BEFORE THE STATE OF WASHINGTON

ENERGY FACILITY SITE EVALUATION COUNCIL

In The Matter Of:	)	
Application No. 2013-01	)	
	)	
TESORO SAVAGE, LLC	)	Case No. 15-001
	)	
VANCOUVER ENERGY DISTRIBUTION	)	
TERMINAL	)	
	)	

HEARING, Volume 4

Pages 643 to 922

ADMINISTRATIVE LAW JUDGE CASSANDRA NOBLE

9:06 a.m.

June 29, 2016

Clark College at Columbia Tech Center
18700 SE Mill Plain Boulevard
Vancouver, Washington 98683

REPORTED BY: Micheal A. Johnson, RDR, CRR

Buell Realtime Reporting, LLC
1325 Fourth Avenue, Suite 1840
Seattle, Washington 98101
206.287.9066 | Seattle
360.534.9066 | Olympia
800.846.6989 | National

www.buellrealtime.com

1 A P P E A R A N C E S

2 ADMINISTRATIVE LAW JUDGE:

3 Cassandra Noble
Energy Facility Site Evaluation Council
4 1300 South Evergreen Park Drive SW
P.O. Box 43172
5 Olympia, Washington 98504-3172

6

7 EFSEC STAFF:

8 Sonia Bumpus
9 Tammy Mastro
Kali Wraspir
10 Joan Aitken
Max Smith
11 Paige Doyle
Energy Facility Site Evaluation Council
12 1300 South Evergreen Park Drive SW
P.O. Box 43172
13 Olympia, Washington 98504-3172
(360) 664-1345
14
Ann C. Essko
15 David Stearns
ASSISTANT ATTORNEY GENERAL
16 1125 Washington Street SE
P.O. Box 40100
17

18

19

20

21

22

23

24

25

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

2

3 COUNCIL MEMBERS PRESENT:

4

5 William Lynch - Chair
Jaime Rossman, Department of Commerce
6 Cullen Stephenson, Department of Ecology
Joe Stohr, Department of Fish and Wildlife
7 Dennis Moss, Utilities and Transportation Commission
Dan Siemann, Department of Natural Resources
8

9 Local Government and Optional State Agency:

10

11 Ken Stone, Department of Transportation
Bryan Snodgrass, City of Vancouver
12 Greg Shafer, Clark County
Larry Paulson, Port of Vancouver
13

14

15

16

17

18

19

20

21

22

23

24

25

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

2

3

4

5

6

7

8

9

10

11

12 FOR TESORO SAVAGE:

13 Dale N. Johnson
14 Jay P. Derr
Tadas A. Kisielius
15 VAN NESS FELDMAN LLP
719 Second Avenue, Suite 1150
16 Seattle, Washington 98104-1728

17

18

19 FOR PORT OF VANCOUVER:

20 David F. Bartz
21 SCHWABE WILLIAMSON & WYATT
1211 SW 5th Avenue, Suite 1900
22 Portland, Oregon 97204

23

24

25

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

2 FOR PORT OF VANCOUVER:

3 Connie Sue Martin
SCHWABE WILLIAMSON & WYATT
4 1420 5th Avenue, Suite 3400
Seattle, Washington 98101
5

6

7 FOR CLARK COUNTY BOARD OF COMMISSIONERS:

8 Taylor R. Hallvik
CLARK COUNTY
9 1300 Franklin Street, Suite 380
Vancouver, Washington 98666-5000
10

11

12 FOR THE CITY OF VANCOUVER:

13 E. Bronson Potter
Karen L. Reed
14 CITY ATTORNEY
415 W. 6th Street
15 Vancouver,Washington 98660

16

17
Susan E. Drummond
18 LAW OFFICES OF SUSAN ELIZABETH DRUMMOND, PLLC
5400 Carillon Point, Bldg. 5000, Suite 476
19 Kirkland, Washington 98033

20

21
FOR WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES:
22
Terence A. Pruit
23 ASSISTANT ATTORNEY GENERAL
1125 Washington Street SE
24 Olympia, Washington 98504-0100

25

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

2 FOR COLUMBIA RIVERKEEPER, ET AL.:

3 Kristen L. Boyles
Janette K. Brimmer
4 Anna Sewell
EARTHJUSTICE
5 705 Second Avenue, Suite 203
Seattle, Washington 98104-1711
6

7

8

9 FOR THE ENVIRONMENT:

10 Matthew R. Kernutt
ASSISTANT ATTORNEY GENERAL
11 1125 Washington Street SE
Olympia, Washington 98504-0100
12

13

14 FOR COLUMBIA WATERFRONT LLC:

15 Linda R. Larson
MARTEN LAW
16 1191 Second Avenue, Suite 2200
Seattle, Washington 98101
17

18
Daniel L. Timmons
19 MARTEN LAW
1001 SW Fifth Avenue, Suite 2150
20 Portland, Oregon 97204

21

22

23

24

25

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
Portland, Oregon 97232

FOR CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION:

Brent H. Hall
CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION
46411 Timine Way
Portland, Oregon 97801

FOR THE CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION:

Amber Penn-Roco
GALANDA BROADMAN
8606 35th Avenue NE, Suite L1
Seattle, Washington 98115

ALSO PRESENT:

Amanda Kleiss, Paralegal
Faron Scissons, Legal Administrative Assistant

1 HEARING
Volume 4: INDEX
2

3 WITNESSES: PAGE

4 RANDALL S. MCDOUGAL, JR.

5 Direct Examination by Mr. Johnson 657

6 Cross-Examination by Ms. Boyles 665

7 Cross-Examination by Ms. Brimmer 670

8 Redirect Examination by Mr. Johnson 687

9 Redirect Examination by Mr. Johnson 697

10 ERIC B. HANSEN

11 Direct Examination by Mr. Johnson 699

12 Cross-Examination by Ms. Brimmer 740

13 Redirect Examination by Mr. Johnson 771

14 MARC BAYER

15 Direct Examination by Mr. Kisielius 788

16 Cross-Examination by Ms. Boyles 857

17 Redirect Examination by Mr. Kisielius 884

18 DANIEL SHAFAR

19 Direct Examination by Mr. Johnson 886

20 Cross-Examination by Ms. Reed 903

21 Redirect Examination by Mr. Johnson 909

22

23

24

25

EXHIBITS

NUMBER	DESCRIPTION	REF'D
Exhibit 0001-000819-PCE	.....	699
Exhibit 0001-000842-PCE	.....	709
Exhibit 0124-000001-TSS	.....	657
Exhibit 0125-000001-TSS	.....	657
Exhibit 0127-000001-TSS	.....	788
Exhibit 0128-000001-TSS	.....	788
Exhibit 0191-000000-TSS	.....	786
Exhibit 0194-000276-TSS	.....	904
Exhibit 0209-000058-TSS	.....	887
Exhibit 0219-000010-TSS	.....	887
Exhibit 0220-000002-TSS	.....	887
Exhibit 0221-000018-TSS	.....	887
Exhibit 0278-000003-TSS	.....	670
Exhibit 0284-000003-TSS	.....	887
Exhibit 0285-000001-TSS	.....	887

EXHIBITS

NUMBER	DESCRIPTION	REF'D
Exhibit 0286-000001-TSS	.....	887
Exhibit 0290-000021-TSS	.....	787
Exhibit 0359-000004-TSS	.....	888
Exhibit 0001-000808-PCE	.....	701
Exhibit 5517-000001-CRK	.....	855
Exhibit 5521-000001-CRK	.....	674
Exhibit 5523-000001-CRK	.....	674

1 PROCEEDINGS
2 JUDGE NOBLE: We are back on the record in
3 the Washington Energy Facility Siting Council's Case
4 No. 15-001 in the Matter of the Application No. 2013-01,
5 Tesoro Savage LLC Vancouver Energy Distribution
6 Terminal.
7 We were in the midst of testimony yesterday,
8 and it's my understanding that we are interrupting the
9 testimony of Mr. Corpron to hear from Mr. Randy McDougal
10 in connection with some exhibits that were attached to
11 the prefiled testimony of Mr. Hack. And so that is --
12 testimony is going to be by telephone, and so we will go
13 off the record for just a moment to make the phone
14 connection.
15 Mr. Johnson, you look like you wanted to say
16 something.
17 MR. JOHNSON: Yes, Your Honor, before we
18 call the witness, I'd just like to note that on the
19 witness table are the -- is the physical evidence
20 itself, that is, the cross-section models that we'll
21 hear a proffer about.
22 Now, as you know, the normal procedure would
23 be to mark that physical evidence as an exhibit or
24 exhibits and offer the physical evidence into the
25 record. However, because of the constraints of the

1 prefiled testimony process, it was necessary for us to
2 take photographs of the physical exhibits and attach
3 them to the testimony. And so what we've been arguing
4 about the photographs, the basis for the issue is the
5 physical itself.
6 So in essence what we've done is we have
7 taken photos of the physical evidence as we would have
8 to do normally to put it into the record because the
9 physical evidence can't go into the record, so to speak.
10 So we kind of jumped the gun on that.
11 My question is, we're happy to offer the
12 physical evidence, that is, those exhibits, into the
13 record if you don't sustain the ongoing objection to
14 them and you allow it in. In the alternative, we would
15 just allow and use these as demonstrative exhibits and
16 then offer the photographs of them that were attached to
17 Mr. Hack's testimony.
18 JUDGE NOBLE: I think that it might be best
19 to use them as demonstrative exhibits and have you offer
20 photographs of them. The council will be able to view
21 the exhibits themselves, and my only concern is whether
22 or not it's possible to have them as exhibits in the
23 appeal. And so I want to consult with Ms. Essko about
24 that to see whether there would be any problems letting
25 them in as actual exhibits.

1 MR. JOHNSON: All right. And, again, Your
2 Honor, I mean, normally as -- with any physical
3 evidence, what we would do is at the time the record,
4 you know, is developed, we would take a photograph and
5 substitute it for the -- and so essentially that's what
6 we've done with the photos.
7 JUDGE NOBLE: Yes.
8 MR. JOHNSON: So we're happy to just stick
9 with the photos.
10 JUDGE NOBLE: Oh, you are? Okay. Well,
11 then --
12 MR. JOHNSON: But we wanted -- if, in fact,
13 you allow this evidence, we want the council to have the
14 opportunity to look at it, to look at the actual model.
15 JUDGE NOBLE: I agree. Well, then, we can
16 just use the photographs if they're admitted after we
17 hear from Mr. McDougal.
18 MR. JOHNSON: Thank you.
19 MS. BRIMMER: Your Honor, can I ask a
20 question? Just because of the fact that Mr. McDougal is
21 not actually physically present, does he have a copy of
22 the photos?
23 MR. JOHNSON: Yes, he does. He'll be
24 testifying to the photos. The exhibits have been
25 arranged in the same order they are in the photos, so

1 hopefully we can speak to him and he'll be able to be
2 looking at the photo and answer your questions as well
3 as mine.
4 MS. BRIMMER: I just wanted to sort of
5 connect up that he was looking --
6 MR. JOHNSON: Yes.
7 MS. BRIMMER: -- at the same thing we were
8 looking at.
9 MR. JOHNSON: Yes.
10 JUDGE NOBLE: Would you remind me of the
11 exhibit number. There were only two photographs.
12 MR. JOHNSON: That's correct, Your Honor.
13 It's exhibit -- the TSS Exhibit 124 and 125.
14 JUDGE NOBLE: Thank you. So why don't we go
15 off the record so that we can have the phone call made.
16 (Recess taken from 9:11 a.m. to 9:12 a.m.)
17 JUDGE NOBLE: Mr. Johnson, would you call
18 your next witness.
19 MR. JOHNSON: Yes, Your Honor. The
20 applicant calls Randy McDougal.
21 (Witness sworn.)
22 JUDGE NOBLE: All right. Please proceed,
23 Mr. Johnson.
24 MR. JOHNSON: Thank you.
25

1 RANDALL S. MCDOUGAL, JR.,
2 having been first duly sworn, testified as follows:
3 DIRECT EXAMINATION
4 BY MR. JOHNSON:
5 **Q. Mr. McDougal, thank you for taking some time**
6 **this morning to testify in this matter. My name is Dale**
7 **Johnson. I am one of the attorneys for Tesoro Savage**
8 **Petroleum Terminal LLC. We refer to that entity as**
9 **Vancouver Energy. And I have some questions about some**
10 **evidence in this matter. And this evidence that I'll be**
11 **referring to are models of various tank car types. And**
12 **I understand that you have been provided two photos of**
13 **those models; one is marked -- should be marked in the**
14 **lower right-hand corner as Exhibit 0125 with a series of**
15 **numbers after it. Do you have that photo?**
16 A. Yes, I do.
17 **Q. All right. And the next -- the other exhibit is**
18 **marked as 0124. Do you have that photo?**
19 A. Yes, I do.
20 **Q. All right.**
21 **JUDGE NOBLE: Mr. Johnson, did you -- did**
22 **you have him identify himself for the record and spell**
23 **his last name?**
24 MR. JOHNSON: Excuse me.
25

BY MR. JOHNSON:

Q. I'm sorry, Mr. McDougal, I got ahead of myself. Could you just state your full name for the record and spell it for the court reporter.

A. Okay. It's Randall S. McDougal, Jr. So Randall, R-a-n-d-a-l-l, S for Scott, and McDougal, M-c-D-o-u-g-a-l, Jr.

Q. All right. Thank you. And then just so you know what we're looking at, we're trying to pull up the photos now so that -- there we go. So right now there's the photograph labeled Exhibit 125. We're looking at that. We also have the models themselves here. So just so you know what folks in the room are looking at.

