bones in bony fish. They're wonderful structures. The  
17 best way I can describe them are kind of like getting --  
18 like an onion. They have several layers, growth layers;  
19 they grow as the fish grows. And as they grow, it  
20 records some environmental information. And so my  
21 master's dealt with some technology that more or less  
22 analyzed all those different growth regions in that  
23 otolith to reconstruct the life history, as well as  
24 provide some information in relation to where that fish  
25 actually came from.

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1           So a lot of the -- as I think has been discussed  
2 in some of the testimony, salmon and steelhead have high  
3 site fidelity, meaning they generally return to the  
4 region to spawn where they were born, and those areas  
5 have very specific chemical signatures in the water.  
6 And so that's what my master's dealt with.

7           My Ph.D. work was focused on steelhead returning  
8 to the Columbia, specifically the Snake River. And that  
9 study was in bioenergetics, so more or less the science  
10 of how energy is used in fish, how they get that energy,  
11 how they use that energy. And steelhead are different  
12 than their salmon counterparts. So like Chinook,  
13 Sockeye, coho, pink salmon, they all spawn once.  
14 They're known as semelparous species. And a lot of  
15 people are aware of that. They spawn once.

16           **Q. Can you say it, semelparous, again?**

17           A. Yeah, semelparous, s-e-m-e-l-p-a-r-o-u-s.

18           **Q. Thank you.**

19           A. And steelhead are iteroparous,  
20 i-t-e-r-p-a-r-o-u-s [sic]. Humans are iteroparous,  
21 meaning we can spawn more than once. But steelhead  
22 rarely spawn more than once. And a lot of that has to  
23 do with energy. So just to -- I could go way in the  
24 weeds. I get excited when I talk about fish and talk  
25 faster, so I'll try to keep this slow.

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1           When fish return to freshwater to begin spawning  
2 migrations, in general they stop feeding. When they  
3 stop feeding, it's actually -- this might sound  
4 counterintuitive but, it's actually to save energy. It  
5 takes a lot of energy to run your digestive tract;  
6 sometimes up to 40 percent of your basal metabolism goes  
7 to running the digestive tract. So fish turn that off  
8 when they get back to freshwater on their way back to  
9 spawn.

10       **Q.    When you say "fish," you mean salmon or --**

11       A.    Salmon and steelhead.

12       **Q.    Okay.**

13       A.    And I don't want to get too far into the  
14 evolution of why. Maybe we can later, but -- of why  
15 salmon and steelhead developed into that life history to  
16 go to the ocean leaving freshwater. But they come back,  
17 they stop feeding and, depending on the species and how  
18 far they have to go, they arrive at various points of  
19 maturation. So not all salmon arrive back to freshwater  
20 immediately ready to spawn.

21           In the case of the Columbia and Snake Rivers,  
22 they may have over 500 miles to swim. So it doesn't  
23 make sense to arrive back in freshwater immediately  
24 ready to spawn. There is a lot of -- it's scientific  
25 jargon, gonadal maturation, the eggs need to still get

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1 ready, the testes still need to be developed as these  
2 fish migrate and that sometimes can take months.  
3 Steelhead, summer-run steelhead, return the summer  
4 before they spawn in the following spring, so they're  
5 almost in freshwater for more than eight months before  
6 they actually spawn. So during that time that they're  
7 in freshwater, there's still a lot of development going  
8 on, even though they're not feeding.

9 So a lot of my Ph.D. research went into how the  
10 energy is used and, generally, what happens is steelhead  
11 run out of gas. They get up, they use all their energy  
12 to migrate, to develop secondary -- more or less develop  
13 sexually. A lot of energy has to go into eggs.  
14 Generally the females are a lot more important than the  
15 males, but that kind of goes for a lot of different  
16 species. And by the time they need to turn around back,  
17 they're more or less running on fumes. And the way the  
18 Columbia River and Snake River are now, it's reservoirs;  
19 whereas, they used to be able to return on the current,  
20 they're running on very limited energy supply and most  
21 of them are probably succumbing to exhaustion before  
22 they reach the ocean again.

23 **Q. Thank you. Can you describe some of the**  
24 **research that the Columbia River Inter-Tribal Fish**  
25 **Commission is doing with regard to steelhead.**

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1           A.     Absolutely.  Along the very same lines I just  
2 described, the Columbia River Inter-Tribal Fish  
3 Commission is involved in the science, the practicality  
4 of reconditioning steelhead kelts.  So a post-spawn  
5 steelhead is known as a kelt.  And because --

6           **Q.     You might want to spell kelt.**

7           A.     K-e-l-t.  Because steelhead can spawn more than  
8 once, when you have very low populations of fish, this  
9 is different than what you get with a Chinook.  Once  
10 those fish get up to spawn, it's over.  You know, they  
11 spawn once, they die.  Because steelhead do have that  
12 ability to spawn more than once, if you have an  
13 endangered fish or population and you can actually get  
14 those fish to spawn again, that can actually be a very  
15 powerful restoration tool.  So the Columbia Inter-Tribal  
16 Fish Commission is looking at ways to do that with some  
17 of the steel populations that are either threatened or  
18 endangered.

19          **Q.     Thank you.  In conducting that research, and I**  
20 **don't want you to get too far into the weeds, but could**  
21 **you give us a sense of the employees who are involved in**  
22 **that and what their qualifications -- some of their**  
23 **qualifications.**

24          A.     Absolutely.  So my capacity at the Columbia  
25 Inter-Tribal Fish Commission is the science department

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1 manager. I'm relatively new, but it is the largest  
2 department at the Columbia Inter-Tribal Fish Commission.  
3 I have over 30 scientists, more than, I do believe, 15  
4 of them have master's or a Ph.D. level. I have a  
5 world-renowned genetics lab in Hagerman, Idaho, which  
6 are doing some pretty incredible things with thermal  
7 adaptation in salmonids or salmon steelhead.

8 In addition to that, I have habitat experts.  
9 The Columbia Basin is a highly modified area. And  
10 looking at ways that improve habitat can increase fish  
11 populations. I even have data management specialists to  
12 help our tribal members with dealing with lots of  
13 numerical data. And I also, of course, have a lot of  
14 scientists that look at the impacts of hatcheries and  
15 how hatcheries can be used to restore fish in the  
16 Columbia Basin.

17 **Q. Thank you. So your prefiled direct testimony**  
18 **does -- addresses the overall salmon life cycle, but I**  
19 **would like to spend just a little bit more time talking**  
20 **about the -- sort of the back 25 percent of the salmon**  
21 **life cycle, the adult phase. And what kind of physio --**  
22 **you mentioned physiological changes. What's going on**  
23 **and what kind of factors might affect the success or**  
24 **lack thereof for those fish?**

25 A. Certainly. So I think better as it pertains

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1 today --

2 **Q. Slower.**

3 A. What Rob was talking about is the spawning  
4 migration portion. So let's just keep that as when fish  
5 re-enter freshwater and are beginning their migration.  
6 It varies upon species, about the time that they return,  
7 how far they have to go. But a lot of salmon and  
8 steelhead return to freshwater in an immature state,  
9 which you will hear a lot of times somebody refer to  
10 salmon migrating back upstream as adults. You go by  
11 more or less the fish definition of adult. An adult is  
12 actually a fish that has the ability to reproduce, that  
13 is, sexually mature.

14 Most of the salmon returning up the Columbia,  
15 essentially the early ones, like spring Chinook, are  
16 sexually immature. There're still a lot of things going  
17 on internally and it may take, as I said, several weeks  
18 to months before those fish actually reach maturity.  
19 And for them to reach maturity, one of the reasons that  
20 salmon and steelhead go to the ocean is to get bigger  
21 but also accrue a lot of fat. I kind of treat the  
22 salmon life history and steel life history almost like  
23 an energy game. In order to move from one phase to  
24 another, you have to have enough energy to move onto  
25 that next phase. So while they're out in the ocean,

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1 they're building energy to be able to complete migration  
2 back to their spawning grounds to be able to finish the  
3 development of either their eggs or their testes and in  
4 some cases changes in their morphology.

5 So if you've ever seen a spawning salmon, you've  
6 seen that they have sometimes very vibrant colorization.  
7 The heads change. They get what we know as kypes, which  
8 is just k-y-p-e-s. A lot of stuff happens when they  
9 return back. And that energy has to come from  
10 somewhere.

11 So you heard me mention earlier that they stop  
12 eating. All of that energy is coming more or less  
13 internally. It's coming from their muscle tissues.  
14 It's coming from their fat that's stored in their guts,  
15 essentially. All that energy is coming from within  
16 them, and that has to be used to finish those maturation  
17 processes.

18 When fish get stressed or they have to move  
19 around obstacles, whether they're natural or manmade,  
20 energy gets used. If fish experience stresses maybe  
21 outside of their control, that also stresses the fish  
22 and it requires energy and that can be disruptive to  
23 that process.

24 **Q. So, Dr. Penney, would you consider spilled oil**  
25 **could potentially be a stressor for these fish that are**

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1 becoming adults?

2 A. I do believe it would be a stressor, just as any  
3 chemical spill would.

4 **Q. Could you talk a little bit about Sockeye, and**  
5 **with particular reference to the migration in 2015 of**  
6 **Sockeye into the Columbia River.**

7 A. So in 2015, the Columbia Basin was in draught in  
8 a variety of places. It did not have the snow pack that  
9 we normally do. And because Sockeye tend to migrate  
10 right around the peak time of the summer when our water  
11 temperature is warm in the Columbia, they ran into  
12 unprecedented water temperatures. I didn't mention  
13 this, but perhaps it's obvious, but salmon and steelhead  
14 are cold-water fish. That's one of the main reasons why  
15 they like to go north.

16 So in 2015, the water temperatures were well  
17 beyond their thermal optimum -- as we say, more or less  
18 the temperature they would rather not be in. It was too  
19 warm. And that warm water stressed out the fish.  
20 Because these fish had a spawning migration to make,  
21 they had a place to get to, a lot of them tried to wait.  
22 There are places on the way up the Columbia that are  
23 cold-water, as we'd say, refuges. Some of those are  
24 near the Deschutes River, some of them are near the  
25 Little White Salmon River. So the fish tried to wait,

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1 but they can't wait forever. So some of those fish did  
2 have to enter that really warm water. And it is  
3 important to note, warm water is a stress. It doesn't  
4 matter if a fish enters -- if a Sockeye enters 75 degree  
5 water, it doesn't automatically kill them. What it does  
6 is it stresses them. It will eventually kill them, but  
7 what eventually kills them is sometimes a secondary  
8 problem from that stress.

9 So in a lot of cases last year in 2015, a lot of  
10 those fish got different types of infections. And while  
11 they're also trying to battle those infections over --  
12 the estimates I saw most recently, between 80 to  
13 90 percent of those fish did not make the final  
14 migration to the spawning grounds. They succumbed due  
15 to warm temperature and the secondary effects of that.

16 How we know that is that we based our estimates  
17 of the migration of what we see in Bonneville Dam, the  
18 lower-most passable dam, and we kind of look at how  
19 those Sockeye make their way up to the known Sockeye  
20 tributaries. And we just saw the numbers decrease and  
21 decrease and decrease.

22 One of the problems in the fisheries is it's  
23 hard to actually see fish. You often don't know where  
24 they died and what killed them. But in this case, a lot  
25 of the Sockeye that disappeared in the Columbia likely

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1 died due to a variety of infections and either became  
2 sturgeon food or just went back to the environment, but  
3 we know a majority of those fish did not spawn.

4 **Q. Is the fish commission staff involved in marking**  
5 **the Sockeye at Bonneville Dam?**

6 A. We are. We do have a crew at Bonneville Dam  
7 that does mark fish on their way up to help us get an  
8 estimate of how passage works, but we also are very  
9 careful that when water temperatures are getting close  
10 to the thermal optimum of many of these fish, we stop  
11 marking as to not stress them out.

12 **Q. Let's talk a little bit about fish populations**  
13 **using Sockeye as an example. Can you give the council a**  
14 **sense of the Sockeye populations that are present in the**  
15 **Columbia Basin and their relative sizes?**

16 A. I think I can from a very general sense. There  
17 are several separate Sockeye populations in the Columbia  
18 Basin. Some of them are much larger than others. If I  
19 was to think back to the five-year estimates, Sockeye  
20 returning to the Okanagan Basin, which actually enters  
21 into Canada, was one of the most robust populations we  
22 have in the Columbia. We have just a tad under 250,000  
23 fish that have on average returned to that system.

24 Lake Wenatchee is also -- which is in  
25 Washington, another Sockeye population that is quite a

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1 bit more robust than some of the others that we have,  
2 and I do believe that that -- those numbers on average  
3 for the past five years are just a bit under 50,000 is a  
4 close estimate. There are other places in the Columbia  
5 Basin where the populations are not robust. One of  
6 those just happens to be in Idaho in the Snake River in  
7 Redfish Lake. On average, those Sockeye numbers have  
8 been deemed about 1200 fish. So it's kind of a good  
9 example. We're talking between 250,000 versus 1200  
10 fish. They're -- in the '90s, Redfish Lake was in  
11 pretty bad shape. There was one year when -- if you've  
12 ever heard of the term "Lonesome Larry," when one poor  
13 male Sockeye returned back to the lake with nobody to  
14 spawn with. So that lake's on life support.

15 And there are other lakes that the tribes and  
16 the states are working to reintroduce Sockeye where they  
17 have been extirpated by either dams or other habitat  
18 factors. In the Deschutes, there's generally less than  
19 100 fish that return, and in the Yakima, generally I  
20 think there's less than 500 adults that return. So we  
21 do get a fair amount of variation in terms of the  
22 overall population numbers between some of those  
23 systems. Some systems are very healthy or healthy and  
24 some systems are almost extinct.

25 **Q. Is any one of those populations listed under the**

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1 Endangered Species Act?