A. Okay.

Q. So I just have a few questions for you, Mr. McDougal. First of all, can you tell me what your position is?

A. I am currently the business unit manager for Union Tank Car.

Q. Okay. And what does Union Tank Car Company do?

A. We manufacture, lease and repair tank cars and hopper cars for rail transit.

Q. Okay. And that includes cars that would transport crude oil?

A. Correct.

1 **Q. Okay. Can you describe -- or give us a few more**
2 **details about what your specific job duties are?**
3 A. So currently I'm the business unit manager over
4 Sheldon Manufacturing, basically in charge of everything
5 that happens here, that's operations, that builds the
6 tank cars, maintenance within the plant, safety and
7 plant engineering. And then prior to January of this
8 year, I was the director of operations for our
9 Alexandria facility which had very similar job duties.
10 **Q. Okay. And are you familiar with how tank cars**
11 **are constructed?**
12 A. Yes.
13 **Q. How long have you worked at Union Tank Car**
14 **Company?**
15 A. For over 15 years.
16 **Q. Okay. Do you have any other experience in the**
17 **rail industry or rail car industry?**
18 A. No, I do not.
19 **Q. Okay. And are you familiar with the different**
20 **types of tank cars that are manufactured by the Union**
21 **Tank Car Company?**
22 A. Yes, I am. We regularly review specifications
23 before we start construction on the cars we build.
24 **Q. All right. And just for context, about how many**
25 **tank cars does Union Tank Car Company manufacture**

annually?

A. Roughly, we manufacture 2,000 to 6,000 cars a year.

Q. Okay. And in the photographs that we've just referenced, that is, Exhibits 124 and 125, do you recognize what those depict?

A. Do I recognize what? I'm sorry.

Q. Yeah. What do the photos, that is, Exhibit 125 and 124, depict? What's shown there?

JUDGE NOBLE: Just a minute, Mr. McDougal --

A. -- cross sections of four different car types.

JUDGE NOBLE: Mr. McDougal, could I just stop you just for a minute?

Could I just ask one question before he proceeds on with the exhibits?

MR. JOHNSON: Yes.

JUDGE NOBLE: Mr. McDougal, could you give the council -- tell the council what your educational background is.

THE WITNESS: My educational background?

JUDGE NOBLE: Yes.

THE WITNESS: Well, high school diploma. I have many specialty certificates and three years of college.

JUDGE NOBLE: Any particular major?

1 THE WITNESS: Business administration.
2 JUDGE NOBLE: And what are your specialty
3 certificates in?
4 THE WITNESS: Corrosion and protective
5 coatings.
6 JUDGE NOBLE: Thank you. You may answer
7 Mr. Johnson's question, if you remember what it was.
8 BY MR. JOHNSON:
9 **Q. Okay. Mr. McDougal, referring back to the**
10 **photographs -- and let's just work with Exhibit 125. Do**
11 **you recognize -- or can you tell us what is in -- what**
12 **is shown in that photograph?**
13 A. Yes. So from left to right, you have a cross
14 section of a DOT-111, or commonly referred to as a
15 Legacy car, which is a seven-sixteenths tank shell
16 mounted to a base, basically.
17 The next sample or cross section is a DOT-111
18 that's up to CPC-1232 standards, so basically a
19 half-inch tank shell mounted to a base.
20 The next one is representative of a DOT-117,
21 which is a nine-sixteenths tank shell with half-inch
22 ceramic insulation and 11 gauge jacket.
23 And the far right one is a -- depicts a DOT-120,
24 which is a nine-sixteenths tank shell with half-inch
25 ceramic thermal insulation, and it's four inches of

fiberglass insulation compressed to three and a half inches with 11 gauge jacket.

Q. All right. Thank you. And does Union Tank Car Company manufacture each of the tank car types that you just referenced?

A. Yes, we have.

Q. Okay. And are you personally familiar with the manufacturing process of those tanks?

A. Yes.

Q. Okay. And the models that are depicted here, who created those models?

A. I had an employee at the Alexandria facility produce these models.

Q. All right. And are you personally familiar with, again, the design of the tanks and the models that represent each of the tanks depicted in this photo?

A. Yes, I am.

Q. Okay. And with regard to the DOT-111A Legacy tank car depicted on photograph -- or Exhibit 125, does that accurately depict the construction of the tank itself?

A. Yes, it does.

Q. And with regard to the DOT-111A CPC-1232 model, does that fairly and accurately depict the tank shell of a tank car that would be manufactured by Union Tank Car

Company?

A. Yes, it does.

Q. The same question related to the DOT-117A model; does that fairly and accurately depict the tank shell?

A. Yes, it does.

Q. And finally, with regard to the DOT-120J model, does that fairly and accurately depict the tank shell as it would be constructed by Union Tank Car Company?

A. Yes, it does.

Q. Okay. And as a whole, do the scale models that you had constructed accurately and fairly depict all of these tank -- type tank car designs?

A. Yes, they do.

MR. JOHNSON: Your Honor, the applicant would move to admit Exhibits 124 and 125.

JUDGE NOBLE: Are there any objections to the admission of those two exhibits?

MS. BRIMMER: No objection.

JUDGE NOBLE: Those two exhibits, 124 and 125, will be admitted.

MR. JOHNSON: Thank you, Mr. McDougal, for your time.

THE WITNESS: You're welcome.

JUDGE NOBLE: We can disconnect. Thank you.

MR. KISIELIUS: Your Honor, would it be okay

1 for me to move those while Mr. Corpron finishes his
2 testimony?
3 JUDGE NOBLE: Yes. Mr. Johnson, you're
4 recalling Mr. Corpron?
5 MR. JOHNSON: Yes, Your Honor. The
6 applicant recalls David Corpron.
7 JUDGE NOBLE: And while we're waiting for
8 him to retake the witness chair, it's my understanding
9 that Mr. Hack will be testifying further about these
10 models and -- am I not correct about that?
11 MR. JOHNSON: Mr. Hack will be testifying
12 about the types of tank cars and other rail issues, yes,
13 Your Honor.
14 JUDGE NOBLE: So the council will have an
15 opportunity to ask questions they might have?
16 MR. JOHNSON: Yes, Your Honor.
17 JUDGE NOBLE: Morning.
18 THE WITNESS: Good morning.
19 JUDGE NOBLE: How are you?
20 THE WITNESS: Very well.
21 JUDGE NOBLE: Please proceed, Mr. Johnson.
22 MR. JOHNSON: I think we're still on cross.
23 JUDGE NOBLE: Yes. I understand the
24 cross-examination was to take place this morning by two
25 of the Columbia Riverkeeper attorneys, and that was

1 agreed to by you, Mr. Johnson, as I understand it.
2 MR. JOHNSON: Yes, Your Honor. That's fine.
3 CROSS-EXAMINATION
4 BY MS. BOYLES:
5 **Q. Good morning, Mr. Corpron.**
6 A. Morning.
7 **Q. My name is Kristen Boyles, and I have a few**
8 **questions for you this morning primarily focused on the**
9 **seismic issues that you discussed yesterday.**
10 A. Okay.
11 **Q. Are you relying on the testimony of Mr. Rohrbach**
12 **and Mr. Shanahan when you discuss these ground**
13 **improvements, earthquakes, liquefaction, ground**
14 **acceleration, all those issues?**
15 A. Yes.
16 **Q. And I believe they will testify later; is that**
17 **correct?**
18 A. Yes, they will.
19 **Q. And when you talk about ground improvements, do**
20 **you basically mean different methods of injecting**
21 **concrete into the earth to shore it up? Is that a**
22 **layperson's explanation?**
23 A. As I said, stone columns are also ground
24 improvement and so you're changing the density of the
25 soil, so changing the density via a concrete stone.

1 Those are methods of doing that.
2 **Q. And so if there is an earthquake or a seismic**
3 **event, these various columns, cement techniques, deep**
4 **soil mix panels, they aim to prevent those areas from**
5 **liquifying and then moving either -- settling or moving**
6 **laterally, moving; is that correct?**
7 A. That is correct.
8 **Q. In an earthquake, do the areas between the**
9 **columns and the deep mix panels liquify?**
10 A. The areas between also get -- the density
11 between them increases. That is one of the things at
12 the end of the -- after they finish installing stone
13 columns, they will do cone penetrant tests again to
14 verify the density. And if it doesn't reach the density
15 that they were expecting, more columns would be
16 installed.
17 **Q. And I believe you said in response to a question**
18 **yesterday from the council members that there are no**
19 **ground improvements under the train tracks; is that**
20 **correct?**
21 A. That is correct.
22 **Q. And in area 300, which is under the storage**
23 **tanks, your design does not extend the stone columns all**
24 **the way through the liquefiable soil layers to the more**
25 **solid ground; is that correct?**

1 A. That is my understanding, but Mr. Rohrbach can
2 speak to that as he's the one that designed that and can
3 explain why.
4 **Q. All right. And so you don't have an opinion**
5 **right now whether anchoring those columns to the more**
6 **solid ground is necessary?**
7 A. In my opinion, with talking with Mr. Rohrbach,
8 it is not necessary to go all the way down.
9 **Q. I will ask Mr. Rohrbach.**
10 **Is it fair to say that most of the soil at the**
11 **project site has been modified or is fill?**
12 A. In area 300, I know it was fill. And there are
13 several areas on the site that have had dredge soils put
14 on them at some point in time and structural fill put on
15 top at different points.
16 **Q. Your testimony yesterday was that a magnitude 9**
17 **earthquake with peak ground acceleration of 0.37 was**
18 **highly unlikely; is that correct?**
19 A. For both of those to occur, right.
20 **Q. Do you know that the US geological survey has**
21 **estimated an approximately 15 percent chance that the**
22 **great Cascadia subduction zone earthquake, which is**
23 **magnitude 8 or greater, will affect this region in the**
24 **next 50 years?**
25 A. And what is the peak ground acceleration with

1 that?
2 **Q. That's not the question. The question is**
3 **whether you know whether that subduction zone earthquake**
4 **is expected in the next -- 15 percent chance in the next**
5 **50 years?**
6 A. I didn't.
7 **Q. You stated yesterday that you wanted to be on**
8 **the conservative side for your project design.**
9 **Mr. Shanahan estimates that the peak ground acceleration**
10 **for this site is in the range of 0.37 to 0.45, but you**
11 **designed the terminal to the lowest acceleration**
12 **estimate; is that correct?**
13 A. We designed it to 0.37, and Mr. Shanahan would
14 have to speak to the 0.45.
15 **Q. Can any of these types of ground improvements**
16 **completely eliminate the risks of earthquakes and**
17 **liquefaction at this site?**
18 A. I think there's always risk. We don't know what
19 Mother Nature will bring. You know, I think she
20 continues to prove that she can do what she wants. But
21 this gives us the best ability to counteract that.
22 JUDGE NOBLE: Mr. Corpron, try to keep your
23 voice up a little bit.
24 THE WITNESS: Sorry.
25

1 BY MS. BOYLES:
2 **Q. If hypothetically these ground improvements**
3 **reduced the risk by half, say preventing something from**
4 **moving ten inches during an earthquake to moving**
5 **five inches during an earthquake, that would still mean**
6 **significant ground motion under the oil tanks or the**
7 **train cars or the pipelines; is that correct?**
8 A. Right now it is designed to move two inches.
9 **Q. If it works as designed, yes.**
10 A. If it works as designed, yes.
11 **Q. Changing tacks completely.**
12 **With respect to the mention you made yesterday**
13 **of self-healing foam -- which are words I wanted to hear**
14 **come out of my mouth -- am I correct that you have read**
15 **about this foam but you don't have personal experience**
16 **or knowledge of its properties?**
17 A. I have read about this foam, and FM Global, who
18 is one of the number one fire insurance carriers, has
19 adopted this foam. The foam was actually tested by the
20 Portland Fire Department over at the Portland airport
21 and has verified its use.
22 **Q. And verified its lack of harm to river fish,**
23 **wastewater systems?**
24 A. That is all documented and part of FM Global's
25 stuff, yes.

Q. Thank you. And then finally for me, on the decommissioning costs, which was, I believe, Exhibit 278 that you put up yesterday, do you include in your calculations any cleanup costs for oil spills, oil leaks, larger accidents?

A. On the cleanup with the systems that we have in place, the tertiary containment would have anything in the area 200, and within the berm, I have the double-bottom tanks, so it would just be within the existing footprint.

Q. So on that exhibit, though -- we don't need to bring it up, but on that exhibit with the numbers, there's no cleanup costs associated with those total calculations?

A. Not broken out, correct.

MS. BOYLES: Thank you.

CROSS-EXAMINATION

BY MS. BRIMMER:

Q. Mr. Corpron, my name is Janette Brimmer. I'm with Ms. Boyles and I represent CRK. I'm going to ask you some questions about your design testimony. I'm going to start with the vapor pressure and storage tanks.

So I understand your testimony yesterday to be that there is a cap -- I think you used the word

"cap" -- on Reid vapor pressure that you're going to store the tanks of 11. Is that accurate?

A. That is correct. It's true vapor pressure. Sorry.

Q. Oh, it's true vapor pressure?

A. Yeah.

Q. Okay. I apologize. I had heard Reid. Okay. Thank you.

True vapor pressure varies with temperature, correct?

A. Yes, it does. That's why they used Reid vapor pressure at a hundred degrees to standardize it so they know in different areas what the oil properties are.

Q. So in order to understand if you're meeting your cap at any given time, you'll be performing calculations to standardize that and understand whether or not you're meeting the cap between Reid vapor pressure and true vapor pressure; is that right?

A. You will -- we'll be doing testing and we currently do testing at our facilities when we receive oil from our customers right now, and it is in our agreements and contracts with our current customers.

Q. When you say "current customers," you're not in operation now at the site, right?

A. No. This is -- I'm speaking of the North Dakota

1 facility that we currently operate, Savage.
2 **Q. So if true vapor pressure is over 11, in**
3 **addition to a floating roof on your tank, you'd need to**
4 **capture and treat vapors from the storage tanks. That**
5 **was also your testimony yesterday, right?**
6 A. That is correct.
7 **Q. And Tesoro Savage with this facility will have**
8 **floating roof tanks, but they are not going to capture**
9 **and treat the vapors, right?**
10 A. That is correct.
11 **Q. And, in fact, that was -- the desire is to avoid**
12 **that obligation, right?**
13 A. No, that wasn't the desire. The desire was, as
14 with most crudes, putting on a floating roof reduces the
15 emissions and the desire was to have a floating roof to
16 reduce the emissions from the tanks.
17 **Q. No, I'm sorry, I wasn't clear in my question.**
18 **It was my understanding that it was the desire of the**
19 **facility to avoid having to capture and treat the**
20 **emissions. I understand that you will be doing the**
21 **floating roof.**
22 A. When we designed it, we weren't trying to avoid
23 any cost or anything like that. We were just -- based
24 on how everything is spread out and where the
25 incinerators are, did the floating roofs on that.

1 **Q. But you have -- I think your testimony was**
2 **agreed to on taken a cap on the vapor pressure for crude**
3 **that you'll accept?**
4 A. And the federal government had established that
5 cap as well.
6 **Q. Has the federal government actually established**
7 **a cap or have they simply said, if it's over that,**
8 **you're going to have to capture and treat the vapors?**
9 A. I would have to refer to my air folks on that,
10 but I think it said if it's over.
11 **Q. Well, and I think your testimony yesterday was**
12 **if it's over 11, you have to capture and treat the**
13 **vapors. Is that an accurate representation of your**
14 **testimony yesterday?**
15 A. I think so, yes.
16 JUDGE NOBLE: Mr. Corpron, maybe if you move
17 the mic a little bit more in the direction where you're
18 speaking. We're still not hearing you as well as we
19 should.
20 THE WITNESS: Sorry.
21 BY MS. BRIMMER:
22 **Q. And, again, you don't have to look at me when**
23 **you answer. It's a little weird, but it's okay.**
24 **Now, I'm going to ask you a few questions about**
25 **Bakken crude. So I'm going to ask Ms. Mastro to pull up**

1 **some exhibits and have them ready, but then I'll ask you**
2 **some questions while she's doing that.**
3 MS. BRIMMER: So Exhibit 5521. It's a CRK
4 exhibit. And then we'll be going to 5523.
5 BY MS. BRIMMER:
6 **Q. Mr. Corpron, in fact, Bakken crude oil has a**
7 **range of vapor pressures, correct?**
8 A. Yes, it does.
9 **Q. And some of it is over 11 in terms of true vapor**
10 **pressure numbers.**
11 A. It can be if it's not treated.
12 **Q. And, in fact, the treatment from -- that is**
13 **imposed by North Dakota is actually pretty much at where**
14 **most of the oil is when it's coming out of the ground,**
15 **right?**
16 A. Say again.
17 **Q. Sure. So I think when you say "treated," you're**
18 **talking about conditioning that occurs in North Dakota,**
19 **right?**
20 A. That is correct.
21 **Q. And, in fact, the requirements that North Dakota**
22 **has imposed for that conditioning, the vapor pressure**
23 **numbers are not substantially different from most of the**
24 **crude; in other words, conditioning isn't necessary for**
25 **most of the crudes coming out of the ground in the**

1 **Bakken?**
2 A. I don't know how much the volume is conditioned.
3 That's not something I could speak to.
4 MS. BRIMMER: Do we have 5521? Great.
5 BY MS. BRIMMER:
6 **Q. So, Mr. Corpron, this is what's been marked as**
7 **Exhibit 5521. That's the first page. It shows Staff**
8 **Analysis of Crude Oil. And page 2, which Ms. Mastro has**
9 **brought up, reflects some vapor pressures for Bakken**
10 **crude. Now, would you agree with me that the first line**
11 **of that chart shows average, minimum and max; the**
12 **average is 11.8; the max is 15.37? Would you agree that**
13 **that's what that exhibit shows?**
14 A. That is what that exhibit shows.
15 **Q. Is that consistent with your understanding of**
16 **the vapor pressures of Bakken crude oils?**
17 A. No, it is not. From our testing, the average is
18 about 10 and a half.
19 **Q. So you're saying that the American Petroleum**
20 **Institute got it wrong?**
21 A. I'm saying at our facility and the testing we
22 have done, the average shows it's about 10 and a half.
23 **Q. Well, is the Vancouver facility only going to**
24 **take oil from your facility in North Dakota?**
25 A. Once again, with the limits that we're putting

on our customers, just like we do at our facility, I would expect similar results.

Q. That's not my question. Are you only going to accept crude oil from your North Dakota facility here in Vancouver?

A. No.

MS. BRIMMER: I would like to turn to Exhibit 5523, please.

And, Your Honor, I just might note, we understand that those exhibits have not been admitted into evidence. We're using them as illustrative now. We will move their admission with Mr. Sahu.

BY MS. BRIMMER:

Q. This one's a little harder to read and I apologize, I don't have a copy --

MR. JOHNSON: Your Honor.

JUDGE NOBLE: Just a minute. Is there an objection?

MR. JOHNSON: Well, there's an objection if she's asking the witness to testify to the exhibit, then it needs to be admitted. However, we have already stipulated to its admission, so I would recommend you admit it now.

MS. BRIMMER: That's fine, Your Honor, if we want to stipulate. I was simply asking for the purposes

1 of having him see numbers so he could agree whether or
2 not that was consistent with his experience.
3 JUDGE NOBLE: All right. I didn't see that
4 it had been listed with the agreed exhibits, but if
5 there's a stipulation now to these two exhibits, I would
6 be admitting them.
7 MR. JOHNSON: We have no objection to the
8 admission.
9 JUDGE NOBLE: All right, then.
10 Exhibits 5521 and 5523 will be admitted.
11 MS. BRIMMER: Excellent. Thank you.
12 BY MS. BRIMMER:
13 **Q. So, Mr. Corpron, turning to Exhibit 5523, I'm**
14 **just showing you the first page so that we can see that**
15 **this is a survey of Bakken crude from 2014 submitted by**
16 **the American Fuel & Petrochemical Manufacturers.**
17 MS. BRIMMER: And I would like to go to
18 page -- I think it is 19. There we go. That graph.
19 Thank you.
20 BY MS. BRIMMER:
21 **Q. This is a graph representing -- showing the Reid**
22 **vapor pressure frequency for Bakken crudes. Do you see**
23 **that?**
24 A. Yes.
25 **Q. And understanding that Reid and true are not**

1 **precisely the same, but, again, Reid vapor pressure is**
2 **the standardized measure, correct?**
3 A. Correct.
4 **Q. And you can see there are the bars 10 to 11, 11**
5 **to 12, 12 to 13. In fact, 12 to 13 is the longest bar,**
6 **right?**
7 A. That is correct.
8 **Q. And, in fact, we go up as high as even 15 or 16,**
9 **not many, but some are that high, correct?**
10 A. That is what the graph is showing, yes.
11 **Q. So you have referenced a cap of 11. Where is**
12 **that cap stated? If I wanted to go find and understand**
13 **that there is a cap on the vapor pressure crudes you'll**
14 **accept, where is that?**
15 A. I would actually have to talk with my air guys
16 and see where that is stated.
17 **Q. How is it measured? In other words, how are you**
18 **going to understand that you are meeting your cap?**
19 A. You test the oil as it's coming into the
20 facility.
21 **Q. How frequently and how much?**
22 A. Our current testing program in North Dakota, we
23 test every load that goes out.
24 **Q. And when you say "load," what do you consider a**
25 **load?**

1 A. Every unit train is tested, and we test for some
2 customers in the tank before it's ever loaded.
3 **Q. Every car?**
4 A. We do a batch sampling system, so it's taking
5 samples during the loading process. We are not taking
6 it from every car because it's filling a header and
7 those headers are filling the car. So it's homogenous.
8 We have mixers in the tank and have found that to be
9 very accurate.
10 **Q. And so when it shows up at your facility in**
11 **Vancouver, what are you going to do to test it?**
12 A. When it shows up at our facility in Vancouver,
13 we will once again be pulling samples from that, take
14 those out and have them tested and we could also pull
15 them from the tanks.
16 **Q. When you say "also pull them from the tanks,"**
17 **you mean your storage tanks?**
18 A. That is correct.
19 **Q. Okay. So when you're sampling the train, are**
20 **you sampling every car or one car per train or what's**
21 **the protocol?**
22 A. It would be similar to the loading facility
23 where we sample it as it's being off-loaded and take a
24 cumulative sample that goes into a fixed cylinder and so
25 it contains it.

1 **Q. And are your -- excuse me. Are you measuring**
2 **Reid or true vapor at that time?**
3 A. I would have to consult one of our guys that
4 does the sampling, but normally it's my understanding
5 that we do Reid vapor pressure.
6 **Q. So what happens when a train shows up and it's**
7 **exceeding the 11 cap? What do you do?**
8 A. Then we will likely notify the customer, tell
9 them they're in violation and flag their crews so they
10 can't ship to us until they've show compliance.
11 **Q. What do you do with that train? Do you send it**
12 **back to North Dakota or do you send it to a competitor**
13 **transloading facility?**
14 A. What would the vapor pressure be?
15 **Q. I'm asking you if you found that it has exceeded**
16 **your stated cap of 11, what do you do with that train?**
17 A. The train would likely be unloaded at that time
18 because the samples are taken and then processed. So
19 it's not done instantaneously.
20 **Q. So for that short period of time, you'd be**
21 **exceeding your cap in your storage tanks, whatever that**
22 **time was?**
23 A. Possibly.
24 **Q. Do you report that to anybody?**
25 A. With floating tanks, if a floating tank goes

1 down and you drop it to the ground and it's not floating
2 on oil for 24 hours --
3 **Q. I'm going to interrupt you there. Do you**
4 **actually report the violation of the cap to anyone?**
5 A. I am not aware of the time frame that you would
6 do that. We do report all violations.
7 **Q. To who?**
8 A. It would be the air quality, and that's what I
9 was explaining with the floating roof. If a floating
10 roof, if you take it too low and it sits on its legs and
11 it sits there for 24 hours, that is a violation and you
12 need to report that too.
13 **Q. So that's another example of a violation, is**
14 **what you're saying?**
15 A. That is correct.
16 **Q. Okay. And that would be reported to, you said,**
17 **air quality. Your internal air quality guys or somebody**
18 **for the State?**
19 A. The State.
20 **Q. The State. Okay. Are you familiar with the**
21 **term "fugitive emissions"?**
22 A. Yes.
23 **Q. And so when we were talking about needing to**
24 **capture and treat vapors from the storage tanks, am I**
25 **correct in thinking of those as fugitive emissions?**

A. We have an air expert that's going to testify, but my understanding is yes.

Q. So why don't -- yeah, why don't you tell me what your understanding of fugitive emissions is, just so that we're on the same page.

A. On fugitive emissions, they look at valves. Every flange is given an emissions rate. So they assume that it's leaking even if it's not because it is a potential source. And on the tanks, the fugitive emissions would be -- we have dual seals on it, but as the -- as it goes up and down, anything left on the residual on the sides would be a fugitive emission going out of the tanks.

Q. Another example I think you've already brought up yourself, when the floating roof that normally rests on the surface of the oil, when you draw the oil down, the roof hits the legs inside the tank and there's a gap between the oil and the roof, right?

A. If you draw it down, yes.

Q. Yeah. And so the reason that you'd want to avoid those what they call roof landings, is that that's an increase in emissions when that happens, right?

A. It does increase the emissions, but that's also why you have a low level and we have the other sensors to know where the level in the tanks are.

Q. Will the facility -- will the Tesoro Savage facility monitor fugitive emissions from the tanks?

A. We can look at doing perimeter monitoring.

Q. Can you describe what perimeter monitoring is?

A. At some facilities they will set up monitoring stations looking for emissions.

Q. Are you talking about the perimeter of the operation, you know, the whole terminal, or are you talking about the perimeter of the tank, or something else?

A. The perimeter of the tank farm.

Q. Okay. So what technology are you going to set up around the perimeter of the tanks?

A. I would have to defer that to our air emissions guys.

Q. Will it be required, or is this a voluntary action?

A. Right now, I'm saying we could do that. To my knowledge, it's not required to monitor.

Q. Okay. So maybe I misunderstood your testimony. So what you're saying is, you could possibly set up the tank perimeter monitoring but it hasn't been decided yet?

A. If it's something that this council decides they would like to see, that could be added to the design.

Q. So there's no current intent to do that?

A. No.

Q. Any other monitoring of fugitive emissions for a tank that the facility will be doing?

A. No.

Q. So I would like to move now to the vessel loading part of your work on the design. And yesterday, you testified regarding some of the processes with the vessel loading. You referred to sending vapors from the vessel loading to the vapor combustion unit, that's sometimes referred to as the VCU. Do you recall that testimony?