2 A. I do believe the Redfish Sockeye, for sure, is  
3 listed.

4 Q. Thanks. So Mr. Challenger talked a little bit  
5 about population effects and an oil spill. What -- can  
6 you share your view with the council about what concerns  
7 you might have about an oil spill occurring during the  
8 large migration of Sockeye up the Columbia River?

9 A. A lot of what Mr. Challenger said, you know, it  
10 made sense to me, but he was perhaps generalizing a bit  
11 too much, you know, when he says it might affect some  
12 individual fish. I think -- you know, I would disagree  
13 with him on that. It's not so much about individuals.  
14 When it comes to Sockeye, I would probably be more  
15 concerned about individual populations.

16 The Columbia River is a mixed stock system. We  
17 have stocks going to Washington, to Idaho, to Oregon, to  
18 Canada, and oftentimes they like to swim in aggregate.  
19 They like to swim in schools together. And so the  
20 effects of, you know, acute -- maybe acute toxicity  
21 killing a lot of fish. So maybe you have 15,000  
22 Okanagan fish, but if you only have so many Redfish  
23 Bay -- or Redfish Lake Sockeye, that's a pretty  
24 substantial number. So to overgeneralize like that, I  
25 do think that is dangerous.

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1           **Q.     So the conditions that Sockeye encountered in**  
2 **2015, you said this very warm water, have the commission**  
3 **scientists also been looking at potential climate change**  
4 **effects in water temperatures?**

5           A.     Yes. We have several scientists that are  
6 evaluating different aspects that climate change might  
7 cause to fish in the basin. A lot of those studies  
8 aren't necessarily always directly related to fish, but  
9 related to the environment that fish live in, water  
10 temperature obviously being a big one. Fish being  
11 cold-blooded animals, more or less, their metabolism is  
12 regulated by the temperature in the water. If you get  
13 increases in the water temperature, you get increases in  
14 metabolism. So if you have a limited gas tank and  
15 you're not refilling it, elevated water temperatures can  
16 cause you pretty substantial problems. But also for --  
17 not just adults, but these are cold-water fish. They  
18 rely on cold-water systems, and I think if the  
19 predictions are correct about -- the Columbia used to be  
20 what I would call a two-flood system. We have high  
21 mountains in Idaho and in British Columbia. We would  
22 get melting that would create one flood pulse, and  
23 eventually the higher mountains would melt -- or snow in  
24 the higher mountains would melt and we'd get a second  
25 flood pulse and keep the river cool well into the early

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1 summertime and the fish relied on that.

2           What we're faced with you is snow melt coming  
3 off much earlier, the hydrological cycle has completely  
4 changed. Can the fish adapt fast enough to that? Maybe  
5 not. Probably not. Especially with reservoirs in the  
6 system. So a lot of our research is looking at how that  
7 change in hydrograph by some of these extreme weather  
8 changes that we're seeing -- doesn't necessarily need to  
9 be warming. It could be the loss of snow melt at  
10 strange times. We're looking at the effects that might  
11 have on different populations within the territories of  
12 the four tribes that make up the Columbia Inter-Tribal  
13 Fish Commission.

14           **Q. Thanks. So just to make sure I got this. So**  
15 **that -- those climate change scenarios may --**

16           MR. JOHNSON: Objection.

17           MR. LOTHROP: Go ahead.

18           MR. JOHNSON: Your Honor, for the record, we  
19 object to this line of questioning. The whole point of  
20 prefiled testimony in this case was to allow the parties  
21 to understand the issues so that we could plan our case  
22 accordingly and prioritize witness testimony. This  
23 witness is now testifying about something that was not  
24 included in his prefiled testimony. He's testifying  
25 about a topic that wasn't addressed by Mr. Challenger.

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1 And it puts us in the situation now of, two days away,  
2 having to reassess our case, bring back additional  
3 witnesses, prepare them to address an issue that has  
4 been on the radar screen for months and months and  
5 months, and it appears that what the tribes are doing  
6 here is they are making up their case as they go along,  
7 and that eviscerates the purpose for why we did prefiled  
8 testimony in this case.

9 We raised this issue yesterday, you know,  
10 and then we heard witnesses talk -- changing positions  
11 with regard to ballast release. We had new testimony  
12 about cultural resources, and none of this is new. So  
13 we're going to object to this line of questioning  
14 related to climate change and its impacts on the  
15 Columbia River. It just does not comport with how the  
16 system that we worked for months to complete in terms of  
17 issue identification and prefiled testimony was intended  
18 to work.

19 JUDGE NOBLE: Response?

20 MR. LOTHROP: Thank you, Your Honor. The  
21 record in this proceeding I think would benefit from  
22 additional information on climate change. It's a very  
23 significant issue facing the northwest, as well as the  
24 resources on the Columbia River. Mr. Johnson I think  
25 fairly enough points to the absence of climate change

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1 information in our direct filed testimony. That doesn't  
2 mean it's not an issue. We did file substantial  
3 commentary on that document we can't name regarding  
4 climate change. And I think importantly, there are some  
5 fundamental equities at stake here with respect to our  
6 participation in this proceeding. We have not had years  
7 and years to prepare for it. We're doing our best with  
8 limited resources, and I'd say that Dr. Penney is here,  
9 testifying roughly four days earlier than he actually  
10 anticipated testifying. He had to change personal  
11 appointments to do that. That's fine, we're happy to  
12 make that accommodation. It's important to the  
13 tribunal.

14 But that said, one of the equities that  
15 we're looking at is an -- a very substantial application  
16 that was -- an amendment to the application that was  
17 filed weeks before the proceeding. We really had  
18 limited opportunity to respond to that. The record's  
19 staying open. And I think with regard to the duration  
20 of the record in this proceeding, you know, if  
21 Mr. Johnson's clients need to respond to this, I think  
22 there's probably opportunity for them to do so. So with  
23 that, Your Honor, I conclude my remark.

24 JUDGE NOBLE: All right. Thank you. First  
25 of all, with regard to the prefiled testimony, there

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1 really weren't constraints placed upon that such that  
2 the testimony couldn't be added to, and almost  
3 everything witness has done just that. When prefiled  
4 testimony has been filed, there has been additional  
5 testimony that was direct testimony that was presented  
6 live in this hearing. And so I see no reason why this  
7 witness can't do that.

8 It seems essentially an issue of notice, as  
9 you're discussing, Mr. Johnson, and a concern about  
10 being able to rebut or respond to the testimony. I  
11 certainly would be open to or accepting testimony in  
12 rebuttal that was responsive to it and would actually  
13 expect that.

14 And then with regard to the issue of climate  
15 change, first of all, it is an issue; it is a stated  
16 issue. I made an abstract of all the issues before this  
17 started so that I would remember everything that was  
18 safe to be an issue, among the many, many issues that  
19 were presented in the written material. So it is an  
20 issue -- it is at issue.

21 And also, several of the witnesses have  
22 mentioned climate change as a background condition to  
23 what they were testifying about, general warming of  
24 waters and other conditions related, as they said in  
25 their testimony, to climate change. And this witness

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1 seems to be also doing the same thing. I don't see him  
2 testifying about climate change, per se. I think he's  
3 testifying about the effect of warming waters on fish  
4 and he's attributing that to climate change just as a  
5 background statement, from what I can see. And I ask  
6 you, Mr. Lothrop, is this witness going to continue to  
7 expound upon climate change as a subject in and of  
8 itself?

9 MR. LOTHROP: No, Your Honor.

10 JUDGE NOBLE: Well, because of all of those  
11 reasons, I'm going to overrule the objection and allow  
12 this testimony.

13 MR. LOTHROP: Thank you, Your Honor.

14 JUDGE NOBLE: He was in the middle of his  
15 answer.

16 BY MR. LOTHROP:

17 **Q. Go ahead, Dr. Penney.**

18 A. I was going to ask, where were we?

19 JUDGE NOBLE: Would you like the court  
20 reporter to read the question back?

21 THE WITNESS: Yes, please.

22 JUDGE NOBLE: You were in the middle of an  
23 answer. So let's -- the court reporter can read the  
24 question, though.

25 MR. LOTHROP: Certainly.

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1 (Requested portion read back.)

2 BY MR. LOTHROP:

3 Q. And I will continue on from there. May be a  
4 stressor that could add to the stresses associated with  
5 a potential oil spill?

6 A. Yes. I mean, I think that's exactly what we're  
7 going at. It's not so much about climate change. It's  
8 about the amount of stresses that these fish can take.  
9 That is an added one that will be exacerbated in just  
10 the way the Columbia River exists now with reservoirs  
11 which kind of act as solar sinks. The water's not  
12 moving very fast. And so that is just, yeah, an added  
13 stressor onto those fish that will occur in the future.

14 If I was to be able -- let me just bring this  
15 back to the fish. You know, I talked about these fish  
16 coming back in more or less -- say, they're trying to  
17 complete reproduction. They still have maturation they  
18 need to complete. While they're not carrying fertilized  
19 embryos, to me in a way, it's never good to stress out a  
20 creature that's pregnant or about to be pregnant. So  
21 that's -- I think if there's something you get from my  
22 testimony, added stresses, whether it be warm water,  
23 whether it be a chemical spill, it doesn't need to be  
24 oil, can disrupt that portion of the life cycle.

25 Q. Thank you. So shifting a little bit,

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1 Mr. Challenger also talked about, I believe, the  
2 differences between impacts to a wetland versus impacts  
3 to wetlands, plural. Can you describe the role that  
4 wetlands play in the Columbia River Basin and your  
5 perspective on the question of wetland versus wetlands.

6 A. Well, it's -- it should be broad. There are  
7 different types of wetlands. There are wetlands that  
8 occur in the estuary and there are wetlands that occur  
9 in the freshwater areas. I'm assuming that  
10 Mr. Challenger was talking about wetlands in the  
11 estuary. Those areas can be important, particularly for  
12 juvenile salmon or smolts in route to the ocean. They  
13 do provide areas of refuge for foraging. Some species  
14 like chum salmon, which spend a very limited amount of  
15 time in freshwater before they head out, utilize those  
16 areas to put on a fair amount of growth before leaving.  
17 Unlike the main river system, which tends to have  
18 currents, these areas slow the water down, provide a lot  
19 of different types of habitat, cover for fish to hide  
20 under and provide areas for insects and things like that  
21 to breed and can provide a very rich feeding ground  
22 before they undertake the final marine migration. So  
23 wetlands, especially in the estuary, can be a very  
24 important point that salmon stop, especially young  
25 salmon, before going out to the main ocean.

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1           **Q.    Are the wetlands in the Columbia River now**  
2 **similar to what they were a hundred years ago?**

3           A.    No, they're not. Like the rest of the river  
4 system, you know, shipping traffic has changed the --  
5 well, through diking and through dredging, has changed  
6 how that lower portion of the Columbia looks, just  
7 people building in the floodplain, which is something  
8 humans tend to like to do, has changed the floodplains  
9 and the wetlands substantially. So I do believe there's  
10 somebody else's testimony in here, maybe the Columbia  
11 River estuary group, did provide some numbers and my  
12 recollection of those numbers is probably about  
13 70 percent of the vegetative wetlands in the Columbia  
14 River are gone. So I think to your point, it's not so  
15 much wetland versus wetlands. If you have very little  
16 of something left, one wetland can be substantial.

17                   MR. LOTHROP: Thank you, Dr. Penney. That's  
18 all the questions I have for now.

19                   JUDGE NOBLE: Cross-examination,  
20 Mr. Johnson?

21                   MR. JOHNSON: No questions, Your Honor.

22                   JUDGE NOBLE: Council questions?

23                   MR. MOSS: I have a question.

24                   JUDGE NOBLE: Mr. Moss?

25                   MR. MOSS: Good afternoon. You mentioned at

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1 one point in your testimony that due to some sort of  
2 warm water stressing and so forth, that there was an  
3 occasion in 2015 when 80 to 90 percent of returning fish  
4 of some population that I didn't write down did not make  
5 it back to the spawning grounds. Do you recall that?

6 THE WITNESS: I do recall that.

7 MR. MOSS: What type of salmon was that?

8 THE WITNESS: Those are Sockeye salmon.

9 MR. MOSS: My question, though, is what is  
10 the usual percent that make it?

11 THE WITNESS: That make it to the spawning  
12 grounds?

13 MR. MOSS: Yeah.

14 THE WITNESS: It is highly variable on  
15 environmental conditions. But generally, again, not to  
16 get too far in the weeds, usually when the fish return  
17 back -- or maybe I can explain it this way. There will  
18 be fishery harvests. There's not a ton of natural  
19 predators left like we see in Alaska, so there are not a  
20 whole lot of predation by bears and things like that.  
21 So generally harvest from sport anglers, tribal anglers  
22 is the main probably mortality those fish are  
23 experiencing and that varies. It varies based on the  
24 size of the run. If it's a very low run size,  
25 oftentimes fisheries are constrained. So if there's a

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1 low number of Sockeye coming back, we're going to say,  
2 well, we're not going to fish that many because there's  
3 only so many that we should take. In big years, there  
4 might be a lot more take, but generally there are -- we  
5 deal with individual populations, there are what we  
6 would call escapement numbers that we're after, so the  
7 number of spawners that we want there to actually be  
8 make sure the population stays robust. So it is highly  
9 variable. It's not a hundred percent, but it's  
10 generally much better than, in this case, 10 to  
11 20 percent.

12 MR. MOSS: What would be a healthy return?

13 THE WITNESS: In terms of number or  
14 percentage back?

15 MR. MOSS: Percentage.

16 THE WITNESS: Let's see. If we had 100,000  
17 Sockeye pass Bonneville Dam, I would expect -- they're  
18 highly fecund animals, you know, something between 40  
19 and 50 percent, but generally I think it's higher than  
20 that.

21 MR. MOSS: Okay. Good. Although we don't  
22 have too many Sockeye sport fishing seasons anymore.

23 THE WITNESS: No, we don't. Hopefully we  
24 will. It's another good year this year and the water  
25 temperatures are staying relatively cold, so let's hope

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1 that that trend continues.