A. Yes, it's the marine vapor combustion unit, MVCU.

Q. Sometimes that's also called a thermal oxidizer, just so that we have all the references straight in the documents; is that right?

A. That is correct.

Q. I heard you say yesterday that you will maintain a slight negative pressure to ensure complete combustion. Is that an accurate representation of your testimony?

A. That is correct. Except at the ship where you have a Coast Guard standard where you need to leave that at a positive pressure.

1 **Q. You're anticipating where I was going with my**
2 **question. So the slight negative pressure refers to**
3 **where the vapors are close to being sent into the**
4 **combustion unit, right?**
5 A. It is after the dock safety skid, and we are
6 monitoring with differential pressure switches what the
7 pressures are at three points on that system so we -- so
8 it's controlling the valves appropriately to maintain
9 the proper pressure.
10 **Q. So let me just -- if you'll indulge me, I'm**
11 **going to relate to you my layperson's understanding of**
12 **what's going on with that and you tell me if that's**
13 **relatively accurate. So there's a vessel being loaded**
14 **with crude oil that's coming into the holds in the**
15 **vessel. And in order to capture and to burn off those**
16 **vapors that come out because there's vapors from the**
17 **crude itself or maybe left over from the vessel, you're**
18 **grabbing those and putting them into the vapor**
19 **combustion unit, right?**
20 A. Yes.
21 **Q. And you do that with a big, for want of a better**
22 **word, hose that you've got connected to the ship or the**
23 **barge and you're sucking those vapors in and sending**
24 **them to the combustion unit?**
25 A. We take it from whichever vessel's there and

1 send it to the combustion unit.
2 **Q. And you've been talking about some monitoring**
3 **points and some points where you determine what pressure**
4 **is being maintained, and I think you said there were**
5 **three?**
6 A. Yes, there's three.
7 **Q. Okay. And that's because what you're doing with**
8 **pressure has to change a little bit as you pull it out,**
9 **but then push it into the combustion unit, right?**
10 A. The combustion units go on in series. So
11 there's actually eight units. So they will stagger as
12 they come on. And the vessels also maintain their
13 positive pressure on that.
14 **Q. So when you say there's a slight negative**
15 **pressure, that's at one of the monitors along the way,**
16 **it's not the one right at the vessel; is that right?**
17 A. That is correct.
18 **Q. So I want to then talk about where the vapors**
19 **are being captured at the vessel itself. How do you**
20 **ensure that all of those vapors are being captured at**
21 **the vessel, that some of them aren't escaping?**
22 A. That would be a better question for Marc Bayer
23 with Tesoro as he's the marine expert.
24 **Q. Do you have a general understanding of how**
25 **they're being captured?**

A. I am not a marine guy. I do not.

Q. Do you know whether that will be monitored at the facility, in other words, whether they're capturing all of the vapors?

A. Once again, I do not know the status of the vessels.

Q. And do you know whether there will be any requirements that the facility do that?

A. I don't know the requirements for what the vessels can do.

MS. BRIMMER: I have nothing further, Your Honor. Thank you.

JUDGE NOBLE: Thank you. Is there any other cross-examination of Mr. Corpron?

Redirect.

REDIRECT EXAMINATION

BY MR. JOHNSON:

Q. Morning, Mr. Corpron. I have some follow-up questions based on questions that were asked of you yesterday and this morning. So I'll start with yesterday. Hopefully you had a good night's rest and can remember some of those questions.

And I'm going to start with questions that Mr. Potter posed. You might recall that Mr. Potter read some excerpts from his -- or, that is, the City of

1 **Vancouver's expert report relating to some fire and**
2 **safety issues. Do you recall that line of questions?**
3 A. Yes, I do.
4 **Q. Okay. And Mr. Potter asked you some questions**
5 **about the water pumps, and specifically about whether,**
6 **you know, an electric pump, or a diesel pump was, I**
7 **guess, a better option. And you also testified**
8 **yesterday that you have some experience in dealing with**
9 **facilities as a result of natural disasters.**
10 **Based on your experience in natural disasters,**
11 **what is a more effective pump system, an electric pump**
12 **or a diesel pump?**
13 A. A diesel pump. At the facility in Galveston, we
14 were without power for, I want to say, four weeks that
15 we were running on generators.
16 **Q. Okay. And Mr. Potter also asked you some**
17 **questions about -- and he had some questions this**
18 **morning about foam and fire suppression systems. I just**
19 **want you to -- can you please clarify whether you were**
20 **answering based on fires or incidents at the facility or**
21 **outside the facility?**
22 A. It would be at the facility.
23 **Q. Okay. And, again, how long would it take for**
24 **the automated fire suppression systems to activate in**
25 **the event of a fire at the facility?**

A. All of the systems are tested so they will activate in under two minutes.

Q. Okay. And is there any average for how long it would generally take to extinguish a fire based on the activation of those systems?

A. As I said, facilities with the fire system, an automatic fire system, it is usually about five minutes, and the fire's extinguished before first responders get there.

Q. Okay. I would like to now switch to another line of questions. I think Mr. Potter was asking you about related to the potential of a full rupture event at the marine loading area. And you might recall Mr. Potter handed you your -- his phone and he asked you to do some calculations. Do you remember that line of questions?

A. Yes, I do.

Q. Okay. And do you recall Mr. Potter's calculation of how many barrels could escape from the pipe at the full pumping rate?

A. I don't recall the exact number, but I recall how it came about on the math, of taking the 32,000 that was the maximum, dividing that by 60 and dividing that by 2.

Q. Okay. And is that simple mathematical equation

1 **a fair method for characterizing the volume that would**
2 **result from a full-bore release in the 30 seconds that**
3 **you discussed yesterday?**
4 A. No, it's not. Because in addition to the
5 30-second closing of the valve, the orifice on that
6 valve will continue to lessen and lessen, reducing the
7 flow. And all of the pumps have Allen Bradley drives on
8 it, and Allen Bradley has a safe torque or safe torque
9 off technology, so it removes all power instantaneously
10 to -- through the motor on the pump so the pump will not
11 be driving any material to it. And these are PD pumps;
12 whereas, a centrifugal pump, it could continue to spin.
13 Once you're removing the torque on a PD pump, it would
14 be expected to stop.
15 **Q. Okay. Related to that line of questioning, you**
16 **discussed -- or were asked some questions about the**
17 **containment capacity at the vessel loading facility.**
18 **And you were also asked some questions by Mr. Hallvik, I**
19 **believe, about whether or not the design of the facility**
20 **is complete. Do you recall Mr. Hallvik's questions?**
21 A. Yes, I do.
22 **Q. Okay. And your answer was?**
23 A. That it's ongoing and we're -- if changes need
24 to be made, we're more than willing to make those as we
25 had with the H2S scrubbing system that we had.

1 **Q. So with regard to containment, are there design**
2 **elements that you could add to enhance the volume of**
3 **containment at the marine vessel or dock area?**
4 A. Yes. We can add a sump. We already have a pump
5 there. And we have that three-barrel containment, which
6 is what the code is, so we could pump back to the tanks
7 in the event of a release.
8 **Q. Okay. Now, Ms. Boyles asked you some questions**
9 **about seismic issues, and you indicated that some of the**
10 **more specific issues could maybe be better addressed by**
11 **future witnesses, but do you recall her question about**
12 **whether or not the facility's designed to withstand an**
13 **earthquake of 8.0 or greater?**
14 A. As it relates to the Cascadia subduction?
15 **Q. Yes.**
16 A. Yes.
17 **Q. And what's the answer to that question? Is the**
18 **facility designed to withstand an earthquake of 8.0 or**
19 **greater?**
20 A. Yes.
21 **Q. And do you -- and, again, I understand that**
22 **there may be other witnesses with expertise in this area**
23 **who will testify, but do you know the difference in**
24 **terms between an 8.0 magnitude earthquake and a 9.0**
25 **magnitude earthquake?**

A. It's an algorithmic scale, so it's ten times the magnitude, to my understanding.

Q. Okay. And then with regard to some questions that Ms. Brimmer asked you about some crude oil characteristics, specifically your discussion of true vapor pressure and Reid vapor pressure, can you expand on your answer regarding whether or not the -- Vancouver Energy would be willing to take additional measures to ensure that the limit of two -- of TVP of 11 is maintained?

A. Yes. We would -- and as I stated before, we could do some more on that, but as with some of our customers, we send it out and we do the testing before the cars are even loaded. We can do -- we can request that of our customers so we have the data as well before it is shipped and so we wouldn't end up with a situation where a train shows up that's over pressure, that has the wrong vapor pressure in it.

Q. Okay. And related to that issue, if there was one train with contents that exceeded the true vapor pressure of 11, which as I understand it's the facility limitation, would that result in overpressurizing the tanks?

A. The tanks are designed to hold four full unit trains. So mixing them together, you are probably still

below the limit that is required. All the tanks have mixers on them. And as you comingle that with the oil that's already in there, it would likely not exceed that.

Q. And how many tanks load into a single storage tank -- I mean, sorry, how many trains load into a single storage tank?

A. Four trains per tank.

MR. JOHNSON: Nothing further, Your Honor.

JUDGE NOBLE: Council questions.

Mr. Lynch.

MR. LYNCH: Thank you for your testimony. I was wondering, I had some questions regarding the vapor pressure. Does the -- just the fact that the oil's in transit, does that affect the vapor pressure at all?

THE WITNESS: What affects the vapor pressure more is the pretreatment and temperature, time of year.

MR. LYNCH: So just the fact that -- you said more, but I'm just kind of curious. If you had -- they test at the loading facility and -- I'll just make this up -- it tests at 10.9 and, okay, we're good to go, and then the oil gets shipped and, I don't know, it's going to slosh somewhat, I imagine, inside the tanker car, does that do anything to raise the pressure -- the

1 vapor pressure?
2 THE WITNESS: The vapor pressure as it's
3 tested is pulled with a vacuum. So anything that is in
4 the car, they're testing for all the different types of
5 hydrocarbons that could be in the oil and that is what
6 gives it the vapor pressure. So while you may have some
7 separation in that during transfer, it should not -- to
8 my understanding doesn't change what the vapor pressure
9 is at the time.
10 MR. LYNCH: Thank you.
11 JUDGE NOBLE: Are there other questions for
12 this witness?
13 Mr. Moss?
14 MR. MOSS: Just one on this temperature
15 point. This oil is coming from North Dakota, which can
16 be pretty cold. We don't really get all that much cold
17 weather down here. Is that enough of a temperature
18 change to affect the vapor pressure, or does it have to
19 be more extreme?
20 THE WITNESS: It would have to be more
21 extreme because the Reid vapor pressure is tested at
22 100 degrees.
23 JUDGE NOBLE: Any other questions?
24 Mr. Snodgrass?
25 MR. SNODGRASS: Just one quick question

1 about the fire suppression and response. I think you
2 may have answered this yesterday, but just to confirm.
3 The fire suppression systems that you testified would
4 activate in two minutes, those are all designed for a
5 Cascadia-level quake; is that correct?
6 THE WITNESS: On the fire systems, yes.
7 MR. SNODGRASS: Yes.
8 THE WITNESS: On the fire systems, even the
9 inlets for the water supplies coming in, they're either
10 oversized, have expansion joints on them. So even if
11 there is an earthquake, the pumps -- pump houses are
12 designed to move and flex with that.
13 MR. SNODGRASS: Are the -- the activation
14 time of two minutes and the extinguishing time of
15 five minutes, is that something we would expect after a
16 seismic event, or is that more typical -- well, let's
17 leave it at that.
18 THE WITNESS: Once again, I can't predict
19 what a seismic event would do, but in general that would
20 be accurate.
21 JUDGE NOBLE: Mr. Rossman?
22 MR. ROSSMAN: Thank you. So the --
23 following up on that question. The fire system is
24 relying on water from the City of Vancouver; is that
25 correct?

1 THE WITNESS: That is correct.
2 MR. ROSSMAN: So without meaning to impugn
3 the city's infrastructure, has your analysis and testing
4 indicated whether the water supply to the point that you
5 would be drawing from it is robust with respect to an
6 earthquake of that magnitude?
7 THE WITNESS: I would have to refer to Dan
8 Shafar on that on the civil side.
9 MR. ROSSMAN: Thank you.
10 JUDGE NOBLE: Mr. Siemann?
11 MR. SIEMANN: Just a clarification.
12 Mr. Johnson asked if the facility was designed to
13 withstand an 8.0 earthquake or greater without -- and
14 you said, yes, but without a sense of maximum. What is
15 actually the design standard for the facility?
16 THE WITNESS: Well, as I said yesterday, one
17 of the things that they look at now, it's not just a
18 magnitude quake. You know, the large magnitude quakes,
19 you know, bring up a sense of fear in folks and -- but
20 the smaller ones can be just as damaging if it's a
21 higher frequency event for a longer duration.
22 And so we looked at -- the entire realm is
23 what it looks at now, and it looks at -- the peak ground
24 acceleration says, what does it do to like a rock on the
25 ground? How much force will be exerted onto that? So

rather than saying it's an 8.0 quake but it lasted for .3 seconds and the peak ground acceleration was a .1, it really doesn't affect this. You get more effect when the peak ground acceleration is higher. So it depends on the peak ground acceleration, duration, where it came from, all those factor in, and all of those things were looked at as we designed for the seismic at the site.

MR. SIEMANN: So can you remind me again, so the -- and what is the maximum peak ground acceleration that you designed for?

THE WITNESS: .37.

MR. SIEMANN: .37. Thank you.

JUDGE NOBLE: Any other council questions?

Are there any questions from counsel, from the attorneys?

MR. JOHNSON: One question, just in a follow-up to the last question.

REDIRECT EXAMINATION

BY MR. JOHNSON:

Q. So you addressed the design peak ground acceleration. Can you just confirm what the magnitude design -- is for the design?

A. Magnitude for the design was a 9.0 with a .37.

MR. JOHNSON: Thank you.

JUDGE NOBLE: Are there any other questions

1 of this witness at all?
2 Thank you very much, Mr. Corpron. It's been
3 a long testimony. We thank you very much for it. Thank
4 you.
5 THE WITNESS: Thank you.
6 JUDGE NOBLE: You are excused as a witness.
7 Are you ready to call your next witness,
8 Mr. Johnson?
9 MR. JOHNSON: We are, Your Honor. I just
10 didn't know if you were close enough to break time to
11 stop now, or we can call them and break, whatever works
12 best.
13 JUDGE NOBLE: We had planned on a break at
14 10:30. Perhaps it's a good idea to have a break now so
15 that we don't have to interrupt the witness' testimony,
16 if that's all right with everyone.
17 All right. We will be in recess until
18 10:25.
19 (Recess taken from 10:10 a.m. to 10:29 a.m.)
20 JUDGE NOBLE: We are back on the record.
21 Mr. Johnson, will you call your next
22 witness.
23 MR. JOHNSON: Yes, Your Honor. The
24 applicant calls Mr. Eric Hansen.
25 Mr. Hansen, if you could, just approach the

witness chair and remain standing.

JUDGE NOBLE: Mr. Hansen, would you raise your right hand, please.

(Witness sworn.)

JUDGE NOBLE: Thank you. Please be seated.

ERIC B. HANSEN,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. JOHNSON:

Q. Mr. Hansen, could you please state your full name for the record and spell it, please.

A. Yes. My name is Eric Ben Hansen, E-r-i-c B-e-n H-a-n-s-e-n.

Q. Thank you.

MR. JOHNSON: And, Ms. Mastro, if you could, be working on pulling up common Exhibit 1, page 819, please.

BY MR. JOHNSON:

Q. Mr. Hansen, you filed prefiled testimony in this matter; is that correct?

A. Yes, I did.

Q. Okay. And can you just give us a brief -- well, first of all, who do you work for?

A. I'm a principal with Ramboll Environ. It's a global company. I'm based in Lynwood, Washington, with

about 20 other air quality specialists.

Q. Okay. And I think you touched on this, but what's your background in terms of your professional credentials?

A. Way back when, I received a bachelor's degree in physical oceanography and a master's in civil engineering from the University of Washington. And since 1978, I've been an air quality consultant. So I've been dealing with SEPA issues with development projects with motor vehicles and trains and so forth, development projects on the commercial side. And since about 1990, I have been dealing with industrial facilities, focused primarily on the regulatory side.

And I've done both the emission calculations and the modeling, dispersion modeling, but, honestly, in the last 15 or 20 years, I've focused more on regulations than modeling.

I've been before EFSEC quite a few times. A couple of times I worked on behalf of EFSEC reviewing applications, and maybe five more times I've been here as a witness for specific projects.

Q. And what has your role been with regard to the Vancouver Energy terminal project?

A. Our firm prepared the application, the air quality sections, and learned later the noise sections

1 of the application for site certification. We also
2 contributed to a preliminary draft EIS.
3 **Q. All right. Is there a pending air permit**
4 **application?**
5 A. There is. There is. The application includes,
6 in Section 5.1, a complete permit application for the
7 stationary source, and it is pending. We received
8 questions from EFSEC staff about the air permit and
9 responded to them, but the permit is yet to be released.
10 **Q. Okay.**
11 MR. JOHNSON: For the council's benefit, and
12 again, I'm not going to pull it up, but the air permit
13 application is included in exhibit -- common Exhibit 1,
14 I think beginning at page 808. That can't be correct.
15 We'll confirm that later. I think that's the -- I'll
16 confirm that with the council.
17 BY MR. JOHNSON:
18 **Q. Okay. Mr. Hansen, has the permit -- air permit**
19 **for this project been issued?**
20 A. No, it has not. It's pending.
21 **Q. And what statutes or regulations apply to the**
22 **air permit for the facility?**
23 A. Where do we start? There's a long list. EFSEC
24 really encompasses many of them in the requirements for
25 the permit application we file. There are regulations

1 pertaining to what we call New Source Review, meaning
2 the industrial air permitting of the stationary source
3 itself. There's another set of standards, federal
4 standards that apply, what we call New Source
5 Performance Standards that are designed to regulate
6 emissions from certain types of sources. There's
7 another set of standards that are called NESHAPs,
8 National Emission Standards for Hazardous Air
9 Pollutants, that deal with another set of pollutants.
10 In some cases we have an air operating permit that's
11 required. There's a fairly long list.
12 **Q. Okay. And is it fair to say that those various**
13 **standards and requirements result from both the federal**
14 **and state Clean Air Acts?**
15 A. It is. For the most part, the state implements
16 the federal programs, though.
17 **Q. Okay. I think we're still waiting on an exhibit**
18 **here. And while we're doing that, were you in the room**
19 **when Mr. Corpron was testifying a few minutes ago?**
20 A. Yes, this morning I was.
21 **Q. And did you hear testimony about true vapor**
22 **pressure and Reid vapor pressure?**
23 A. I heard mostly about the true vapor pressure, I
24 think, yes.
25 **Q. Okay. And did you hear a reference to a**

1 **limitation at the Vancouver terminal of a true vapor**
2 **pressure of 11?**
3 A. I did.
4 **Q. And in the context of your work on preparing the**
5 **air permit application and your emissions analysis, did**
6 **you take into account that true vapor pressure number?**
7 A. Well, it's -- it is taken into account in the
8 sense that we discussed the applicable regulations for
9 the project. And one of those applicable regulations is
10 the New Source Performance Standards that I mentioned a
11 minute ago. One of those New Source Performance
12 Standards we call subpart Kb, which applies to the
13 tanks. Kb requires that volatile organic liquid storage
14 tanks with a true vapor pressure of up to 11 PSI install
15 floated roof tanks -- floating roofs and a fixed roof.
16 And so while we did not come right out and say,
17 you know, we will limit this to 11, a true vapor
18 pressure of 11, it's implied by our acceptance of that
19 construction standard for the tank and the fact that we
20 did not propose to install a combustion device for
21 emissions from the tank.
22 **Q. All right. Thank you. And there were some**
23 **questions regarding monitoring or additional limitations**
24 **to ensure that that true vapor pressure of 11 limitation**
25 **was maintained. Is that something that would be**

1 **addressed in the context of the air permit?**
2 A. I anticipate it will be. It's -- sometimes the
3 regulatory agency will spell out all the conditions that
4 they expect. It's also possible that they will just
5 cite all of the conditions that are in the New Source
6 Performance Standard subpart Kb. Kb has a couple of
7 pages of requirements for ensuring that the physical
8 mechanics of the tank are in proper working order. So
9 you do inspections of the tank and make sure the shoes
10 and the wipers and all that are in good shape. But
11 there's also requirements in subpart Kb for monitoring
12 and recording and reporting the true vapor pressure of
13 the contents of the tanks. So it's conceivable that
14 they would just cite Kb and say, thou shall comply with
15 these conditions. They may very well add some of their
16 own. We don't know yet.
17 **Q. Okay. Thank you very much. And, again,**
18 **Mr. Hansen, you provided prefiled testimony in this**
19 **matter that's already been provided to the council. So**
20 **for the purposes of today's testimony, I want to ask**
21 **that you focus on the testimony of some other witnesses**
22 **in this case who have provided testimony regarding**
23 **air-related issues.**
24 **First, I would like to ask you if you have had**
25 **the opportunity to review Dr. Elinor Fanning's prefiled**

1 **testimony?**
2 A. Yes, I have.
3 **Q. Okay. And there's a folder in front of you**
4 **there that includes Ms. Fanning's testimony should you**
5 **need to refer to it, so you've got that available.**
6 **Let me first ask you about Ms. Fanning's**
7 **qualifications. Are you aware of what her specialty is?**
8 A. Only from her direct testimony, yes. She's a
9 biologist and has training in -- a Ph.D. in
10 environmental health hazard assessment as well.
11 **Q. Okay. And is she a toxicologist?**
12 A. I don't know. I don't know if that encompasses
13 toxicology or not. I anticipate that there's quite a
14 bit of toxicology. I do know that she played a role in
15 toxicology in her California job.
16 **Q. All right. And I would ask you to turn to**
17 **page 2 of Ms. Fanning's testimony if you could. And**
18 **there's a reference on page 2 to what Ms. Fanning**
19 **characterizes as chemicals of concern. Do you see that**
20 **reference?**
21 A. Which line is it?
22 **Q. I'm sorry.**
23 A. Oh, I see. It's in the heading. It's in the
24 heading, yes.
25 **Q. I'm working from the floor here.**

1 A. Identification of chemicals of concern, yes.
2 **Q. Okay. And those chemicals of concern that she's**
3 **discussing there are particulate matter, PM, and some**
4 **others. Do you see that reference?**
5 A. I do, yes.
6 **Q. Okay. And what generally are those -- and if**
7 **you could, just state what those are.**
8 A. Well, for the most part, particulate matter,
9 oxides of nitrogen, sulfur dioxide, carbon monoxide,
10 VOCs, lead, those are what we call -- actually not VOC.
11 Those are all criteria pollutants. Those are the six
12 pollutants that we focus on the most. Those are the
13 pollutants for which we have National Ambient Air
14 Quality Standards. And elsewhere, at least in her
15 testimony, she also brings up other pollutants that we
16 might call toxic or hazardous air pollutants.
17 **Q. All right. And are these -- and, again, I'm**
18 **using Ms. Fanning's testimony -- chemicals of concern**
19 **substances that you accounted for in the air permit**
20 **application?**
21 A. Yes.
22 **Q. Okay. And can you just describe for the council**
23 **what regulatory standards essentially apply to -- again,**
24 **what she's characterizing as chemicals of concern,**
25 **whether those are criteria pollutants or toxic or**

1 **hazardous air pollutants?**
2 A. We have two kinds. Nationally we have the
3 National Ambient Air Quality Standards that I alluded to
4 a minute ago, and those are established by EPA in a long
5 process involving experts from all over the country.
6 That's usually a multiyear project to come up with -- to
7 review the current state of the science to determine
8 whether the NAAQS -- I use that term. Okay. When I say
9 "NAAQS" -- I'll try to remember to say "ambient
10 standards" -- but National Ambient Air Quality
11 Standards, to determine whether the ambient standards
12 are current and reflect current science. So that's one
13 set of standards, the National Ambient Air Quality
14 Standards. We consider that -- that's sort of the gold
15 standard.
16 And then there are also -- here in Washington,
17 we have a separate rule the Ecology established for
18 toxic air pollutants, and it includes, I want to say --
19 it includes several hundred pollutants, and it also
20 includes the criteria pollutants, but those are only
21 regulated here in Washington and maybe some other
22 states. The list varies. So there's two sets.
23 The toxic air pollutant list is designed to
24 evaluate a project. The National Ambient Air Quality
25 Standards are designed to help evaluate the total

1 effect, so the project, plus the background.
2 **Q. And, Mr. Hansen, I draw your attention to the**
3 **exhibit that's displayed currently and, unfortunately, I**
4 **can't see the number on it. That's referring to**
5 **Exhibit 1, page 819. Can you explain what this**
6 **represents?**
7 A. The annual -- yes. This is a summary table of
8 the sources of emissions at the stationary source. When
9 I talk about stationary source now, which is what we're
10 permitting here in Section 5.1 for EFSEC, we're talking
11 about the physical equipment that's on the ground at the
12 site that they control and its emissions. So the
13 stationary source includes boilers, the vapor
14 combustors, leaks from what we call components, the
15 valves and connections and so forth from the piping, the
16 tanks and the fire water pump engines. And this is just
17 a summary that shows the annual emissions from the
18 facility.
19 And the reason we do this, aside from the need
20 to do the modeling, is that the annual emissions are to
21 determine what permit path is appropriate. And in this
22 case, we cite this table and say that the appropriate
23 path is a minor source permit as opposed to a major
24 source permit.
25 **Q. All right.**

1 MR. JOHNSON: And I'm going to ask you to
2 pull up exhibit -- again, it's Exhibit 1, page 842.
3 BY MR. JOHNSON:
4 **Q. And while we're waiting for that, you referenced**
5 **the ambient air quality standards. Does the emissions**
6 **analysis that you've engaged in draw any conclusion with**
7 **regard to whether or not the facility will meet ambient**
8 **air quality standards?**
9 A. That's what's displayed in this table. You
10 probably can't read it, but basically this table
11 presents the -- well, it's not --
12 **Q. You want to go back to the other table?**
13 A. No, actually this is one -- I can't quite see
14 this. I think this is only showing the facility
15 impacts. So then what we do, you'll see here that --
16 this is a comparison for the SILs. Actually, I should
17 have identified another table. The next one is one
18 that's probably the very next table in this list that
19 shows the total concentrations. This is the project
20 alone, and we compare it with what we call a significant
21 impact level. When the project values, right underneath
22 it, 21 there, where it says, design concentrations
23 exceed the sill, then we go and add the background
24 concentration, so we get a cumulative concentration for
25 comparison to the standards.