2 MR. MOSS: That would be great. You  
3 mentioned the term "thermal optimum," and I just  
4 wondered what that is.

5 THE WITNESS: Sorry. Yeah, that -- that was  
6 jargony. As a cold-water fish, you know, through time,  
7 there's been measurements about, kind of, what  
8 temperatures fish prefer to be in, and there are levels  
9 of temperatures that fish operate best in -- as the cold  
10 water, operate best in. That they run -- you know, just  
11 further physiology, that that's, you know, all metabolic  
12 function is at its optimum. If the water gets too cold,  
13 they slow down.

14 There is a point, though, if it gets too  
15 warm that it causes, you know, a lot of different types  
16 of heat stress, just like humans can get heat  
17 exhaustion. Different fish have different levels of  
18 temperature that they can tolerate. So like a large  
19 mouth bass, which can live in warm water, can tolerate  
20 temperatures up to 80 degrees. A Sockeye, once  
21 temperature gets probably above 70 degrees, is starting  
22 to feel pretty bad. It's just the way those fish  
23 evolve. They're evolved to a certain temperature. So a  
24 thermal optimum is probably for a Sockeye similar,  
25 between 60 and 65 degrees. Once you start getting

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1 outside of that, the fish get stressed.

2 MR. MOSS: And are the temperatures in the  
3 Columbia River during recent periods on average higher  
4 and lower within an acceptable range of that optimum, or  
5 are we seeing a trend in one direction or the other?

6 THE WITNESS: From what I have seen, again,  
7 I have to attribute some of this to the reservoirs which  
8 have slowed the water down, so they do tend to heat up  
9 faster. I do believe that we've seen water temperatures  
10 warming up. As we see that in other things too, like  
11 more plant growth in places where you never saw plants  
12 before. The water is slow enough for plants to grow.  
13 So I do believe we are seeing the water warming.

14 MR. MOSS: So this would become a persistent  
15 source of stress to which the addition of other stresses  
16 would magnify the difficulty of having these populations  
17 remain robust.

18 THE WITNESS: Yes. There's a lot of work  
19 right now going into what I mentioned earlier, these  
20 thermal refuges. A lot of the fish that come into the  
21 Columbia, especially in the summertime, steelhead are  
22 probably the best example of this, do utilize thermal  
23 refuges, so cold-water tributaries that tend to stay  
24 cold longer. And if they can, they'll hold in those  
25 areas until the mainstem cools down enough for them to

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1 move out. Steelhead sometimes can spend weeks to months  
2 in a refuge -- a cold-water refuge before they decide to  
3 take off for their final migration. So there's a lot of  
4 work right determining how can those salmon and  
5 steelhead utilize that while the mainstem continues to  
6 get warmer.

7 MR. MOSS: Thank you for your responses.

8 JUDGE NOBLE: Mr. Stohr?

9 MR. STOHR: Thanks, Dr. Penney. A couple of  
10 questions. You talked quite a bit about stress impacts  
11 on mature or nearly mature salmonids. I didn't hear you  
12 say much about other life stages, even though your  
13 testimony refers to some of those portions of a life  
14 cycle. Could you talk a little bit more about potential  
15 impacts of stress on -- or stressors on other life cycle  
16 stages?

17 THE WITNESS: Absolutely. I was trying to  
18 stay away from that because I do believe Dr. Rice will  
19 talk in length about the embryonic period, which I would  
20 agree is probably -- the embryonic period or marble  
21 stage are probably the most sensitive to -- again, it  
22 doesn't need to be oil, but any type of chemical  
23 stressor.

24 So I think, you know, if I was to think  
25 about my testimony, if I put it at the most basic level,

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1 it was, you know, adult salmon swim up and juveniles  
2 swim down. When the juveniles swim down, the  
3 physiological process, there's also another -- the  
4 physiological process occurs in the smolting process,  
5 which that is where this -- the juvenile salmon are more  
6 or less adapting to life or getting ready to adapt to  
7 life in the ocean. And it's -- that's also stressful,  
8 and they may spend several weeks in the estuary more or  
9 less going through the changes that they need to live in  
10 salt water. For example, in freshwater, a lot of the  
11 water exchange occurs between the gills and the  
12 bloodstream. When fish get into the ocean, they have to  
13 drink more water because salt more or less dehydrates  
14 them. So I mean, there's all these physiological  
15 changes occurring. And so, again, as -- it's just an  
16 added stressor and, you know, disruptions to that. If I  
17 was to put this even more simply, the Columbia River is  
18 a highway, and a lot of different populations have to  
19 use that. Whether you're going to destinations  
20 upstream, back home in Idaho, Washington, Oregon,  
21 British Columbia, if everybody gets held up going down,  
22 that causes problems to the life cycle. Now, are they  
23 acute? Does it kill them? I don't have the research to  
24 back that up. Does it cause stressors and stress them  
25 out? I would be comfortable in saying, probably, yeah.

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1 MR. STOHR: Thank you. Another topic. You  
2 briefly mentioned shipping vessels and -- as being one  
3 of many impactors of wetlands. Could you talk a little  
4 bit more about what you see in terms of -- what you know  
5 about shipping vessels and their impacts to wetlands or  
6 other critical habitat?

7 THE WITNESS: It would be mostly -- I  
8 actually think speculation. I was more thinking about  
9 the broad terms of how, you know, to keep shipping  
10 channels open and stuff. We're constantly modifying  
11 that area. There certainly are plenty -- there's  
12 research of, you know, the effects that large ships and  
13 their wakes cause to erosion and things like that, but  
14 I'm not an expert on that and so I would be out of my  
15 element by telling you one way or the other that those  
16 are the effects. But certainly just answer -- human  
17 impacts in that lower river to make sure that those  
18 shipping channels remain open does have habitat effects.  
19 But getting into the -- deep in the weeds about, you  
20 know, the various ecosystem functions that it might  
21 affect, I probably shouldn't go there.

22 MR. STOHR: Great. Thank you.

23 JUDGE NOBLE: Mr. Snodgrass, if you could  
24 just -- Mr. Siemann had a question.

25 MR. SIEMANN: Good afternoon. You mentioned

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1 that the chemical signature of the water sort of helps  
2 guide these salmon back to their natal streams, right?

3 THE WITNESS: Yes.

4 MR. SIEMANN: And I was just curious if  
5 there's a possibility that an oil spill could alter that  
6 chemical signature such that it could mess with that  
7 guidance mechanism.

8 THE WITNESS: I think it could, but it  
9 really depends on when and where that oil spill occurs  
10 and what life stage is swimming through it. Basic  
11 definition of what we call imprinting juvenile salmon  
12 occurs where they were born. So their olfactory system  
13 more or less identifies the signature and, you know,  
14 they have an amazing ability to -- I mean, they're out  
15 in the middle of the ocean, all of a sudden they decide  
16 they know exactly where to go back to, it's kind of  
17 amazing.

18 If an oil spill or some chemical spill and  
19 they had water occurring during that period, it  
20 certainly could cause issues to that imprinting. I  
21 think some of the areas we're talking about aren't  
22 necessarily close to tributaries. It depends on I guess  
23 to the extent of that spill and how masked it might make  
24 signatures in the water. You know, I guess it would  
25 depend on the matter of degree of the spill. But I do

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1 think that if it occurred at the right time and the  
2 right place, it could have impacts. Now, the -- yeah,  
3 it would really depend on when it happened and where it  
4 happened.

5 MR. SIEMANN: Could that potentially have  
6 population impacts as opposed to individual impacts?

7 THE WITNESS: It certainly could. You know,  
8 if -- if fish can't find their way back and they spawn  
9 where they're not supposed to or they just get lost and  
10 don't make it, yeah, that could be a problem.

11 MR. SIEMANN: Do you know of any sort of  
12 examples in the literature of something like this  
13 occurring where there's been some study of that? I'm  
14 just sort of curious as to what the fish might do or if  
15 there's any evidence, I suppose.

16 THE WITNESS: There is stuff in the  
17 literature, but, again, I would be without -- I don't  
18 know that intimately. Dr. Rice will be testifying later  
19 today, or perhaps next week, could probably speak more  
20 to that. There is some literature, but, again,  
21 sometimes when we talk about literature, sometimes  
22 there's a big difference between what happens in a  
23 laboratory and what actually happens to field -- what  
24 happens in field studies. So I don't think I'm  
25 comfortable enough with myself to say, you know, one way

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1 or the other kind of what the actual effects would be on  
2 the natural system. But there could be.

3 MR. SIEMANN: Thanks.

4 JUDGE NOBLE: Mr. Snodgrass?

5 MR. SNODGRASS: Good afternoon. Just a  
6 question on -- essentially on rates of recovery. I  
7 think the state -- the point made earlier in the  
8 testimony, I think of Dr. Challenger, distinguishing  
9 between an individual and population impacts sort of  
10 implied to me that there would be a relatively quick  
11 rate of recovery if a species or subspecies was impacted  
12 by an oil spill. And so I just wonder what your  
13 knowledge is about that.

14 THE WITNESS: Yeah, I mean, it did make me a  
15 little uncomfortable. You know, sometimes we see with  
16 fisheries, assuming you leave everybody alone and  
17 there's no other big stressors in the environment, which  
18 I don't know if we can say that for the Columbia River,  
19 but you leave them alone and you don't fish on them, if  
20 they tend to make a lot of babies, sometimes fish  
21 populations can bounce back really quickly if humans let  
22 them.

23 In the case of the Columbia, which is  
24 already a highly modified system and my point earlier  
25 about the different fish stocks that might be traveling

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1 together, certainly if you -- if the Okanagan Sockeye  
2 stock took a big hit, is there -- there's still probably  
3 enough spawners that they would be okay. If something  
4 like the Redfish Lake Sockeye population took a big hit,  
5 I'm not sure that it would be okay.

6 MR. SNODGRASS: Related to that, have the --  
7 I think you mentioned the Snake, Yakima and Deschutes  
8 Rivers as examples of some of those lower number  
9 populations. Have they been low for a long time?

10 THE WITNESS: They have been actually. Some  
11 of them have been zero. They're more or less being  
12 brought back from the dead. The Deschutes and I do  
13 believe Cle Elum are reintroduction projects. And so  
14 they're trying to kick-start those populations back  
15 again, which is -- sometimes what happens when you  
16 kick-start a population, they're just not going to come  
17 back in gangbusters; sometimes it takes time for them to  
18 build again. So I guess to a degree, you know,  
19 another -- a disruption like that can cause issues to  
20 restoration efforts.

21 MR. SNODGRASS: Thank you.

22 JUDGE NOBLE: Any other questions, to my  
23 right?

24 To my left?

25 Mr. Rossman?

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1           MR. ROSSMAN: If you'll forgive a couple of  
2 ignorant questions along that same line, I guess I'm  
3 wondering if a species is extirpated from a particular  
4 area, what is involved in trying to reintroduce it?

5           THE WITNESS: Generally -- okay. I mean I  
6 think it varies on a case-by-case basis, but before I  
7 pursued my Ph.D., I did run a project restoring coho to  
8 the Clearwater River. They were extirpated by the  
9 Lewiston Dam, which is no longer there. In this case in  
10 Idaho, the reason why coho never restored is they had  
11 trouble with the donor stock to begin with and then  
12 there also just actually wasn't a whole lot of public  
13 support for it, but it was important to the tribes.

14           And so generally, what you want to do is, if  
15 you're going to restore something to a specific area, we  
16 found through genetics that, you know, salmon in many  
17 geographic areas have very specific genetics that allow  
18 them to either make a long migration distance or, you  
19 know, have a certain life history type. So you want to  
20 try to match that as close as you can. Sometimes you're  
21 trying to pull from a stock that's already robust that  
22 can actually provide some donor individuals. But from a  
23 perfect perspective, we also like to give enough credit  
24 to these species in that they do have sometimes quite a  
25 plastic life history. Before all these areas were here,

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1 this was covered in glaciers. And there are natural  
2 catastrophic events that happen, Mount St. Helens, for  
3 example, can wipe out salmon stocks and salmon do find  
4 ways to recall. So sometimes if you just give them a  
5 chance, one of the things that we would also always want  
6 to make sure of is we're not making a genetic bottleneck  
7 either. You can't generally start with, you know, a few  
8 individuals and get continually inbreeding. It does --  
9 you do need to have some genetic diversity in there. So  
10 that's something that we also consider.

11 MR. ROSSMAN: Thank you. That's helpful.  
12 And I guess -- to what extent would it be possible  
13 analytically to identify the particular populations that  
14 were most stressed and the particular times that they  
15 were most likely to be in the river such that one could  
16 understand particular times that a spill or other impact  
17 would be harmful, or is it such that they're so many  
18 different stages of those and so many different  
19 populations that much of the year some population that's  
20 got a small number would be vulnerable?

21 THE WITNESS: We do have a decent grasp  
22 right now. Again, our lab is just one of many that does  
23 genetic analysis. And whether it's a hatchery or wild  
24 stock, we're doing better at identifying those fish in  
25 the times they come up because a lot of the

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1 identification doesn't necessarily need to be related  
2 to, you know, if there was going to be an oil spill or  
3 something like that. Even our fisheries, we want to  
4 make sure our fisheries aren't having strong impacts on  
5 stocks that are really low. And so that's something  
6 that we're already trying to get a grasp on. You know,  
7 if somebody's catching this many Snake River Redfish  
8 Sockeye, maybe we want to stop that fishery, those fish  
9 are passing through them. So we actually -- it's not  
10 perfect and it's getting better every day. So we  
11 already do have some of those capabilities. There is  
12 literature even through just basic tagging information,  
13 some of those Sockeye stocks, they have various tags  
14 that we put on them to identify them and we can identify  
15 those tags when they pass a dam so we say oh, geez,  
16 those Snake River Sockeye pass mainly during this time  
17 of year. And so we do have some idea of when fish are  
18 in the river. But sometimes when they're in very large  
19 groups, that's where the problem is -- gets into -- we  
20 get into problems. So we do have a decent idea of, you  
21 know, kind of when certain stocks are moving through,  
22 but, you know, if -- but if they're caught, like in a  
23 fishery, we can at least sample them and we know where  
24 they -- you know, where they die. Something that's  
25 environmental, where we can't see them or sample them

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1 after they die, that's kind of -- we have no idea.

2 MR. ROSSMAN: Got it. So conceptually, at  
3 least, would it mitigate the risk to those populations  
4 to limit when trains were running at those times?

5 THE WITNESS: It's certainly something, you  
6 know, people would want to consider, that we don't want  
7 to put these stocks at risk, so don't do that then.  
8 That seems almost like common sense.

9 MR. ROSSMAN: All right. Thank you very  
10 much.

11 JUDGE NOBLE: Could I just ask you about  
12 predation. You mentioned that the fish basically can  
13 run out of energy and so it would be subject to  
14 predation by something like sturgeon, I think. But you  
15 didn't mention anything about any other kind of  
16 predation. I suppose they're at the top of the food  
17 chain in some ways, if they're not being eaten. What  
18 about on the smolts coming downstream? Is there any  
19 effect from the condition of the water on other life  
20 cycle stages?

21 THE WITNESS: Absolutely. I think predation  
22 is worse when they're smaller. Part of the whole  
23 evolution of why salmon went out to the ocean to get  
24 bigger is that when you come back bigger, there's less  
25 things that can actually eat you. And you come --

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1 there's a variety of competitive advantages to being  
2 bigger. And sturgeon aren't really predators. Sturgeon  
3 are really only eating dead things on the bottom. So  
4 generally when a sturgeon eats a salmon, it's because  
5 it's already died.

6 But on the way back down, when they're  
7 smolts, there are many things that can eat them.  
8 There's native predators, could be northern pikeminnows,  
9 but there's a lot of introduced predators, fish  
10 predators, that thrive in warm water. I mentioned bass  
11 earlier. The Columbia River is a prime smallmouth bass  
12 destination now. We have them all over the place. We  
13 have walleye, which are a big fish predator in the  
14 Columbia Basin. These fish do very well in reservoir  
15 situations and those fish have to swim by them. So  
16 predation by those fish is a huge -- has a huge impact.

17 We also have issues with predation with a  
18 variety of different birds as well. And I guess I'm  
19 more attributing this to the reservoir, but warm water  
20 doesn't help with that either.

21 JUDGE NOBLE: Is it just warm water that  
22 encourages that kind of negative predation or is there  
23 anything else, like any sort of chemical introduction  
24 into the water, that could be a problem with regard to  
25 predation?

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1           THE WITNESS: I would guess I could put it  
2 in -- again, about the stressors. If there's anything  
3 that disorients fish or stresses them out to where  
4 they're not able to swim, to see, anything that causes  
5 that fish not to operate at its, I guess, maximum level,  
6 anything that kind of constrains it, it could make it  
7 much more easier for a predator to eat it.

8           JUDGE NOBLE: And hasn't that always been  
9 the case?

10          THE WITNESS: In the Columbia --

11          JUDGE NOBLE: Is it any different now than  
12 it always has been historically?

13          THE WITNESS: No. There's brand-new  
14 introduced predators. And with the hydro system, a lot  
15 of the deprivation of fish actually occurs below dams.  
16 So whether it's smolt or fry, it goes through a turbine  
17 or goes over the top, that's a long drop, and sometimes  
18 they come out disoriented. So fish are subject to a lot  
19 more potential predation events when they're  
20 disoriented.

21          JUDGE NOBLE: Thank you, Dr. Penney.

22          Are there any questions related to council  
23 questions?

24          MR. JOHNSON: None, Your Honor.

25          MR. LOTHROP: I have one, Your Honor, with

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1 regard to Mr. Rossman's questions.

2 REDIRECT EXAMINATION

3 BY MR. LOTHROP:

4 Q. And I can't think of a better way perhaps for  
5 the council to help share an understanding with the  
6 council about the Hagerman laboratory than to ask how  
7 many peer-reviewed scientific publications have they  
8 produced in recent years? Can you pick the nearest --

9 A. It's got to be over a hundred easily. The  
10 genetics field is just exploding and I'm very happy that  
11 our group is there. There's so many things that we're  
12 finding out that we can do with genetics now that can  
13 help the fish. So hundreds.

14 MR. LOTHROP: Thank you. That's all.

15 JUDGE NOBLE: Thank you, Dr. Penney.

16 THE WITNESS: Thank you.

17 JUDGE NOBLE: You are excused as a witness.

18 Are there any other witnesses?

19 MR. LOTHROP: Yes, Your Honor. I would like  
20 to call Dr. Rice, but I believe he will be our last  
21 witness of the day, and if it would be appropriate, this  
22 might be a good time to take a break.

23 JUDGE NOBLE: It is. Thank you. That's a  
24 good suggestion. So we will be in recess for  
25 15 minutes. It's about 20 minutes of 3 we'll come back.

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1 MR. LOTHROP: Thank you.

2 (Recess taken from 2:23 p.m. to 2:41 p.m.)

3 JUDGE NOBLE: We're ready to go on the  
4 record?

5 MR. LOTHROP: I am, Your Honor.

6 JUDGE NOBLE: Mr. Lothrop, would you call  
7 your next witness.

8 MR. LOTHROP: Yes, Your Honor. I would like  
9 to call Dr. Stanley Rice to the witness stand.

10 JUDGE NOBLE: Dr. Rice, would you raise your  
11 right hand.

12 (Witness sworn.)

13 JUDGE NOBLE: Thank you. Please be seated.

14 MR. LOTHROP: Thank you, Your Honor.

15 STANLEY RICE,

16 having been first duly sworn,

17 testified as follows:

18 DIRECT EXAMINATION

19 BY MR. LOTHROP:

20 Q. Dr. Rice, did you prepare prefiled direct  
21 testimony for this proceeding?

22 A. Yes, I did.

23 Q. Do you adopt --

24 JUDGE NOBLE: He has to identify himself for  
25 the record.

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1 MR. LOTHROP: I'm sorry.

2 BY MR. LOTHROP:

3 Q. Dr. Rice, can you please identify yourself for  
4 the record and spell your first and last name.

5 A. My name is Stanley Rice, S-t-a-n-l-e-y, Rice,  
6 R-i-c-e.

7 Q. All right. Dr. Rice, did you prepare prefiled  
8 direct testimony in this proceeding?

9 A. Yes, I did.

10 Q. Do you adopt that testimony as true and  
11 accurate?

12 A. Yes.

13 Q. Thank you. I'd like to familiarize the council  
14 with your qualifications. And, again, I think your  
15 qualifications, in my experience, are unique. Can you  
16 talk about your career for the council, and I may ask  
17 you some questions along the way.

18 A. Sure. I graduated with a Ph.D. from Kent State  
19 University in Ohio in 1971. I did a dissertation on  
20 ammonia toxicity in trout embryos, and that caught the  
21 eye of my future boss who wanted to initiate an oil  
22 effects program, and I was the closest thing he could  
23 get to that. I had a lot of toxicology and biochemistry  
24 and physiology. I basically graduated in physiology. I  
25 had enough chemistry that the biologists think I'm a

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1 chemist and enough -- but the chemists know that I'm a  
2 biologist. So a little bit of a hybrid there. But it  
3 is a good background for doing oil effects research  
4 because it's really about the oil interacting with  
5 organisms.

6 I was hired in Juno, Auke Bay Laboratory in  
7 Alaska in 1971. So I worked there for about --

8 **Q. A little slower.**

9 A. Sorry. I worked there for 41-plus years before  
10 I retired just a couple of years ago. Part of my duties  
11 was to first comment for the agency on the Trans-Alaska  
12 Pipeline environmental impact statement. The pipeline,  
13 of course, had not been approved yet. Oil had not  
14 flowed yet. But yet the Prudhoe Bay reserves were  
15 discovered and known to be very large and would be  
16 substantial.

17 But there's concern all over the state for  
18 fisheries, and so I was basically hired to be an  
19 in-place consultant, so to speak, advising the agency on  
20 oil effects and fishery issues, so to speak. I was able  
21 to hire both a biologist and chemist through the years.  
22 In 19 -- and we did a lot of bioassays and oil tests  
23 with a variety of organisms and crab, shrimp larva --

24 **Q. Dr. Rice, before you go too far, could I ask you**  
25 **what agency hired you?**

**LOTHROP / RICE**

1           A.     Sorry.  NOAA.  NOAA Fisheries.  We did a lot of  
2 bioassays at the lab and that -- and produced  
3 publications.  But that set us up to be in a place, so  
4 to speak, with the right experiences and the right  
5 analytical capabilities when the Exxon Valdez went  
6 aground in 1989.  And so we're not quite on site, it's  
7 still several hundred miles away, but we were able to  
8 get on site and begin studying that spill from the very  
9 beginning.  We had people collecting samples within  
10 five days of the spill.

11                 We did a lot of research on that over the years,  
12 and we basically discovered, like in year ten or so,  
13 that there's still a lot of oil present.  There's still  
14 negative effects happening and we continue to study  
15 long-term effects, literally right up until last year.  
16 The last study looking at oil persistence was sampled  
17 last year in 2015, some 26 years after the spill and  
18 they still found oil.  So I'll talk about it later also.

19           **Q.     So if I might ask, in the course of that work**  
20 **regarding the Exxon Valdez accident, did you and your**  
21 **coworkers prepare peer-reviewed publications?**

22           A.     Yeah.  We published quite a bit.  A lot of the  
23 researchers associated with the Exxon Valdez did.  It  
24 was a very well-studied spill, produced a record amount  
25 of publications in the spill literature and in our lab

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1 which, like I say, consisted of both chemists and  
2 biologists, produced a number of spills. I've published  
3 well over 120, '30 publications including one that came  
4 out last year, for example, and I've got more in my  
5 computer yet to finish.

6 **Q. And, Dr. Rice, were those peer-reviewed**  
7 **publication?**

8 A. Yes, I only talk about peer-reviewed  
9 publications, not abstracts or reports. There's about  
10 500 reports in there, but I don't mention those.

11 **Q. Thank you. So are you still working for NOAA**  
12 **Fisheries?**

13 A. No. I finally retired two years ago, and I was  
14 immediately picked up on a contract by the Department of  
15 Justice to help them with their --

16 **Q. A little slower. And which Department of**  
17 **Justice?**

18 A. United States Department of Justice. And this  
19 had to do with their case prosecuting BP down there, the  
20 Deep Horizon Gulf spill. And I became an expert with --  
21 in their trial that ended in January of 2015.

22 **Q. So did you provide live testimony on behalf of**  
23 **the United States in that proceeding?**

24 A. I supplied both written and live testimony, yes.  
25 And reviewed hundreds of documents.

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1           **Q.    How many witnesses in that phase of the trial**  
2 **did the United States put on?**

3           A.    Put on 11.

4           **Q.    So you were one of 11?**

5           A.    I was one of two biologists that talked at --  
6 about effects.

7           **Q.    For the Deepwater Horizon spill?**

8           A.    Correct.

9           **Q.    On behalf of the United States?**

10          A.    Yes.

11          **Q.    Have you been to many other spills?**

12          A.    I haven't been to as many as Mr. Challenger was  
13 talking about, but I've been to several. I was the  
14 first one to the Ixtoc spill in 1979, which is off of  
15 Mexico. But the oil was drifting north onto the Texas  
16 beaches, and I was helping the NOAA response team there,  
17 consulting, basically, for them about safety -- human  
18 safety and other issues as well as effects. Later --

19          **Q.    Can you share an experience -- one of those**  
20 **experiences with council?**

21          A.    Well, I remember that -- this is an early spill  
22 and people were just out collecting tar balls and  
23 they're asking about it. You know, they're wading in  
24 their shorts and bare feet, and I said, you know, you  
25 shouldn't do that and you shouldn't have any pregnant

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1 women out there. There's -- you know, that's sort of --  
2 and children. I said, you need to get those sorts of  
3 people off the beach and out of that oil. That's kind  
4 of one of my first light bulbs that went off, so to  
5 speak, at that time.

6 **Q. Thank you.**

7 A. I came in the '89 Exxon Valdez. I'm also been  
8 on the Kuroshima and Selendang Ayu spills. Those were  
9 spills in the Aleutian chain near Dutch Harbor and  
10 they're extremes --

11 JUDGE NOBLE: Excuse me. Dr. Rice, we're  
12 having a little bit of trouble following you, hearing  
13 your words, because you're speaking a bit softly at the  
14 end of your sentences and a little fast again.

15 THE WITNESS: I'm sorry.

16 JUDGE NOBLE: Sorry.

17 THE WITNESS: It's a bad habit I have.

18 A. The Selendang Ayu spill, that's  
19 S-e-l-a-n-d-a-n-g [sic].

20 JUDGE NOBLE: Dr. Rice, the spill names, you  
21 need to tell the council the names of the spills that  
22 you were on. It wasn't heard.

23 A. The first spill I'll talk about is the Selendang  
24 Ayu. That's S-e-l-a-n-d-a-n-g [sic], second word A-y-u.  
25 Another spill in Alaska near Dutch Harbor was the

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1 Kuroshima, K-u-r-o-s-h-i-m-a, about that anyway, close  
2 to. Those are the two spills. And then I've been  
3 involved with the Deepwater Horizon spill, both as a  
4 researcher but also as a reviewer, and we led one very  
5 small project. We did some chemistries for them.

6 JUDGE NOBLE: Thank you.

7 BY MR. LOTHROP:

8 **Q. So did you read and review Mr. Challenger's**  
9 **testimony?**

10 A. Yes, I did.

11 **Q. And do you agree with his testimony?**

12 A. Mostly not. Mr. Challenger and I come from  
13 different viewpoints. He's been a contractor working  
14 for spillers who was working on response; for example,  
15 in the Deepwater Horizon spill event, he was a SCAT  
16 coordinator, shoreline assessment team, looking at what  
17 beaches are oiled and which ones are higher priorities  
18 than others to clean and maybe even remediate it later.