1 **Q. I'm sorry to cut you off.**
2 MR. JOHNSON: Could you go to next page,
3 please.
4 BY MR. JOHNSON:
5 **Q. Sorry, Mr. Hansen.**
6 A. Sorry if I cited the wrong one.
7 **Q. No, you're okay. Just want to make sure we get**
8 **you on the right page here. And you can continue to**
9 **explain while we're waiting. It takes some time to get**
10 **these exhibits up.**
11 A. Well, the idea is that we first look and compare
12 project impacts against the significance level. If
13 we're less than significance level, EPA and Ecology
14 agree that it doesn't have a significant effect and you
15 don't even bother adding background.
16 So if it's greater than the SIL, the significant
17 impact level, we go ahead and add background as it
18 exists today, without the project, and compare it with
19 the ambient standard. So that's what this table does.
20 And you'll see that the total concentrations there,
21 which includes the project plus background, is less than
22 the National Ambient Air Quality Standards.
23 **Q. Okay. And then back to Ms. Fanning's -- well,**
24 **let me just follow up with a question related to the**
25 **SIL. Can you -- I know that air -- the area of air**

1 **permitting is an alphabet soup, but can you tell us what**
2 **"SIL" stands for again?**
3 A. It's that significant impact level established
4 by EPA. If it's less than that, it's basically a
5 di minimus source and we go no further.
6 **Q. Thank you. And could I just ask you to speak up**
7 **a little or speak into the mic so you don't trail off.**
8 **The court reporter sometimes has a hard time hearing,**
9 **and the other thing I would ask is that -- I know it's**
10 **difficult, but try to pace yourself because he's got to**
11 **keep up.**
12 A. Glare at me if I go too fast.
13 **Q. Okay. Back to Ms. Fanning's -- so just to be**
14 **clear, as it relates to the Vancouver Energy project,**
15 **was there any exceedances of the applicable SILs?**
16 A. Yes. There were a couple that were over the
17 SILs. I don't recall exactly which ones. I suspect
18 that PM and NO2 would be over the SILs. I can't see it
19 from here.
20 **Q. Okay. And what's the next step if the SIL is**
21 **exceeded?**
22 A. The next step is where you add the background
23 concentrations that's based on monitoring data.
24 **Q. Okay. And did you engage in that exercise?**
25 A. Yes.

1 **Q. Okay. And then what did you conclude based on**
2 **adding in the background?**
3 A. We added the background in this table, and
4 concluded that the total concentrations are less than
5 the ambient standards.
6 **Q. Okay. Now, in Ms. Fanning's testimony, she**
7 **suggests that you should have modeled for certain**
8 **chemicals of concerns for something called "mobile**
9 **sources." Can you describe what "mobile sources" are?**
10 A. Yes. In contrast to the fixed structures at the
11 facility, mobile sources in this case would include
12 vessels that will carry crude away from the terminal,
13 the tugboats that help it maneuver to the dock. It will
14 include the trains. So those are mobile sources. And
15 they're not included in our stationary source permit
16 application.
17 **Q. Okay. And why aren't they included in the**
18 **stationary source permit application?**
19 A. There are -- there's a whole range of other
20 programs that deal with mobile sources. EPA -- I mean,
21 we all know about how emission standards for cars have
22 gotten more stringent over the last 30, 40 years and
23 that -- those increasingly stringent standards is why we
24 have the good air quality we have today despite more
25 people and more traffic.

1 The same thing is -- the other programs are
2 being applied to vessels, ship emissions and to
3 locomotives. So the same thing has been happening
4 there.
5 It's not -- it's one thing for the Department of
6 Ecology or EFSEC or a local agency like Southwest Clean
7 Air to be able to set eyes on a stationary source and
8 regulate it, but vessels and railroad locomotives are
9 here today and somewhere else tomorrow. So it's a
10 little difficult to regulate them in the same format as
11 you would a stationary source.
12 **Q. So did you do any modeling, then, related to**
13 **mobile sources?**
14 A. We didn't model them as part of our permit
15 application, but we did model them as part of our
16 preliminary draft EIS that we prepared.
17 **Q. Okay. And I'm not going to be asking you any**
18 **questions about that because -- because that is a**
19 **separate process. So I want you to focus your testimony**
20 **on the application.**
21 A. Okay.
22 **Q. Let's turn back to Ms. Fanning's testimony.**
23 **Now, she has suggested that your analysis, that is, your**
24 **emissions analysis, is incomplete and she discusses**
25 **reactions that happen in the atmosphere. Do you recall**

1 **her testimony in that regard?**
2 A. I do, yes.
3 **Q. And can you describe what you understand her to**
4 **be saying and your response?**
5 A. Yes. There are -- she's referring to reactions
6 that occur in the atmosphere. There's -- there are
7 chemical reactions that take place in the atmosphere
8 after pollutants are emitted. They contribute to
9 regional haze and other things, but really, she's asking
10 why we didn't evaluate secondary formation of
11 particulate matter from the gases that are emitted by a
12 facility. And she's also asking about formation of
13 ozone and so forth.
14 The primary reason that we don't -- well, there
15 are two reasons, really. The model that is prescribed
16 for us to use in these permit applications is called air
17 mod. Air mod does not have the capacity to evaluate
18 secondary aerosol formation. We do evaluate secondary
19 aerosol formation -- and air mod is used for near field
20 evaluations, so somewhere in the range of up to
21 50 kilometers, 30 miles from the facility. We do
22 consider secondary aerosol formation when we look at
23 long-range transport. So if we were to look at impacts
24 to Mt. Rainier, for example, or Olympic National Park,
25 or some distant thing, that's where secondary aerosol

1 formation becomes important.
2 Our impacts are on the fenceline here at this
3 facility. If you look at the figures that we've drawn,
4 they're right on the fenceline. There's no time for the
5 secondary aerosol formation to take place. And it's --
6 so in that regard, from a technical perspective, is just
7 not warranted.
8 If you want to know what the effect is, you
9 know, 50 miles away, then it would be appropriate to
10 look at secondary aerosol formation. And the same is
11 true for formaldehyde. I think she raised formaldehyde
12 as well. Why didn't we look at the gradual degradation
13 and breakdown of volatile organic compounds emitted by
14 the facility and how they turned into formaldehyde?
15 I acknowledge that it will happen, but it
16 happens over the course of days, the half-life for that
17 chemical conversion happens in days. It's not going to
18 be a local phenomenon if it happens. So that's why we
19 focused on direct emissions.
20 **Q. Thank you. And the court reporter is too polite**
21 **to glare at you, but he's glaring at me. Again, if we**
22 **could just slow it down a little bit. Okay?**
23 **Ms. Fanning also discusses something she refers**
24 **to as DPM, or diesel particulate matter. And I believe**
25 **it's also referred to on occasion as DEP. What is this?**

1 A. This is a hard one for us because we -- we air
2 quality nerds are very precise in our terminology. We
3 know what NO2 is and we know what ozone is and we know
4 what -- we even know what PM2.5 is, which is the
5 difference between particles less than two and a half
6 microns and particles less than 10 microns.
7 We try to be very precise in how we define a
8 pollutant. And, in fact, particulate matter is really
9 defined by the test method. Ecology has established a
10 standard for diesel engine particulate matter. There is
11 no standard for it. I mean, there is no test method for
12 it, and different people interpret it different ways.
13 Diesel -- we call it diesel particulate matter,
14 DPM. Some people say diesel engine exhaust particulate
15 matter, DEEP. Other people call it -- there's a long
16 list. And we characterize it often just by saying all
17 the DPM2.5 from a diesel engine source is diesel
18 particulate matter. So we don't have a test method for
19 it. It's convoluted, because in the real world, PM2.5
20 includes both a filterable part and a condensible part.
21 I know this is getting a little nerdy, but it's
22 important when we talk about diesel particulate matter.
23 Ecology interprets the science on which their
24 diesel particulate matter standard is established on,
25 based on as considering only the filterable part, only

1 the part that is directly emitted from the combustion
2 source, from the diesel engine. But there's also a
3 condensible part, meaning some of the gases are still --
4 some of the emissions are still gases that condense in
5 the atmosphere and form particulate matter later on.
6 That's why sometimes from a smokestack you'll see a
7 plume that's not right at the stack. It happens a
8 little bit downwind, because the gases will condense and
9 form particulate matter.
10 When we test mobile sources, we -- that test
11 method includes the condensible portion of particulate
12 matter. But when we apply it to stationary sources, we
13 only consider the filterable part. So which is it? How
14 are we supposed to define diesel particulate matter?
15 And another one is that it applies to diesel
16 engines, but it doesn't apply if we have a boiler that
17 burns diesel.
18 So it's a complicated -- we know -- we generally
19 know that diesel particulate matter is something that
20 comes out of a diesel engine, but when you try to be
21 precise about it and compare it with an ambient
22 standard, it's challenging.
23 **Q. And are there emission sources for, and I'll use**
24 **the term "diesel particulate matter," at the Vancouver**
25 **Energy terminal?**

1 A. Ecology -- it's a little tricky. I believe
2 EFSEC will apply Ecology's toxic air pollutant program,
3 and that includes a diesel particulate matter ASIL,
4 A-S-I-L, acceptable source impact level. And I'll try
5 to use the full language.
6 So Ecology has established that program for
7 diesel engine particulate matter, but Southwest Clean
8 Air, who may end up implementing the permit, if issued,
9 doesn't have a diesel particulate matter ASIL. They
10 elected not to adopt that because of some of the great
11 issues that were raised earlier.
12 **Q. Okay. And with regard to diesel particulate**
13 **matter emission sources at the -- at the terminal, is**
14 **there an issue?**
15 A. We evaluate the stationary source, the only
16 source of diesel particulate matter at this stationary
17 source is testing -- maintenance testing of the diesel
18 engines that power the fire water pumps and that's just
19 an occasional test.
20 **Q. And was there any exceedance?**
21 A. No, it did not exceed the acceptable source
22 impact level that Ecology has set.
23 **Q. All right. Thank you. If you could look at**
24 **page 8 of Ms. Fanning's testimony, and I'm specifically**
25 **referring to line 7 -- well, line 6 beginning, "Exposure**

1 **levels." Do you see that?**
2 A. Yes, I do.
3 **Q. Can you read that down through where it begins**
4 **to say "rather than present"? Can you just read that,**
5 **please, out loud.**
6 A. "Exposure levels that will be caused by the
7 terminal are unknown, but the Tesoro Savage documents
8 argue that exposures will remain below levels of
9 regulatory significance. Whether or not that proves to
10 be true, adverse health effects occur at exposure levels
11 below regulatory air quality standards. Regulatory
12 compliance does not ensure public health protection."
13 **Q. All right. Thank you. And I know it's**
14 **difficult to go slow when reading like that. I'm trying**
15 **not to put you in that position too many times because**
16 **it's hard for the court reporter.**
17 **How do you respond to that statement?**
18 A. Well, we spent many, many weeks calculating
19 emissions and applying dispersion models to identify
20 what the concentrations are at the fenceline in the
21 neighborhood, Fruit Valley neighborhood. We calculated
22 concentrations at 8,000 receptors, model receptors. At
23 8,000 places we calculated what the concentrations would
24 be. So I think we do know what the exposure to the
25 population within five miles or so of the facility is.

1 **Q. Okay. And earlier you testified about the**
2 **ambient air quality standards and that they were**
3 **promulgated to be protective of human health and the**
4 **environment. Again, do the emissions from the Vancouver**
5 **terminal comply with the ambient air quality standards?**
6 A. Yes, they do.
7 **Q. Okay. Dr. Fanning also comments about the fact**
8 **that the terminal could receive oil derived from what**
9 **she characterizes as, quote, tar sands, unquote, and**
10 **that this should be addressed here at this facility and**
11 **perhaps more broadly at refineries. Any reaction to**
12 **that?**
13 A. I think her discussion of tar sands implies --
14 states that there are various metals that are in the tar
15 sands that ought to be a concern. This crude oil is not
16 being combusted at this facility, so I don't know how
17 those metals would be released. I don't see that it's
18 relevant at all for this facility. And as for the
19 refineries, because they're not going to volatilize, to
20 my understanding, they're not going to -- metals aren't
21 going to evaporate. And as far as the refineries go, I
22 know that refineries receive some of that today. So
23 it's not going to be a change for them.
24 **Q. Okay. And you're not permitting a refining**
25 **operation here; is that right?**

1 A. I'm not.
2 **Q. And I shouldn't say "you're permitting." You**
3 **have not submitted a permit application for a refinery**
4 **operation?**
5 A. (Nods head.)
6 JUDGE NOBLE: Mr. Hansen, you just nodded in
7 answer to that question.
8 THE WITNESS: I'm sorry.
9 A. I have not submitted a permit application for a
10 refinery as far as this project goes. I'm only
11 submitting an application for the stationary source for
12 Vancouver Energy.
13 BY MR. JOHNSON:
14 **Q. Okay. And then Dr. Fanning provides some**
15 **testimony about daily mortality rates as they relate to**
16 **particulate matter and increases in particulate matter.**
17 **Do you recall that testimony?**
18 A. I do, but it would be best if I spotted it.
19 Again, she talked about particulate matter in general
20 and then also diesel particulate matter. I think the
21 particulate matter one, where she was referring to PM2.5
22 concentrations in increases of 10 micrograms. Yes,
23 that's what I remember.
24 **Q. Okay. And assuming that -- because I want to**
25 **move this along as best we can. Assuming that she**