19 I, on the other hand, have been a damage  
20 assessment researcher for most of my years, so I'm  
21 looking at the effects and also over a long term,  
22 particularly with the Exxon Valdez. So we come from a  
23 different viewpoint. Basically, I'm more pessimistic, I  
24 think, about the outcome and effects of the spill than  
25 the optimism that I think he projected.

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1           **Q.    Yeah, can you give us some --**

2                       MR. LOTHROP:  Ms. Mastro, I would like to  
3 call up Exhibit 108, if you could.

4 BY MR. LOTHROP:

5           **Q.    And ask, Dr. Rice, if you could give us some**  
6 **example of your differences that you might have in**  
7 **characterizing outcomes.**

8           A.    Well, this is the table that he talked about --  
9 I guess this would be a better way to look.  He talked  
10 about this table and basically concluded near the end of  
11 his oral testimony that it took about one to two years  
12 or so for wetlands to recover, and I had a different  
13 interpretation of this table than he did.

14                   First, let me orient you to the bottom axis  
15 here.  This is the time scale, so each vertical line  
16 here is five years, so there's -- I think that's five,  
17 ten, fifteen here and then these are -- excuse me, 30  
18 and 40 years.  And the very highest spill up there is  
19 the Gulf spill, which is an anomaly, it's the Gulf War,  
20 not Deepwater Horizon.  The Gulf War with many, many  
21 wells sabotaged, and God knows how much oil is out there  
22 and, of course, none of it is treated or cleaned up so  
23 that's -- don't want to discuss that one.

24                   But when I look at the next line, and this is in  
25 a color that I can't hardly see, it's a little bit more

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1 evident in the book, but it comes out here to pass  
2 through the years all the way out there, through 40  
3 years almost. This here is the Florida barge spill --

4 JUDGE NOBLE: Dr. Rice, we missed what you  
5 said when you turned your back to the microphone --

6 THE WITNESS: I was trying to say that the  
7 second line here is the Florida barge spill. And it  
8 goes out to about 40 years out in 1979, and that's at  
9 Falmouth, in the Massachusetts area. It's about a  
10 30-minute drive, I would guess, from Woods Hole  
11 Oceanographic Institution. It was not a large spill by  
12 spill standards. It certainly wouldn't crack the top  
13 100 or anything like that, but it has a long-lasting  
14 effect, a long-lasting persistence of oil and then  
15 long-lasting effects. And because this is a spill of  
16 opportunity to research, so to speak, 30 minutes or so  
17 from Woods Hole, it's been studied over a period of time  
18 by numerous -- well, two generations, so to speak, of  
19 scientists there.

20 They found that the oil persistent in  
21 this -- that it's got a chemical composition very  
22 similar to the day it was spilled, basically. Crabs  
23 that burrow into the sediments will hit that oil layer  
24 and then do their devious things. They -- there's an  
25 abnormal behavior, their burrows are not as deep, birds,

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1 of course, are more easily preyed upon. So there's a  
2 bunch of negative effects that have been persisting over  
3 many, many of those years.

4 I think where I differ from Mr. Challenger,  
5 though, is we go down here, there's about ten or so, 11,  
6 with question marks that come out here past five years.  
7 And so, yeah, there's a group down here that are -- have  
8 recovered about one to two years, but there's also --  
9 roughly a third of them, or something like that. That  
10 did not and it took longer than that.

11 Dr. Michel and her cohort Rutherford  
12 conclude that spills that are in colder climates, they  
13 persist longer, and the spills that are with the lighter  
14 fuel oils, they will persist longer because they  
15 probably penetrate into the sediment. Spills that are  
16 the very heavy crudes, they will last longer, not so  
17 much because they penetrate, just because they're so  
18 recalcitrant in their lasting and persistence.

19 When I think about applying this, then, to  
20 the Columbia River, the Bakken crude really is pretty  
21 close to a fuel oil spill. It's one of the thinnest of  
22 the crudes. So it's down there toward fuel oil in terms  
23 of viscosity and the thinness in amount of light ends  
24 that are there are analogous. The dilbit is kind of  
25 analogous to the very heaviest of oils, of course, so

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1 you kind of have -- between those two different oils,  
2 you have two different extremes and those happen to be  
3 the two different types of oils in this chart here that  
4 have the most persistence and the most damage to  
5 wetlands and cause the least amount of recovery per unit  
6 time. So that's an example of my pessimism, so to  
7 speak, compared to his optimism.

8 BY MR. LOTHROP:

9 **Q. Thank you, Dr. Rice. Exxon Valdez is not on**  
10 **this list. Can you tell us why?**

11 A. Yeah. It would be right up in this range,  
12 except for one factor. It doesn't have wetlands.  
13 There's virtually no wetlands in the Exxon Valdez.  
14 There's only literally about an acre or two, at most,  
15 compared to the literally a thousand miles of coastline  
16 that was contaminated to one degree or another.  
17 However, even, like I said earlier, in 2015, the Auke  
18 Bay Lab went back and resampled places they've been  
19 sampling periodically for the last 26 years and still is  
20 able to find oil.

21 By "finding oil," I mean that if you dig a pit  
22 down and you go below the aerobic part of the surface,  
23 about this far, four or five inches or so, and you get  
24 to another part, you get to the layer that has oil in  
25 it, you dig that oil -- or that hole out and oil will

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1 seep in from the sides and begin to fill that up.  
2 That's a worst-case scenario, so to speak, and there's  
3 still beaches with that worst-case scenario. I think  
4 the square footage of some of those oil pools, so to  
5 speak, beneath the surface have been getting smaller,  
6 but if you're in the middle of that oil pool, you've  
7 still got liquid oil. It's got a weathering status,  
8 it's about the same as, say, 10, 12, 15 days after the  
9 oil spill and that's because it's anaerobic there, no  
10 oxygen. So the microbes can't -- do not have access to  
11 it. They can't degrade it. It's just there until  
12 something disturbs it. And we have found, of course,  
13 that sea otters, for example, will disturb that layer  
14 and become contaminated over time and have had slow  
15 recovery.

16 **Q. So thank you. Let's continue to talk about**  
17 **Exxon Valdez and the environment in which that spill**  
18 **occurred. You've been in Southeast Alaska for a long**  
19 **time.**

20 A. Yes. Over 40 years.

21 **Q. Did you -- were there villages affected by the**  
22 **Exxon Valdez spill?**

23 A. Yeah, there was. There's one key village.  
24 There are two villages. One was near but not oiled and  
25 the other village was the village of Chenega, and they

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1 were basically in the middle of the oil spill. The  
2 oil --

3 **Q. Remember to speak close to the microphone.**

4 A. The oil flowed from the site of impact on the  
5 reef southwest and they're right in the hardest hit  
6 area. These people live on a subsistence -- and a lot  
7 of those fish are here to some extent, but primarily on  
8 salmon and other things. The intertidal zone are --  
9 intertidal zones are very significant there in Prince  
10 William Sound in the order of 20 or so feet or more, and  
11 they use a lower intertidal sound to collect a variety  
12 of chitons, for example, and limpets and other things,  
13 and they will harvest periodically throughout the year  
14 and -- to supplement their diet. This is a badly oiled  
15 habitat for them for -- oil visibly, sort of a coated  
16 oil, but it had oil for the next couple of summers, each  
17 year getting better, but still if you dig these pits,  
18 you can still find the oil where they were harvesting.  
19 So basically they've turned that part of their diet off,  
20 or else they have to travel a fair -- excuse me, a fair  
21 ways by a skiff to go to a clean area so it has affected  
22 them.

23 JUDGE NOBLE: Little -- just a little  
24 slower, Dr. Rice. And when you use a word like chitons,  
25 I think --

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1 THE WITNESS: Chitons.

2 JUDGE NOBLE: -- you might spell it.

3 THE WITNESS: That's an invertebrate.

4 That's kind of like a snail. It has an outer shell.

5 BY MR. LOTHROP:

6 **Q. And the spelling would be?**

7 A. C-h-i-t-o-n.

8 **Q. And limpet?**

9 A. L-i-m-p-e-t, another snail-like animal. Those  
10 both live on rocks and suction cup down and eat algae  
11 and that sort of thing. The leather chiton is pretty  
12 large. It's kind of -- weighs a pound, roughly, so it's  
13 a pretty good-sized animal with a fair amount of meat to  
14 it.

15 **Q. So it would be fair to say that the village of**  
16 **Chenega lost a traditional fishery?**

17 A. Yeah, it would be. It's -- you know, there's no  
18 commercial fishery on these organisms, but in effect  
19 they lost a fishery. They would say they lost their  
20 garden table, so to speak.

21 **Q. And, again, you -- how did you get to know the**  
22 **villagers at Chenega?**

23 A. Well, they were affected, and they participated  
24 in meetings, but we also did one study, for example,  
25 where we contracted to them in part to help flesh out

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1 the --

2 **Q. "We" is?**

3 A. "We" as in NOAA. Excuse me.

4 **Q. That's all right.**

5 A. Our laboratory. We did a study that dug a  
6 hundred holes, a hundred pits per day for a hundred days  
7 throughout the summer. We assessed over a hundred  
8 beaches to see how much oil is there, and they were  
9 about -- they supplied about four to five people on  
10 these crews of eight.

11 **Q. So you got to know some of the villagers real**  
12 **well?**

13 A. Yeah, I did. And they're hard to get to know.  
14 You kind of have to know them for about a month before  
15 you can talk to them very easily. But pretty neat  
16 people.

17 **Q. So this is potentially an example of long-term**  
18 **effects. Can you give us a little bit more perspective**  
19 **on long-term effects of an oil spill?**

20 A. Well, there's -- are you talking about the human  
21 side --

22 **Q. Well --**

23 A. -- in this case?

24 **Q. -- actually I was thinking of aquatic organisms.**

25 A. Well, just to finish that human stuff off or

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1 just one sentence. They still to this day -- if you're  
2 my age, for example, you're still not foraging the  
3 beaches. The younger generation probably is. But it  
4 took them literally close to a decade before they  
5 started returning to these beaches, for example.

6 Getting to long-term effects from -- of the '89  
7 oil spill, we were not surprised by the immediacy of the  
8 kills. There was a lot of birds killed, literally half  
9 a million or more, certainly marine mammals were hit,  
10 seals and sea otter carcasses were collecting all over  
11 the -- those things are kind of expected, so to speak,  
12 because of the massive amount of oil everywhere.

13 But the thing that did surprise us was the  
14 longer-term effects, so to speak, on several species.  
15 And to give you a couple of examples, this relates to  
16 Mr. Challenger not knowing or remembering of any  
17 population effects, and we have a population effect, for  
18 example, the killer whales, there's two pods of killer  
19 whales that lost 40 percent of their population in about  
20 a year or so. And these two pods had on the order of 25  
21 and 35 animals in them. In one pod, the AT-1 pod,  
22 that's a transient pod that eats marine mammals, it lost  
23 all the reproductive females in that pod. And so now  
24 they continue to have mortalities, of course, with time  
25 as the old guys die, but there are no reproductive

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1 females. So that pod is basically on the route of  
2 extinction and in probably another decade or so, that  
3 pod will cease to exist at all.

4 The fish eating pod, AB pod, also lost a similar  
5 amount, 40 percent. It is showing signs of recovery.  
6 But it's still probably a decade or more away from  
7 getting back to the same levels that it had before the  
8 spill. And that's because these females are -- kind of  
9 have a life history, almost like us humans in a way, not  
10 sexually mature for 15 or so years, they're only going  
11 to have four or five calves in their total 60, 70,  
12 80-year life span, so their reproductive rate is not  
13 high compared to -- well, compared to a pink salmon may  
14 carry 2500 eggs or so and reproduce every two years, or  
15 at least the cycle is every two years, new generation  
16 every two years. So you're going to have to go through  
17 quite a few generations of time to restore the killer  
18 whales back to their number, at least to the one pod.

19 With sea otters, there was a group of sea otters  
20 in the western part of the sound that were hit pretty  
21 hard, hundreds and thousands -- well, a couple thousand  
22 carcasses probably. Couple thousand animals died,  
23 hundreds of carcasses were collected.

24 This one group, which is in a heavily oiled  
25 area, failed to recover, so its population just bobbed

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1 around literally for about two decades. Might go up one  
2 year and then down, just bobbed along for close to --  
3 well over two decades. And first this is surprising.  
4 So all this sort of came to a head after about year ten,  
5 when our lab rediscovered lots of oil still present.

6 A different group than USGS was doing otter  
7 studies, and we knew each other but we weren't in --  
8 weren't collaborating yet. They were looking for an  
9 explanation of why those sea otters had not returned to  
10 normal levels. They thought food, but food was more  
11 than adequate where they were at and they found out  
12 about all the pits that we were digging, and the pits in  
13 their area still had a lot of liquid oil. So then  
14 they -- but sea otters are known to dive and dig clams  
15 for their food. They don't come on land to forage.  
16 They will on occasion come out on a rock and sun, but  
17 basically they live and sleep in the water. So they  
18 couldn't figure out how they were getting oil exposed.

19 So they put diving -- well, put diving chips in  
20 them, actually captured them, anesthetized them, put a  
21 pressure-sensitive chip into their abdomen that could  
22 detect what depth they were diving and also how many  
23 times they were diving, and found out that each animal  
24 is digging hundreds of pits a day and this group of  
25 roughly a hundred or so animals dug, I think, it was

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1 2 million pits in ten years, something of that sort.  
2 And they -- by having females and males, they could  
3 determine which were digging the deepest -- which were  
4 diving the deepest, how often they were diving in the  
5 intertidal zone where there is oil. There wasn't any  
6 oil below the intertidal zone to speak of. And they  
7 found that their exposure was probably often enough,  
8 once every two weeks, once a month, something of that  
9 sort, for a group of females to become exposed to this  
10 liquid oil. Oil is not everywhere, but they were  
11 digging enough holes that the odds of them encountering  
12 oil every so often was significant and their  
13 reproductive rates were just not up to par.

14 After these 2 million holes are dug over time,  
15 the oil, of course, is -- that's a remediation effort  
16 that's going on by them, not by us, but by them. So the  
17 oil began to dissipate, dissipate, dissipate in the area  
18 they're in, and so then after two decades their  
19 population started to creep up. And so now they're  
20 basically back at -- at this bay, basically back up to  
21 the numbers that they were. So that was the population  
22 effect. Was it forever? No. The good part about oil  
23 is if you only spill it once, you've probably got a  
24 pretty good shot at some recovery. It may take time.  
25 Depends on your generation type.

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1           For pink salmon, they also were impacted over a  
2 number of years. New embryos being laid down in oil  
3 streams had elevated mortalities in a sector of the  
4 sound for four years past the spill. So contrast this  
5 with the killer whales. The killer whales were impacted  
6 in year one, probably in the first several months -- two  
7 or three months of the spill, and then that impact  
8 lasted a long time because their generation rate is so  
9 slow. But the pink salmon area was being exposed each  
10 new generation for four years and had elevated embryo  
11 mortalities. Once that was over, then their populations  
12 were returning to normal.

13           There's a lot of pushback by Exxon on this. One  
14 of the things that they say, well, there's just a lot of  
15 salmon caught in the -- there was no salmon caught that  
16 year by the way, but -- fisheries are closed. But in  
17 the succeeding years, the fisheries were good. Alaska  
18 was experiencing some very good times in terms of the  
19 marine environment survival rates are higher than  
20 normal, higher than, say, back in the '70s, and so the  
21 returns are very good. But because these embryos did  
22 not survive, there's estimated to be 2 million fish that  
23 did not return. So that was a long-term impact on them.

24           **Q. So that was 2 million adult pink salmon did not**  
25 **return --**

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1 A. Right.

2 Q. -- and were presumably lost because of the oil  
3 spill?

4 A. Yes.

5 Q. And you mentioned that the Deepwater Horizon  
6 contested some of these findings. Can you --

7 A. You mean Exxon contested these.

8 Q. Exxon. I'm sorry, Exxon contested them. Can  
9 you describe the nature of that contest, so to speak.  
10 How long did it go on? What was at stake?

11 MR. JOHNSON: Objection, relevance.

12 JUDGE NOBLE: What is the relevance of that?

13 MR. LOTHROP: So, Your Honor, Mr. Challenger  
14 talks about how natural resource damage assessment and  
15 the Oil Pollution Act operate to guarantee that  
16 resources will be made whole in the event of an oil  
17 spill. And in this circumstance, it seems to me that  
18 the time frame in which these determinations were made  
19 is relevant to the kind of -- the timing of remediation  
20 and potentially the success of remediation. So there's  
21 a temporal element here that's important to  
22 characterize. I used the word "contest," but I think by  
23 probing at that concept, we get to that temporal  
24 element; that it's not -- I would make an offer of proof  
25 that simply because there's an impact doesn't mean that

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1 there's a remediation, that sometimes these impacts are  
2 contested. That's what I would like to get at, Your  
3 Honor.

4 JUDGE NOBLE: I think I'm going to sustain  
5 the objection. And he can testify to that process, but  
6 that specific example, I'm not sure that the relevance  
7 is direct enough to allow it. So I think that just in  
8 general -- the temporal aspect of recovery, I think  
9 that's -- that is a permissible area of inquiry. I'm  
10 sustaining the objection.

11 MR. LOTHROP: I would admit that Tesoro and  
12 Exxon are different corporations.

13 JUDGE NOBLE: Thank you. So noted.

14 MR. LOTHROP: Thank you.

15 BY MR. LOTHROP:

16 **Q. So were there -- was the -- in the course of**  
17 **responding to the impacts of the Exxon Valdez spill, can**  
18 **you characterize the scientific endeavor engaged in by**  
19 **your laboratory and whether your results were useful in**  
20 **producing immediate actions?**

21 MR. LOTHROP: Is that fair, Your Honor?

22 A. I'll try.

23 JUDGE NOBLE: I don't hear an objection. It  
24 isn't quite what I had in mind. I want him to explain  
25 the temporal aspects to recovery in a non-specific way,

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1 just describing the process, rather than going over in  
2 great detail the previous oil spill experience.

3 BY MR. LOTHROP:

4 **Q. Well, Dr. Rice, if you could do that and address**  
5 **Judge Noble's question, that would be helpful.**

6 A. Okay. I think that historically the Exxon  
7 Valdez is -- I'll say a watershed event in that it  
8 changed how we deal with oil spills forever basically.

9 Prior to that, oil spills were dealt with -- I'm  
10 talking toward Canada and other spills, that once the  
11 oil spill was cleaned up, the oil spill was kind of  
12 over, counted the dead birds maybe, but that was it.

13 With Exxon Valdez there was a commitment -- it  
14 was a pristine area, very valuable fisheries -- what was  
15 the long-term effect of that. And so the damage  
16 assessment went on for a couple years; there was a  
17 settlement in 1991 for the natural resources. There was  
18 a civil suit by the fishermen in the '80s that continued  
19 on for a number of years, but the damage assessment went  
20 on and it continued.

21 Then the question became how long will it take  
22 for the natural system to recover, and we were getting  
23 mixed messages by that time. Some things are recovering  
24 relatively quickly. Bedrock exposure areas, probably  
25 one to two years, in that sort of neighborhood; some of

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1 the cobble beaches that had oil underneath, much longer.  
2 We had the long-term effect on a couple of species and  
3 there are other species too, but those are the three  
4 best ones that have the best data, so to speak, in terms  
5 of killer whales, the sea otters two decades, the pink  
6 salmon four years, those are the best examples of  
7 species recovery.

8 THE WITNESS: Does that answer your  
9 question?

10 JUDGE NOBLE: I was just waiting for you to  
11 get to the point where you would be extrapolating your  
12 findings from that other situation to a more general  
13 understanding of the process.

14 THE WITNESS: By "process," I'm not sure  
15 what you mean by that.

16 JUDGE NOBLE: Of recovery from an oil spill.

17 THE WITNESS: You mean a biological process?

18 JUDGE NOBLE: Yes.

19 THE WITNESS: Okay. Well, nature will take  
20 care of itself, if it doesn't continue to get more  
21 taxed, so to speak, more -- new spills on top of old  
22 spills. It will take time. Some of the parts will  
23 recover much quicker than others. The bedrock bench,  
24 the heavy exposed areas to weather, for example, those  
25 will recover faster than I think the more sensitive

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1 environments, such as the wetlands or sandy tidelands,  
2 those sorts of places will take longer, especially if  
3 they're quiet areas without weather beating on them.

4 JUDGE NOBLE: Thank you.

5 BY MR. LOTHROP:

6 Q. Dr. Rice, I believe Mr. Challenger suggested  
7 that mammals will tend to avoid spilled oil. What was  
8 your experience?

9 A. Well, our experience is not that. I think that  
10 they are smart animals, and whatnot, and if they have  
11 choices, if they're given clear choices, they probably  
12 would come to the conclusion that that's a bad idea and  
13 I should go over here.

14 But for a killer whale, for example, it comes up  
15 underneath an oil slick and before it hits the surface  
16 will exhale. And I can ask each of you to exhale and  
17 then how long can you hold your breath? After you  
18 exhale, you've only got seconds before you have to  
19 breathe. And that's the case with the killer whales.  
20 They blow, oops, there's oil there, they have to  
21 breathe, those fumes of benzene, toluene, xylene, for  
22 example, are there, they inhale them into their lungs  
23 and probably presumably got affected that way.

24 The sea otters, they're there digging holes.  
25 They're -- you know, once they get oil on them, maybe

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1 abandon that hole, but they've got oil on their paws and  
2 fur and have to preen and that sort of thing. So  
3 it's -- I think that to assume that the mammals will  
4 avoid the oil is just not the case. Birds are smart  
5 animals too, but they're not going to avoid what they  
6 don't know.

7 **Q. Let's talk a little bit about the pink salmon**  
8 **studies and if you can describe them and those -- well,**  
9 **please describe the pink salmon studies and -- that were**  
10 **done after the Exxon Valdez spill.**

11 A. Well, basically, these studies, there's field  
12 studies that ADF&G did. There's laboratory studies --

13 **Q. Slow down a little bit.**

14 A. Alaska Department of Fish & Game. They did the  
15 field studies to assess how many dead embryos that were  
16 in the oil streams versus un-oiled streams. A very  
17 large study. We did laboratory studies to look at a  
18 sensitivity sort of thing and later we did lab, field,  
19 combo-type experiments. And these studies are precedent  
20 setting, finding dead fish after an oil spill is not  
21 common, to be honest. And the reason is it's easy to  
22 get an acute exposure to a surface animal, like a bird,  
23 can die either from the acute toxicity or from  
24 hyperthermia, but to get a lethal load into a subsurface  
25 animal is more difficult. Oil has to get into the water

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1 and then into the organism and we seldom get that sort  
2 of combination, to be honest. And so the animals there  
3 are going to be exposed more to a sub lethal dose that  
4 may prove harmful over time, but it takes a little  
5 longer.

6 So the fish and game studies that looked at  
7 embryo mortalities in the oil streams, those were  
8 unprecedented, especially after year one. Year two,  
9 three and four, they were basically surprising. So we  
10 did studies that confirmed there is oil still in the  
11 banks alongside the oil streams, so the oil exposure was  
12 potentially there. We did a study that showed you can  
13 get oil from the bank down into the salmon redds using  
14 well points. Put a dye in here, pick it up there. We  
15 could see that happening.

16 We did the toxicity exposures, which are  
17 relatively long term, into a low dose because we knew  
18 for the oil to get to those embryos, it had to be a very  
19 low dose. Our previous tests prior to the spill showed  
20 it took parts per million of PAH, that's polycyclic  
21 aromatic hydrocarbons. That's the toxic fraction in  
22 oil. It took -- it took like a parts per million to  
23 kill them in an acute situation, but this wasn't that.  
24 It was more of a chronic situation.

25 So we lowered the dose down into the parts per

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1 billion, so that's three orders of magnitude lower than  
2 a part per million. And basically after a long exposure  
3 of several months, which is how long pink salmon, for  
4 example, incubate in the ground, they spawn in  
5 September, they hatch in about Christmas time, they come  
6 out of the gravels in March and April, so they're in  
7 those spawning gravels for six to almost nine months,  
8 eight months. So we had those sorts of lengthy  
9 exposures to really low doses. These are doses that you  
10 can't see in the visible oil, doses that don't have any  
11 odor to them but they're low.

12 And we could -- initially we saw some increases  
13 in abnormalities, like deformed fins and bent spines,  
14 meaning that they're not going to survive. And that was  
15 kind of a smaller percentage. It went from, you know,  
16 maybe a tenth of a percent up to 1 to 2 percent. So it  
17 wasn't an amount that smacked you in the face, so to  
18 speak.

19 Later we took the live animals that came out fry  
20 and grew them and we found that the ones that were  
21 exposed to parts per billion as an embryo but later in  
22 clean water didn't grow as fast. So there was a  
23 residual effect that affected their growth compared to  
24 the untreated, unexposed controls.

25 Later we advanced those studies even more by

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1 exposing thousands of embryos in order to get thousands  
2 of fry that we then wire tagged with a small coated wire  
3 tag in the nose and then released them to the  
4 environment. We would have 75,000 control, 75,000 low  
5 dose, 75,000 medium dose and 75,000 high dose. Took a  
6 couple of weeks to get through the tagging of these  
7 different dose groups, each one being tagged equally per  
8 day, released. They would go out to the marine  
9 environment then for about a year and three months and  
10 then return as adults. And then the wire tags had to --  
11 out of the nose had to be decoded in order to identify  
12 which of the dose groups. And basically we found that  
13 if we expose them to about 18 parts per billion of PAH  
14 that we got a 40 percent -- 40 percent decline in adult  
15 returns. If we expose them to 5 parts per billion, we  
16 got a 20 percent decline. So that didn't kill all of  
17 them. They all looked healthy when they left, but  
18 these -- two different dose levels decreased their  
19 potential to survive. Were they slower? Were they  
20 smaller? Don't really know what the precise mechanism  
21 is, but they didn't come back in as good of numbers.

22 Later John Incardona -- well, let me just say  
23 that these studies, then, were unprecedented and they  
24 then affected how oil spills, Cosco Busan and then later  
25 Deepwater Horizon, were going to be studied and they

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1 were going to be studied much more intensely. You know,  
2 persistence was a big effect in the beaches, and these  
3 effects on both the sea otters and on the pink salmon  
4 were unprecedented. So they then affected how other  
5 spills might adapt, so to speak, and how the research on  
6 them would be done.

7 In the Cosco Busan and also in the Deepwater  
8 Horizon, John Incardona out of the NOAA Seattle lab  
9 advanced our experiment, so to speak, looking at other  
10 embryos and looking deeper, drilling down, so to speak,  
11 to try to find out what the mechanism is and basically  
12 did a great job. We then later also collaborated with  
13 him on some studies. I have a publication with him on  
14 pink salmon and herring, for example, where the heart is  
15 affected, heart rate is affected. So it's a good time  
16 to go to that figure?

17 **Q. Sure.**

18 MR. LOTHROP: Ms. Mastro, could you call up  
19 Exhibit 5108, please.

20 A. If you can pause it right there. Pause.

21 BY MR. LOTHROP:

22 **Q. And please remember to use your microphone.**

23 A. So this is John Incardona's work that he  
24 published in 2014 with coauthors. He did this work with  
25 three different species of southern bluefin tuna. This

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1 one -- this happens to be amberjack, and later we'll see  
2 yellowfin tuna up there, exposing these embryos to low  
3 doses part per billion type doses. I'll also talk about  
4 another study done by Mager, et al., same year, to a  
5 different species.