1 **stated that there's an indication of daily mortality**
2 **increases of .5 to 3 percent for any 10 micrograms**
3 **increase in particulate matter, that's what she said?**
4 A. That's it.
5 **Q. So how do you respond?**
6 A. That may be true. I don't know. I'm not
7 familiar with the study that she's citing. But it's not
8 relevant here, because the largest increase that we
9 identified for PM2.5 is less than 6 micrograms and it's
10 right on the fenceline. So when we get to places where
11 the public is being exposed -- the Fruit Valley
12 neighborhood is nearly a mile away and the
13 concentrations are -- PM2.5 are on the order of, I want
14 to say, a quarter of a microgram per cubic meter, so a
15 very small number. So it's not close to the
16 10 micrograms that she's citing.
17 **Q. And Dr. Fanning also makes a statement with**
18 **regard to NO2 exposures. Are those nitrogen oxides; is**
19 **that right?**
20 A. NO2 is nitrogen dioxide.
21 **Q. Dioxide. Okay. All right. At any rate, she**
22 **talks about nitrogen dioxide in the Fruit Valley**
23 **neighborhood and exposures, and says that it's**
24 **reasonable to expect impacts on children. Any reaction**
25 **to that testimony?**

1 A. Well, I get a little bit frustrated because
2 there is a lot of criticism of our methodology and our
3 emission calculations and our modeling, but she does
4 rely on our results.
5 The problem is, is that she's citing -- what we
6 put on the table -- when I put in the last table we
7 looked at, is the maximum concentration that our model
8 predicts because we have to show compliance with the
9 standards everywhere. That includes around the
10 fenceline. And, in fact, it's within the port property
11 we do the stationary source calculations. That's inside
12 Port of Vancouver property, not -- it's right on Tesoro
13 Savage's fenceline.
14 So when we predict a value there, it might be
15 for NO2, for nitrogen dioxide, we predicted values that
16 were fairly close to ambient air quality standard.
17 Almost everybody does. It's a very, very stringent
18 standard; it's very challenging.
19 But when -- so she cites that and says there's
20 going to be health impacts in the neighborhood that's
21 less than half that. So that's the challenge that we
22 have.
23 **Q. Okay. I would like to turn now to the testimony**
24 **of Dr. Sahu. You also have a copy of his testimony**
25 **there in front of you in case you need to refer to it.**

1 **Do you see that?**
2 A. Yes.
3 **Q. Okay. Well, before we turn there, I just want**
4 **to ask you one last question, and that relates to a**
5 **specific pollutant, and that's greenhouse gases. Can**
6 **you describe specifically for the council's benefit what**
7 **your findings have been relating to greenhouse gas**
8 **emissions at the facility, that is, the terminal**
9 **facility?**
10 A. We calculate the greenhouse gas emissions from a
11 wide variety of sources, but for virtually all of the
12 combustion sources. And we calculate 95,000 tons per
13 year of greenhouse gases. The reason we do that is, at
14 least for a while, greenhouse gases could trigger a
15 major source status and a different permitting process.
16 They don't anymore, but that threshold was 100,000 tons.
17 100,000 tons of greenhouse gases is what EPA,
18 Environmental Protection Agency, said should trigger the
19 major source industrial permitting path. So we're less
20 than the major source thresholds for that and for all
21 the other pollutants.
22 **Q. Okay. And those GHG emissions from the sources**
23 **at the Vancouver Energy terminal, do you have any idea**
24 **how those might relate to statewide GHG emissions?**
25 A. They're on the order of a tenth of a percent.

1 **Q. Okay. All right. Now let's turn to Dr. Sahu's**
2 **testimony. And Dr. Sahu focuses on a couple of**
3 **principal areas, and I'm going to start with his**
4 **discussion of what he characterizes as fugitive**
5 **emissions at the marine vessel loading facility at the**
6 **terminal. Do you recall generally his testimony about**
7 **that issue -- those issues?**
8 A. Yes, I do.
9 **Q. Can you look at paragraph 43 on page 19 of his**
10 **testimony.**
11 MS. MASTRO: Mr. Johnson, would you like
12 that on the screen?
13 MR. JOHNSON: If you can bring it up, sure.
14 BY MR. JOHNSON:
15 **Q. And while we're waiting to bring that up, do you**
16 **see where he lists a number of factors that -- where he**
17 **says, you know, as a general matter, any calculation**
18 **will depend on these factors?**
19 A. Yes, I do.
20 **Q. Okay. And do you generally agree that those are**
21 **factors that you would consider?**
22 A. Absolutely, yes.
23 **Q. Okay. And then Mr. Sahu proceeds -- okay,**
24 **there's the exhibit.**
25 MR. JOHNSON: I apologize to the council.

1 It was my understanding that you had the direct
2 testimony available to you. So if you don't, we can
3 slow down and pull it up.
4 JUDGE NOBLE: I have to ask the council if
5 they do, but I don't. I thought it was maybe just our
6 error and it was available somehow.
7 MR. JOHNSON: I understand.
8 JUDGE NOBLE: I would have to ask the
9 council. Do you have Dr. Sahu's prefiled testimony?
10 I'm seeing nods. Not everyone has it.
11 MS. MASTRO: Council members, if we go to
12 the opponent's page, prefiled testimony.
13 JUDGE NOBLE: It might be better just to
14 proceed a little slower and we can pull it up on the
15 screen.
16 MR. JOHNSON: I'll do my best to do that. I
17 didn't want to get bogged down in having to look at
18 every page, but we can, you know, do that.
19 JUDGE NOBLE: In the meantime, we'll try
20 getting it up on the SharePoint site.
21 MR. JOHNSON: Okay.
22 BY MR. JOHNSON:
23 **Q. Okay. So, again, in paragraph 43 on the exhibit**
24 **that's currently on the screen, I was asking you about**
25 **these factors, and you indicated that that -- generally,**

that's a sound description of things that you would consider?

A. Yes.

Q. Okay. All right. And then Mr. Sahu walks through several of the factors that he takes issue with with regard to marine vessel emissions, and one of them is total vapor pressure and Reid vapor pressure. And could you just remind the council again what true vapor pressure you used as part of your calculations.

A. We used a Reid vapor pressure of 11 because that was going to be the limiting factor from the tanks.

Q. I just want to confirm, is that true vapor pressure or Reid vapor pressure?

A. It is true vapor pressure.

Q. Okay.

A. It corresponds with the Reid vapor pressure, and that's more like 13.8, or something like that.

Q. Okay. All right. And you've already addressed the basis for that.

And then Mr. Sahu proceeds to discuss something called "crude vapor molecular weight." Can you describe what that is?

A. We know that helium is lighter than air. Air is a molecular weight of about 28. Helium is 2. So molecular weight is relevant to hydrocarbons. And the

1 calculations, when we talk about the mass emissions,
2 that means pounds per hour from the tanks, for example.
3 So it's important not -- when the tanks are filled, they
4 displace air out vents, and that's a volume. In order
5 to know what the mass emissions are, in other words,
6 pounds per hour or tons per year, you have to know what
7 the molecular weight is. How much does a mole -- or a
8 volume of gas weigh? So we multiply those together --
9 **Q. I'm sorry to interrupt. I'll just ask you to**
10 **slow it a little bit. Sorry.**
11 A. Sorry. So molecular weight is important when we
12 calculate mass emissions of the volatile.
13 **Q. Okay. And do you recall what Dr. Sahu indicated**
14 **would be an appropriate molecular weight for crude**
15 **vapor?**
16 A. I think she was proposing values anywhere from
17 45 to 110, or something like that.
18 **Q. And what assumption did you use in your**
19 **analysis?**
20 A. We used a value that is in the Environmental
21 Protection Agency's bible, if you will. It's the -- we
22 call it AP-42. I think it stands for air pollution 42.
23 It's basically the bible that we turn to for information
24 on emissions from various types of sources. There might
25 be one for combustion turbines, another one for diesel

1 engines, another one for tanks. There's another one for
2 incinerators. And so AP-42 has a very extensive
3 discussion of emissions for tanks. And the value that
4 they have in there for the molecular weight of crude is
5 50, and that's what we went with.
6 **Q. All right. Now, on page 25 of Dr. Sahu's**
7 **testimony, he begins to comment about what he calls,**
8 **again, fugitive emissions from the marine vessel loading**
9 **area, and his first point -- and so, again, this --**
10 **looks like we're tracking. Again, this is -- this issue**
11 **relates to -- or what he says is collection efficiency.**
12 **What -- capture collection efficiency. What is he**
13 **discussing there?**
14 A. So let me talk about a control device, such as
15 the marine vapor combustors. There's two components.
16 One is how much of the vapors can you collect and
17 capture and get to the combustion device. And the other
18 component is how well does that control device oxidize
19 what you've captured.
20 So here he's talking about the capture or
21 collection efficiency. And he's suggesting that our
22 assumption that the capture efficiency is 100 percent is
23 erroneous.
24 **Q. Okay. And where did you -- where did you get**
25 **the assumption of 100 percent capture rate at the**

1 **vessel?**
2 A. This was told to us by Tesoro Savage.
3 **Q. Okay. And do you have any particular knowledge**
4 **regarding vapor tightness of marine vessels or capture**
5 **efficiency?**
6 A. My only general knowledge is that it's not good
7 to have VOC leaks on a tanker. So I think there's
8 another expert who will testify as to why -- all the
9 precautions that go into making sure that they are vapor
10 tight.
11 **Q. Okay. Thank you. And I want to turn now to**
12 **another focus of Mr. Sahu's testimony. And this relates**
13 **to the large storage tank emissions. And this**
14 **discussion picks up generally on page 35 -- or 34, I**
15 **believe. Maybe 33.**
16 **At any rate, I want to focus on some specific**
17 **issues that he relate -- that he raises with regard to**
18 **how you assessed the large storage tank emissions. And**
19 **by "large storage tanks," what are we referring to there**
20 **just so we --**
21 A. There are six large crude oil storage tanks
22 there, four of which are -- two of which are heated.
23 **Q. Okay. And did the fact that two are heated and**
24 **four are unheated have any impact, or did you need to**
25 **take that into consideration when you were doing your**

1 **air analysis?**
2 A. It did require us to do some extra work on a
3 heated storage tank, because the -- as you probably --
4 everybody recognizes, the warmer, say, a gallon of oil
5 is, the more likely it is to evaporate. Water boils
6 faster when it's hot. It boils. It evaporates faster.
7 It's the same thing with crude. If you heat the crude,
8 it will volatilize more, and we needed to evaluate that.
9 **Q. All right. And Mr. -- oh, I'm sorry. Dr. Sahu**
10 **takes issue with the software program that you used in**
11 **conducting your emissions analysis related to the**
12 **storage tanks. Specifically, he -- and I think he**
13 **begins this discussion on page 33. He refers to**
14 **something called "EPA TANKS" software. Can you just**
15 **describe what that is?**
16 A. TANKS is a computer program that EPA has made
17 available. It was developed, I believe, by a staffer at
18 EPA, and it's been in use for quite some time. It's --
19 it basically is a computerized version of the equations
20 and the methodology that's in AP-42. Remember I told
21 you that's their bible that explains how you can
22 calculate emissions from various emission sources. So
23 this -- the EPA -- the AP-42 is a very long, very
24 lengthy procedure, and this is simply a computerized
25 version of what's in AP-42.

1 **Q. All right. And I think you provided some**
2 **previous testimony about what AP-42 is. Did you use the**
3 **TANKS modeling in your analysis?**
4 A. We did.
5 **Q. Okay.**
6 A. We used it explicitly for evaluating the
7 unheated tanks and we used a spreadsheet that we
8 developed that mirrors all those calculations to do the
9 heated tanks because we had to do special calculations
10 for the higher temperature.
11 **Q. All right. And Mr. -- or Dr. Sahu takes issue**
12 **with the use of TANKS because of some EPA warnings that**
13 **have been provided about it. Can you discuss those**
14 **warnings?**
15 A. Yes. In big red letters on the home page of the
16 TANKS section of EPA's website, it says -- it has a
17 whole bunch of warnings about it. The primary warning
18 really is that they no longer support its use for some
19 Windows platforms, Windows 7, Vista, Windows Vista.
20 They say they're not going to go to the effort of trying
21 to upgrade that software so it will be running properly
22 on those platforms. Fine.
23 It also -- their website also identifies several
24 glitches in the program. Computer models often have
25 glitches. You reveal them. Skilled modelers know what

1 the glitches are and know how to avoid them and they're
2 on the website. We know none of the glitches affected
3 us.
4 So the important thing is, while they say, we're
5 not going to support it for -- any longer, in other
6 words, provide technical support for it, they also say
7 that they continue to support all of the equations that
8 are in AP-42. So it's primarily just a software issue
9 for them and the desire not to have to upgrade their
10 software to comply with the latest Microsoft products.
11 **Q. And you referenced the use of a spreadsheet**
12 **based on the AP-42 analysis. Did you compare the**
13 **results from that spreadsheet analysis to the results**
14 **from the TANKS analysis?**
15 A. We did. And they matched.
16 **Q. All right. Dr. Sahu also references something**
17 **called "DIAL." I assume that's not the soap brand. Can**
18 **you describe for the council what he's referring to?**
19 A. DIAL is a remote-sensing technique. It's
20 D-I-A-L. It's a remote-sensing technique based on
21 LIDAR. LIDAR is used in airplanes, I think, to do
22 elevations. You can run a LIDAR down a path, and it
23 will pick up on the signatures of various volatile
24 organic compounds. So he's referring to a study that
25 was done by the Texas -- for Texas Commission on