6 But what I wanted to show you is how this embryo  
7 is functioning, if I can. So here is the eye and head  
8 and fin is going on, here's the backbone and here's the  
9 cord going back. This is yolk material in here. A  
10 large oil droplet here, natural oil. This is energy in  
11 their yolk. And this structure there is the heart.  
12 Okay. And this here is the yolk sack and if you could  
13 advance to the control one -- excuse me, the exposed  
14 one. You can see the heart beating here. One, two,  
15 three, four, five, six. Okay. So now this is an  
16 exposed one, and we see that this sack here is much  
17 enlarged. The biggest deal, though -- this is yellowfin  
18 tuna control. Go ahead. One, two, three, four, five,  
19 six. We'll get to the yellowfin tuna. It's exposed.  
20 One, two, three, four, five. So you see a huge -- I  
21 want you to pause. Thank you. You can see this sack  
22 here is edema. It's really large, abnormally large,  
23 puts pressure on the heart, affects its development and  
24 the heart beat is affected.

25 Now, there's this huge effect downstream of the

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1 heart. This heart is pumping oxygen into internal  
2 tissues especially. It's pumping nutrients coming out  
3 of the yolk material to the rest of the body so it can  
4 grow. So when the heart's affected, as you can well  
5 imagine applying that to yourself or maybe a baby in a  
6 womb, the heart's not functioning properly, you're not  
7 going to expect a lot of good things to happen after  
8 that and that's, in fact, what happens. These animals  
9 don't do as well.

10 In studies -- other studies by Incardona and  
11 another study by Mager, they actually put these larva on  
12 a treadmill after they've been growing for about  
13 304 days, treadmill meaning just a current of water, to  
14 look at their swimming performance, and the animals that  
15 have been exposed, in Mager's case that was mahi-mahi,  
16 to less than a part per billion for two days, 48 hours,  
17 then hatched, then grown for 30 days, those fish had  
18 poorer swimming performance than the unexposed controls.

19 So you can see, then, if you affect the heart,  
20 other tissues are likely to be affected. The swimming  
21 performance is going to be affected. Their prey  
22 ability, so to speak, they're going to be prey longer,  
23 less effective at swimming and avoiding prey, less  
24 effective at being a predator themselves acquiring  
25 energy and growing out of that predation stage that

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1 they're caught up in.

2 So you can see how there would be this long-term  
3 effect. Did oil kill these animals directly? No, it  
4 didn't. But did they survive the environment, come back  
5 and reproduce? Not likely at all. And that's how oil  
6 kills. It doesn't kill by a direct method. It can in  
7 the birds, but it doesn't -- it's never going to kill  
8 fish directly. It's going to kill them kind of  
9 indirectly. It's going to affect them, their swimming  
10 performance if they're an embryo; maybe affect their  
11 reproductive capability if they're a returning adult,  
12 like Dr. Penney was talking about, maybe their behavior  
13 is affected, their energy level is going to be  
14 increased, they've got to consume more energy which  
15 means less energy going to their eggs, less energy  
16 available to get to their spawning stream that they're  
17 genetically adapted to. So these are all the sublethal  
18 affects that can happen to these animals.

19 **Q. Thank you. I would like to shift gears a little**  
20 **bit and talk about relevant oil spills.**

21 A. About which? Relevant oil --

22 **Q. Relevant. Or potentially relevant oil spills to**  
23 **a Columbia River experience. Mr. Challenger covered**  
24 **several of those in his testimony.**

25 A. Yeah.

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1       **Q.    Let's start with the 1984 Mobil oil spill.**

2       A.    Right.

3       **Q.    Can you characterize that spill for the council?**

4       A.    Well, it's arguably one of the most important  
5 oil spills that could have been covered more both in the  
6 EIS and also Mr. Challenger's testimony.  The big thing  
7 I get out of the 1984 oil spill that happened at -- I  
8 forget the name of the rock.  A few miles downstream  
9 from the proposed facility, but basically, what,  
10 50 miles upstream, something like that, from the mouth.  
11 And basically, the oil got to the mouth within 72 hours.  
12 So that oil -- and it's only about three -- the  
13 equivalent of three train cars spilled, maybe four,  
14 three or four train cars, so it's not a huge oil spill.  
15 But that oil got all the way to the mouth in less than  
16 three days.  Then it was carried north up the Washington  
17 coast to a couple of the bays, killing birds along the  
18 way and -- so it kind of told you that -- easy for me to  
19 interpret, that the current is a dominating factor here.  
20 Current is going to take that oil.

21       Now, in addition, NOAA determined chemically  
22 that the oil was, of course, on the surface.  You can  
23 see that.  Got along the shoreline in various places,  
24 including on the outer ocean beaches.  They also  
25 detected oil in the water column and they detected oil

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1 in the sediments downstream. So here you have a medium  
2 oil, roughly not as thin as Bakken oil, not as heavy as  
3 dilbit --

4 **Q. Did you mean -- go ahead. I'm sorry.**

5 A. It's just a medium oil. But it was able to mix  
6 down into the water column, down into the sediments.  
7 NOAA Fisheries, also out of the Seattle lab, Peggy Krahn  
8 to be exact, detected oil chemically in the mouths of  
9 sturgeon and in the tissues of sturgeon in that oil  
10 fingerprint, not the tissue oil, but the other oils  
11 fingerprinted back to the Mobil oil spill. So this is  
12 pretty informative when -- if you're going to boom this  
13 oil off, you have to be there. You have to be ready.  
14 And that -- that is kind of maybe what could happen at  
15 the facility itself. But any spill upstream with rail  
16 cars, downstream on a vessel coming in or leaving full,  
17 are you really going to have booms already there? So  
18 it's a problem. Current is going to move that oil.

19 With the system of the Columbia, you can see the  
20 swirls and eddies and, of course, the river meanders  
21 through the Gorge and areas and has a lot of energy.  
22 And so it's easy to see how that oil gets mixed into the  
23 water column. Not all of it; some.

24 To me the current of the river has a range  
25 roughly one to five, six knots, depending on where

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1 you're at, what the tidal level is, et cetera, and  
2 that's kind of the range. Well, the range of  
3 effectiveness on booms is up to about one, one and a  
4 half knots. So they just barely overlap in a couple of  
5 places. So I guess it's just hard for me to conceive  
6 that booms are going to be effective.

7 Should you use booms? Yes, you should. The  
8 responders should do everything they can to minimize  
9 that spill, but to depend on them, to think that they're  
10 going to be protective of the river on a large scale  
11 basis is, I think, not appropriate thinking there.

12 **Q. There are -- in your review of the information**  
13 **preparing for this proceeding, did you encounter other**  
14 **spills where booming oil just wasn't, you know, I'll use**  
15 **the word "effective"?**

16 A. Well, there's another spill on the Mississippi  
17 barge and it's -- I don't remember the numbers, didn't  
18 have a name on the spill, that he referred to also. And  
19 it's spilled on -- not a lot of oil. There was a gash  
20 in the barge on the Mississippi River, but the slip was  
21 seen 40 miles downstream. Booming wasn't able to get  
22 there. The recovery here was .3 percent -- 0.3 percent.  
23 That's not very much recovery. It was Bakken oil so it  
24 moved easily. Certainly some of that oil evaporated;  
25 Bakken has a pretty good evaporation potential to it.

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1 But that also means that whatever didn't evaporate,  
2 then, is still in the environment to be -- for the  
3 environment to deal with.

4 **Q. How about the Deepwater Horizon? What kind of**  
5 **recovery rates were experienced there?**

6 A. There roughly in the -- less than 10 percent for  
7 straight -- for the skimming activities. They had an  
8 armada of boats but yet they recovered less than  
9 10 percent. Some of the booming and skimming  
10 activities, they lit -- some of the back booms with --  
11 had fire booms, they could light that. That elevated --  
12 that removed another several percent. So it got up into  
13 double digits. But basically, certainly there was some  
14 evaporation also. So between evaporation and the  
15 booming, the collecting, skimming and the burning, it --  
16 more than half of that oil is in the environment for the  
17 environment to be dealt with. You know, it's not  
18 successful.

19 **Q. So Mr. Challenger also talked about the Enbridge**  
20 **spill.**

21 A. Yeah.

22 **Q. Can you give us -- give the council a little bit**  
23 **more information about the --**

24 A. The Enbridge spill is a pipeline that spilled  
25 dilbit into the Kalamazoo River, so that makes it kind

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1 of relevant to the Columbia River. Mr. Challenger  
2 reported that about 15 to 18 percent of that sunk. And  
3 then one of you asked, well, how much was spilled  
4 initially, and he didn't remember.

5 This is the largest land-based spill in the US.  
6 It's close to around a million gallons. The EPA fact  
7 sheet -- this is a spill in 2010. The EPA fact sheet  
8 reports that the spiller reports about 800 and it was  
9 elevated to mid 800,000 barrels were spilled -- gallons,  
10 excuse me. 800,000, to later up to about  
11 840,000 gallons were spilled. EPA reports that  
12 1.1 million gallons were recovered. So there's a  
13 disconnect there, but that's kind of understandable, I  
14 guess.

15 EPA -- there's dredging activities, recovery  
16 activities through 2013. Their testing was not --  
17 proved that there was still too much oil on the bottom  
18 because of this 15, 18 percent, which doesn't sound like  
19 much until you multiply that times a million gallons,  
20 and then that becomes 150,000 to 180,000 gallons on the  
21 bottom.

22 After -- in 2013, they ordered another round of  
23 dredging activities to do further cleanup, which ended  
24 in mid 2014 or so. The total dredging material removed  
25 was 500,000 cubic yards. That's over 30 million

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1 gallons, if I convert yards to gallons. But 500,000  
2 cubic yards were removed over a 40-mile stretch of the  
3 river. EPA's tests then confirmed that there's still  
4 about 160,000 gallons of oil still there, but doing more  
5 dredging may do more harm than good. The point is that  
6 dilbit's going to be there for a long, long time. It's  
7 very difficult to deal with when it sinks.

8 When I apply that to the Columbia River  
9 situation, that's kind of bothersome. Of course, it  
10 would be -- to have that much dredging going on is going  
11 to affect the habitat. To have that persistence,  
12 persistence is going to be at the order of I would say  
13 decades. The only hope is that it would get covered up  
14 and sealed off from the rest of the environment.

15 But to take a species like sturgeon, who inhabit  
16 the bottom, who are living literally on top of those  
17 sediments, feeding on top of those sediments, the Mobil  
18 oil spill found oil and oiled sediments in the mouths of  
19 sturgeon, it's kind of frightening. Takes 25 years for  
20 that female to get sexually mature and she's going to  
21 reproduce maybe every two to five years for who knows  
22 how long. Life expectancy may be up to 80, 100 years,  
23 something of that sort. That's a lot of long-term  
24 exposure potential for that animal. A lot of long-term  
25 potential decreases in morbidity and survivability of

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1 the embryos and all those sorts of issues start to come  
2 into play to make you wonder if you'll be able to  
3 succeed there.

4 MR. LOTHROP: Thank you, Dr. Rice. That's  
5 all my questions for now.

6 JUDGE NOBLE: Cross-examination of Dr. Rice?

7 MR. JOHNSON: Thank you.

8 CROSS-EXAMINATION

9 BY MR. JOHNSON:

10 Q. Dr. Rice, I'm Dale Johnson. I'm one of the  
11 counsel for the applicant in the case. I think I'll  
12 pick up where you were leaving off, or almost leaving  
13 off. You referenced the Mobil spill in the Columbia  
14 River.

15 A. Yes.

16 Q. When did that occur again?

17 A. That's in 1984.

18 Q. And to your knowledge, have there been any  
19 changes in response in spill capabilities in technology  
20 since 1984?

21 A. Certainly there has.

22 Q. Okay. And would you characterize those as being  
23 improved?

24 A. Well, sure.

25 Q. Okay.

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1 A. We're better than we used to be.

2 Q. And, in fact, the crude that was spilled in the  
3 Mobil spill was substantially heavier than the API of  
4 the Bakken crude that will be processed at the Vancouver  
5 Energy terminal; isn't that right?

6 A. That's correct. It's also less than the dilbit,  
7 though. It's in between.

8 Q. I'm sorry?

9 A. It's in between.

10 Q. Okay. But the fate and transport of that oil  
11 differs from Bakken crude, correct?

12 A. Absolutely.

13 Q. Okay. Would you agree that -- with regard to  
14 impacts on wetlands, that the timing of response action  
15 and the ability to flush the oil out or potentially to  
16 even engage in replanting activities to rehabilitate  
17 wetlands is a key factor in their recovery rate?

18 A. Yes. And we've come a long way since 1984 in  
19 that regard also.

20 Q. Okay. And then -- just a point of  
21 clarification. You were talking about the pink salmon  
22 runs in Alaska following the Valdez spill. And I  
23 thought you said that 2 million pinks did not return  
24 because of the spill; is that right?

25 A. That's the estimated amount, yes.

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1 Q. Okay. But then you also made comments about a  
2 very robust fishery in the years following the spill.

3 A. That's correct.

4 Q. So is it your testimony that those robust  
5 fisheries would've been even more robust had the  
6 salmon -- with the additional 2 million not returned?

7 A. That's correct. That would have been 2 more  
8 million robuster.

9 Q. I see. Okay. All right. So it's fair to say  
10 that while there may have been impacts to the pink  
11 salmon runs there, the total population of the pink  
12 salmon recovered, correct?

13 A. I didn't get the question.

14 Q. Well, the total population of the pink salmon in  
15 Prince William Sound ultimately recovered from the  
16 impacts of the spill.

17 A. Correct. The total population was basically in  
18 good shape in spite of the spill. And that has an awful  
19 lot to do with the area it's spilled in. In other  
20 words, there was -- I think it's 2,000 streams in Prince  
21 William Sound. Only a fraction of those, I would say  
22 20 percent, I don't remember the number, were exposed.  
23 So there's -- not everything was exposed.

24 Q. Okay. And so if not all areas where salmon are  
25 present, I suppose in any form, whether they're adult

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1 salmon or embryo or fry, are not exposed, then that  
2 enhances the recovery rate for impacted salmon  
3 population?

4 A. I guess -- let me phrase your question this way,  
5 if I can. I'm not sure I understand.

6 **Q. I'm not trying to confuse you.**

7 A. I think what you're saying is because there are  
8 areas in Prince William Sound, for example, that weren't  
9 exposed, that they were there to help with the recovery.  
10 And there's some truth to that. One of the strategies  
11 of pink salmon is there's a large amount of straying  
12 that's natural. And so there's -- that's their  
13 strategy. Other species, Sockeye, Chinook, et cetera,  
14 have multiple years so that if you knock out one year,  
15 you have other years that can come in. Well, pink  
16 salmon don't have that strategy at all, but they do have  
17 a straying strategy. They don't stray hundreds of  
18 miles, but if you have five creeks that come into one  
19 bay, for example, they probably might focus on one and  
20 have significant straying into the other three or four.

21 **Q. Okay. And just to clarify, because you were**  
22 **discussing this in the context of the pink salmon**  
23 **studies, and I thought you referenced oil stream. So is**  
24 **it correct that there were streams and stream beds that**  
25 **were actually oiled as a result of the Exxon Valdez**

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1 spill?

2 A. Let me clarify that. There is -- because of  
3 this intertidal zone that's around 20 feet vertically,  
4 that can be two or 300 yards laterally. And so at low  
5 tide, that oil comes in -- or high tide, it  
6 contaminates -- well, contaminates everything except for  
7 the actual stream bed itself, which has water whose oil  
8 floats. But right along immediately aside of it --  
9 alongside it, that is contaminated. And the  
10 contamination in some bays rose and fell, rose and fell  
11 multiple tide cycles. And so the contamination into the  
12 sides of those banks was quite significant, but not  
13 actually into the spawning beds. The spawning beds  
14 require the water hydraulically, basically, as the tide  
15 goes out, will flow through the cobble alongside the  
16 bank and down into the beds and that's how they get the  
17 exposure.

18 **Q. Okay. But they were being exposed to the oil in**  
19 **their spawning grounds; is that right?**

20 A. That's correct.

21 **Q. All right.**

22 A. There's also fry migration, which I didn't talk  
23 about. Once they come out, there's growth impacts on  
24 fries. They migrate alongside. Two different studies  
25 determined that. That would be kind of analogous to the

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1 smolts coming down the river, that they could pick up  
2 exposures just by going along the sides of an oiled  
3 bank.

4 Q. Okay. But the river is not analogous to the --  
5 to the sound, where there's this tidal action moving oil  
6 into, in effect, the spawning ground, correct?

7 A. I guess I don't understand your question.

8 Q. Well, let me just ask what your understanding of  
9 the Columbia River -- the spawning grounds in the  
10 Columbia River.

11 A. Okay. Well, I know they're upstream, mostly in  
12 tributaries. Sturgeon spawn in the mainstem.  
13 There's minimal -- I don't want to say "minimal," I'm  
14 not sure, but I know there's some mainstem spawning by  
15 Chinook but not -- I would guess not an overwhelming  
16 amount in the tributaries.

17 Q. Okay. And you talked about a one-tenth of a  
18 percent to 2 percent, and I'll call it deformation, and  
19 I know that's probably not the technical term, but  
20 impact on the salmon. Presumably there's some of that  
21 that occurs naturally; is that correct?

22 JUDGE NOBLE: Dr. Rice, before you start to  
23 answer, slow down.

24 THE WITNESS: Okay. Thank you.

25 JUDGE NOBLE: Thank you.

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1 A. I'm sorry, what was the question?

2 BY MR. JOHNSON:

3 Q. Well, I was just asking -- you talked about  
4 impacts in terms of some deformed fish, and I was asking  
5 about whether that occurs naturally.

6 A. It does at a low rate and that's basically in  
7 probably any population that has a small amount of  
8 deformity, so it will develop for either environmental,  
9 possibly for genetic reasons, I suppose, too. But what  
10 we saw with the oil exposures, we saw an increase in  
11 that. And that's the first visible sign that we see of  
12 an impact, so we know that the dose is causing an  
13 effect. Later we could chemically analyze them, we  
14 could use a biomarker test, for example, that would  
15 stimulate, and visually you could tell that they were  
16 being exposed also.

17 Q. Okay. And then sticking with this -- the pink  
18 salmon studies, you talked about exposing thousands of  
19 fry and releasing them. So is that exposure in a  
20 controlled setting? I don't know if laboratory setting  
21 is fair, but in some setting other than a natural  
22 setting?

23 A. Yeah. It was exposed in basically a hatchery  
24 situation. And so we had probably a hundred or so. I  
25 don't remember the number. But a hundred or so

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1 incubators, which meant that there was a lot of  
2 replicate incubators filled with gravel with embryos in  
3 them, exposed to oil. That was repeated for a dose.  
4 Another group that was at a different dose. Another  
5 group that was controls. And their collections were  
6 kept separate by dose.

7 **Q. And then when they returned, presumably you were**  
8 **able to trace those back to the specific dose; is that**  
9 **correct?**

10 A. Correct. The reason why we did it, this  
11 particular site happens to be in Little Port Walter in  
12 Southeast Alaska. We have a hatchery and an  
13 experimental hatchery there. And so it has a weir. So  
14 every animal that came back that had the adipose fin  
15 clipped, boom, it went off to the side, wasn't allowed  
16 to go up the stream and spawn. So we collected on all  
17 the exposed ones and we had to dissect out the coded  
18 wire tag and decode it.

19 **Q. Okay. Earlier today, Dr. Penney testified that**  
20 **there's a difference between what happens in the**  
21 **laboratory and what happens in the field. Do you agree**  
22 **with that statement?**

23 A. Absolutely. The labs do a great job of  
24 isolating one factor at a time, one factor. And using  
25 that as a single variable trying to figure out what the

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1 potential is of that factor. Unfortunately, the  
2 environment is full of tens if not thousands of  
3 different factors. And so it makes it difficult.

4 When we look at oil spills, no two oil spills  
5 are ever the same, and yet there's some generalities, so  
6 to speak, principles that carry over from one to the  
7 other because they are imperfect in terms of an  
8 experimental sense.

9 So in this one project that I talked about  
10 extensively, where we did controlled laboratory  
11 exposures, where we controlled one variable, the dose,  
12 but then we tagged and released the animals out to the  
13 environment where they undergo the pressure of  
14 predation, they have to acquire food, they have to hurry  
15 up and learn how to eat something, a copepod or  
16 something like that that's wild out there, they have to  
17 go out and migrate, they have to come back. So that has  
18 a whole bunch of -- a whole suite of other stressors.  
19 Is it a perfect environmental experiment? No. But it's  
20 the best we could do.

21 **Q. Are there studies that have assessed -- I know**  
22 **you talked about the exposure -- crude oil exposure**  
23 **studies on other species, like yellowfin tuna,**  
24 **mahi-mahi, et cetera. Are there other studies that have**  
25 **been conducted on other salmonids like Chinook, coho,**

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1 chum and/or steelhead?

2 A. Not of this category. I think I saw maybe one  
3 on coho recently. I believe Incardona's lab has done  
4 something on coho. I think that was -- had to do with  
5 survivability performance, that sort of thing, coming  
6 back to urban streams in Puget Sound. But that's -- I  
7 think our pink salmon was the only salmonid model out  
8 there, so to speak.

9 **Q. Okay. And with regard to the heart rate**  
10 **discussion, I noted you said that the mahi-mahi study**  
11 **was -- involved embryos exposed for 48 hours at parts**  
12 **per billion. What was the dose rate for the yellowfin**  
13 **study?**

14 A. Those are a little bit higher. Those are in the  
15 single digit, like 5 or 8 parts per billion. I don't  
16 have that on my little fingertips. It's down in the  
17 part per billion range, but the mahi-mahi was probably  
18 the lowest.

19 **Q. Okay. Are you familiar with how booms are used**  
20 **in currents that are in excess of the current at which**  
21 **the boom is listed to be effective?**

22 A. My understanding, you can put boom after boom  
23 after boom. So, yeah, I have some understanding of  
24 that. I'm not a response expert, but I have seen booms  
25 in action, both working and failing.

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1           **Q.    Okay.  And the Enbridge spill, that was a**  
2 **pipeline spill, correct?**

3           A.    Yeah.  It was a pipeline spill and because of  
4 human error was allowed to flow about 17, 18 hours  
5 before they stopped it.

6           **Q.    All right.  And just, again, back to the Mobil**  
7 **oil spill and -- if you've answered this, you can tell**  
8 **me, but you talked about the type of oil that was**  
9 **involved in that spill.  Do you know specifically the**  
10 **API gravity of that oil?**

11          A.    No, I don't keep that in my mind.  I can read  
12 it.

13          **Q.    All right.  Just check my notes here real quick.**  
14                **One other question.  You described the Exxon**  
15 **Valdez spill as a watershed event.  Isn't it true that**  
16 **the Oil Pollution Act was enacted shortly thereafter?**

17          A.    It was.  It's called the Oil Spill Act of 1990,  
18 and it had been running around Congress in half a dozen  
19 forms for probably six, eight years.  And basically a  
20 year after, the summer after '89, year and three months  
21 or so was passed in the form that it is now.

22          **Q.    Okay.  Great.**

23                   MR. JOHNSON:  Thank you.  Nothing further,  
24 Your Honor.

25                   JUDGE NOBLE:  Redirect?

1 MR. LOTHROP: Nothing, Your Honor.

2 JUDGE NOBLE: Council questions? I see no  
3 council questions.

4 Thank you, Dr. Rice, for your testimony.  
5 You are excused as a witness.

6 THE WITNESS: Thank you.

7 JUDGE NOBLE: Are there further witnesses  
8 this afternoon?

9 MR. LOTHROP: Your Honor, I don't have any  
10 further witnesses.

11 JUDGE NOBLE: All right. Ask your  
12 colleagues if they have further witnesses.

13 MR. LOTHROP: Any further witnesses,  
14 colleagues?

15 MS. BOYLES: No, Your Honor, we have no  
16 further witnesses this afternoon.

17 JUDGE NOBLE: Alas, we are finished early  
18 today. Is there anything we need to do other than a  
19 rundown of Monday's witnesses today on or off the  
20 record?

21 MR. JOHNSON: I don't think so, Your Honor,  
22 not from the applicant.

23 JUDGE NOBLE: All right.

24 MS. BOYLES: On to Monday.

25 JUDGE NOBLE: Monday.

1 MS. BOYLES: We will now tag team the  
2 witnesses for Monday, Your Honor. We have Mr. David  
3 Wechner, who will testify about land use planning and  
4 facility conflicts. He has prefiled testimony and he  
5 is -- will also rebut the testimony of Mr. Carrico.

6 MR. KERNUTT: Counsel for the Environment  
7 will be calling Mr. Holmes -- I'm sorry, this is Matt  
8 Kernutt, Counsel for the Environment. I will be calling  
9 Mr. James Holmes, who will testify regarding natural  
10 resource damage assessments, as well as the ABT report  
11 that has been referenced throughout the proceeding.

12 I will also be calling Dr. Eric English, who  
13 will testify regarding recreational and commercial  
14 fishing impacts. He was also one of the coauthors of  
15 the ABT report.

16 Mr. Holmes will be addressing some of  
17 Mr. Challenger's testimony. Dr. English will be  
18 addressing some of Mr. Schatzki's testimony.

19 JUDGE NOBLE: And I'm trying to remember the  
20 prefiled testimony for Holmes and English.

21 MR. KERNUTT: I apologize. Both filed  
22 prefiled testimony.

23 JUDGE NOBLE: Is that it?

24 MS. CARTER: I'm the last of the tag team  
25 here. The tribes will be calling Chief Mitch Hicks and

1 Mr. Michael Broncheau. This is a joint testimony. And  
2 they will be discussing fishing enforcement, fishing  
3 access sites, tribal first response. And they will also  
4 be rebutting the testimony of Haugstad, Rhodes and  
5 Dr. Taylor.

6 On deck we have Mr. Paul Lumley, who's the  
7 final tribal witness on -- he will be speaking to tribal  
8 fisheries and culture and rebutting the testimony of  
9 Mr. Challenger.

10 JUDGE NOBLE: And Hicks, English and --  
11 Hicks and Broncheau had prefiled testimony?

12 MS. CARTER: Yes. Sorry. All three of  
13 these witnesses will have had prefiled testimony.

14 JUDGE NOBLE: All right. That would be good  
15 if we could get through all of that on Monday. And do  
16 we have any news on Dr. Barkan -- Mr. Barkan?

17 MR. JOHNSON: Yes. He will be here  
18 Wednesday morning, Your Honor.

19 JUDGE NOBLE: Thank you. That's good news.

20 MR. JOHNSON: And we're prepared to begin  
21 our rebuttal case first thing Tuesday, if it works out  
22 that way, or whenever the last of the opponent witnesses  
23 are done.

24 JUDGE NOBLE: I think it will work out that  
25 way. I think it's justified expectation that you can

1 begin on Tuesday afternoon. Am I right?

2 MR. KERNUTT: I would agree with that, or  
3 even earlier than that. There is a strong likelihood  
4 that we will be done on Monday.

5 JUDGE NOBLE: All right. Just for the sake  
6 of the public following this, we will proceed onto the  
7 rebuttal case just as soon as the opponents have  
8 completed their case.

9 Is there anything further we need to do  
10 today?

11 MR. JOHNSON: No, Your Honor.

12 MS. BOYLES: No, Your Honor.

13 JUDGE NOBLE: All right. We are adjourned  
14 until Monday morning at 9:00. It will be in Vancouver  
15 on Monday morning. Thank you.

16 (Hearing adjourned at 4:04 p.m.)

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