1 Environmental Quality, Texas' Ecology. And he reports
2 the results of the DIAL studies. DIAL studies indicate
3 that the measurements are higher than what TANKS
4 predicts. And so he makes the assertion that TANKS --
5 our use of TANKS is underestimating the actual emissions
6 from the tanks.
7 **Q. Go ahead.**
8 A. What he failed to cite, though, is that even --
9 I think it's the second or third paragraph of the
10 executive summary, the report that he cites, indicates
11 that these findings in no way are meant to imply that
12 the TANKS program itself is not operating properly.
13 Because they cite the fact that the DIAL -- while
14 remote-sensing is a great tool and it allows you to
15 understand all the volatiles that might be leaving the
16 refinery, and this is at BP's Texas City refinery, it
17 doesn't distinguish what one tank is doing versus all
18 the tanks. And it doesn't allow you to take into
19 consideration that some of the hydrocarbons may be
20 coming from other process units. It may not just be
21 picking up the tanks' fugitive emissions, it may be
22 picking up other things from our refinery. So that's
23 why they said -- we're not saying that TANKS is a bad
24 program.
25 **Q. Okay. And the results of the TANKS program are**

1 **included in the permit application; is that right?**
2 A. Yes, they are.
3 **Q. And will those be evaluated as part of that**
4 **permit application?**
5 A. I'm sure EFSEC staff are looking at them right
6 now.
7 **Q. Okay. Dr. Sahu also provided some testimony**
8 **regarding your greenhouse gas emission analysis. Have**
9 **there been any reductions in greenhouse gases as a**
10 **result of design changes at the facility as the design**
11 **has evolved?**
12 A. Yeah, I think -- yes. I think Mr. Corpron
13 alluded to some of the design changes that are -- we've
14 all been -- I mean, this is an evolving design. It
15 happens on all projects.
16 We scaled back on our request for firing rates
17 for the boilers, the ones that provide steam to unload
18 the rail cars. We scaled way back on what we asked for
19 in terms of firing rate. By reducing the natural gas
20 consumption there, we reduced greenhouse gas emissions
21 significantly.
22 We also replaced the boilers that would fire
23 natural gas to heat the tanks to the tanks. They
24 switched those to electric. There were also some
25 changes in the assumptions about the molecular weight of

1 the vapors that are coming back from the ship's being
2 loaded.
3 So, you know, in a sense the potential emissions
4 that were allowed from that source, we took a voluntary
5 limit on by assuming a lower value there. We're
6 expecting to get a permit limit.
7 **Q. All right. And do you know if the applicant has**
8 **offered any mitigation for greenhouse gas emissions as**
9 **part of its application?**
10 A. I do know that they offered almost half a
11 million dollars. That mitigation fee payment is based
12 on the same formula that we applied to the combustion
13 turbine projects that come before EFSEC.
14 **Q. And do you know if that mitigation payment or**
15 **any similar payment is required by law?**
16 A. It is not required except for combustion turbine
17 projects, for fossil fuel-fired generating facilities.
18 **Q. And is the Vancouver Energy terminal such a**
19 **facility?**
20 A. No, it is not.
21 **Q. Okay. Dr. Sahu also levels some criticism about**
22 **your -- well, "your." I should say, the applicant's**
23 **discussion of climate change in the application for site**
24 **certification. Do you recall that?**
25 A. I do.

1 **Q. Okay. And do you know if the -- if climate**
2 **change is discussed as part of the application for site**
3 **certification?**
4 A. There is reference to potential -- the general
5 effects of greenhouse gas emissions and climate change.
6 There's a general discussion in the document, yes.
7 **Q. Okay. And do you know if that's something**
8 **that's required to be included in the site -- the**
9 **application for site certification?**
10 A. I believe it is.
11 **Q. Okay. And is that a requirement for the -- to**
12 **obtain an air permit for the facility?**
13 A. No, it's not.
14 **Q. And can you just comment generally on the**
15 **information in the application for site certification**
16 **regarding climate change.**
17 A. That was one area that I probably glossed over.
18 My recollection is that the discussion of climate change
19 is fairly general, acknowledging that -- some of the
20 potential weather effects that climate change -- that
21 might be expected with climate change and gradual
22 warming.
23 **Q. Okay. And in the context of your greenhouse --**
24 **well, let me ask the question this way. Is it generally**
25 **accepted that greenhouse gases contribute to climate**

1 **change?**
2 A. Yes.
3 **Q. Okay. And do you dispute that greenhouse gases**
4 **contribute to climate change?**
5 A. Absolutely not.
6 **Q. And earlier you referred to your emissions**
7 **calculations and said that this is a minor -- that is,**
8 **the terminal is a minor source of greenhouse gases**
9 **emissions. Did I hear you right?**
10 A. Yes.
11 **Q. Okay. And I think you said something along the**
12 **lines of greenhouse gases emissions being one-tenth of**
13 **1 percent of the statewide total.**
14 A. That's what I said, yes.
15 **Q. Okay. In your professional experience, based on**
16 **that level of greenhouse gas emissions from the**
17 **facility, is there a way to calculate or relate that to**
18 **climate change?**
19 A. I'm certain there are many people who would have
20 you believe that we could do that, but I don't think the
21 state of the science is there yet.
22 **Q. Okay. And did you attempt to do that?**
23 A. No.
24 **Q. Why not?**
25 **JUDGE NOBLE: I'm sorry, I was going to let**

1 **you answer that question so that we didn't forget, but I**
2 **was going to ask you to restate your numerical**
3 **conclusion about contribution because I -- I missed it.**
4 THE WITNESS: I think you're referring to
5 the fact that the 95,000 tons of CO2 equivalent from the
6 stationary source is about one-tenth of a percent of the
7 state emission rate.
8 JUDGE NOBLE: Thank you. I just wanted to
9 get that. Thank you. I'm sorry for the interruption,
10 Mr. Johnson. Maybe you'll have to tell him your
11 question again.
12 MR. JOHNSON: That's all right.
13 BY MR. JOHNSON:
14 **Q. So I think the question was did you -- first**
15 **question, did you attempt to relate the GHG emissions**
16 **from the terminal to global climate change?**
17 A. No, we did not.
18 **Q. And my follow-up question was, why not?**
19 A. Well, we're focused on a permit application that
20 has prescribed requirements and we addressed all the
21 requirements. There is no -- I mean, even if we were to
22 make a calculation, there's -- even if it were valid, I
23 don't know what we would compare it to. We don't have
24 any standards of acceptability.
25 MR. JOHNSON: Okay. Nothing further, Your

1 Honor.
2 JUDGE NOBLE: Thank you.
3 Cross-examination.
4 CROSS-EXAMINATION
5 BY MS. BRIMMER:
6 **Q. Good morning, Mr. Hansen. Bear with me, I have**
7 **a lot of notes I needed to get organized.**
8 A. So did I.
9 **Q. Mr. Hansen, my name is Janette Brimmer. I am**
10 **with Earthjustice. I represent the parties that are the**
11 **collection of neighborhood organizations and**
12 **environmental organizations in this matter.**
13 A. Good morning.
14 **Q. They're referred to as CRK, generally.**
15 A. CRK?
16 **Q. Uh-huh.**
17 A. Okay.
18 **Q. You commenced your testimony today with some**
19 **comments on Ms. Fanning's background, and I just want to**
20 **confirm my understanding from your CV is that you have a**
21 **BA in oceanography, correct?**
22 A. Physical oceanography, yes.
23 **Q. And a master's in civil engineering?**
24 A. Yes.
25 **Q. But you don't have a degree in toxicology**

1 **yourself?**
2 A. No, I do not.
3 **Q. Do you consider yourself a toxicologist?**
4 A. Absolutely not.
5 **Q. Okay. I would like to make sure that we are on**
6 **the same page with terms. There has been discussion of**
7 **minor source and major source, and I want you to confirm**
8 **for me, those are regulatory terms under the Clean Air**
9 **Act and under state law, correct?**
10 A. Yes.
11 **Q. And when I say "Clean Air Act," I'm talking**
12 **about federal law.**
13 A. Okay.
14 **Q. Whether or not this facility would be a major**
15 **source depends on whether they emit 100 tons per year,**
16 **for example, in a criteria pollutant, correct?**
17 A. Yes.
18 **Q. Okay. And by a "criteria pollutant," for**
19 **example, volatile organic compounds or nitrogen oxides,**
20 **those are two examples?**
21 A. Yes.
22 **Q. You talked a little bit in your direct testimony**
23 **about statutes and standards. You talked about federal**
24 **and state Clean Air Act laws. Is it your understanding**
25 **that the state laws cannot be less stringent than the**

1 **federal laws?**
2 A. Yes.
3 **Q. In your written testimony, you talk about the**
4 **fact that initially you had determined --**
5 A. Excuse me, let me correct myself.
6 **Q. Sure.**
7 A. As we're talking -- I don't know about all the
8 laws. I do know that we can't -- we can't ignore the
9 National Ambient Air Quality Standards. So maybe I
10 should ask you to be more precise. Are we talking about
11 the ambient standards? I can't say that all of the laws
12 are exactly the same as federal laws. But there are
13 some minor changes, for example, in the PSD program
14 where you don't have to accept everything in the
15 program. There are minor differences among the states.
16 **Q. Well, let me -- perhaps my question was unclear.**
17 **I was not asking whether there were potential**
18 **differences. What I was asking is whether you agreed**
19 **that state laws cannot be less stringent than the Clean**
20 **Air Act.**
21 A. I -- still too broad for me. I'm sorry. I
22 don't know. I would imagine that stringency depends on
23 the situation, so I can't really answer that broad a
24 question. All I can say is that ambient standards have
25 to be at least as stringent as the national standards.

1 **Q. So you don't know whether permitting standards,**
2 **for example, have to be as stringent as federal**
3 **standards?**
4 A. The federal standards -- again, this issue of
5 stringency is confusing. The feds only regulate major
6 sources. They don't have -- except on some Indian
7 lands, they don't regulate minor sources. So it's a
8 hard question to answer. I mean, we -- the states have
9 the choice of how they regulate minor sources, meaning
10 such as this particular facility. They don't have as
11 much of a choice when it comes to major sources.
12 **Q. Well, that is interesting. All right. So let's**
13 **explore that. So would you agree that in determining**
14 **whether something is a major source, a state cannot**
15 **apply less stringent standards than the federal law?**
16 A. When determining whether a source is a major
17 source -- when determining whether a PSD applies, is
18 that what you said?
19 **Q. Correct.**
20 A. Could you restate the question, please?
21 **Q. When determining whether a source, a stationary**
22 **source, is a major source, a state cannot apply**
23 **standards less stringent than federal law. Would you**
24 **agree with that?**
25 A. I would agree with that.

1 **Q. Okay. So you said that you consider the**
2 **facilities under consideration here a minor source; is**
3 **that right?**
4 A. Yes.
5 **Q. But initially, as you state in your prefiled**
6 **testimony, it was considered a major source?**
7 A. I believe that greenhouse gases exceeded 100,000
8 for -- 100,000 tons early in the project.
9 **Q. And now, because of application of some**
10 **technology, it's your position that -- and that**
11 **technology being what's referred to as BACT, best**
12 **available control technology, that the facility has**
13 **succeeded in making itself a minor source. Is that an**
14 **accurate statement?**
15 A. Well, BACT is what makes the emissions
16 reductions from many of the sources, NOx and SO2 and CO
17 and so forth, less than the thresholds. So in that
18 case, yes. I don't know that it changed all that much.
19 I think we've always been a minor source for the
20 criteria pollutants.
21 **Q. Including VOCs?**
22 A. I don't recall. It might have -- early on, we
23 might have been major for VOCs, but there were
24 adjustments made to -- I suspect that VOCs did come down
25 at one point. This has been going on for three years,

1 or so.
2 **Q. Now, let's be clear. BACT, best available**
3 **control technology, would be one of the things you'd be**
4 **required to do if you were a major source, right?**
5 A. Major or minor in Washington.
6 **Q. But under federal law, for sure?**
7 A. For sure.
8 **Q. And if you're a major source, you have to do**
9 **some other things too. There's some modeling**
10 **requirements. There's some disclosure requirements.**
11 **There's certain impacts that you have to look at, for**
12 **example, regional haze impacts on national parks and**
13 **wildernesses?**
14 A. That's right.
15 **Q. And none of those have been done here because**
16 **you have determined that the application is BACT for a**
17 **minor source?**
18 A. Because regardless of whether it was BACT or
19 operational considerations, it is a minor source.
20 **Q. Mr. Hansen, are you familiar with EPA's "once**
21 **in, always in" policy?**
22 A. I believe that apply -- it applies to some
23 programs and not others.
24 **Q. In particular, when it was initially adopted in**
25 **1995, it applied to toxic pollutants, right? And what**

1 **that principle said, and you tell me if I'm**
2 **understanding this correctly, is that if you were a**
3 **major source for toxic pollutants, you couldn't then**
4 **apply the required technology for a major source and**
5 **then all of a sudden say, oh, now I'm minor; is that**
6 **right?**
7 A. Well, first of all, they -- that's a minor
8 clarification. EPA refers to hazardous air pollutants;
9 in Washington, we refer to toxic air pollutants. But I
10 think your general comment, that once you are subject to
11 NESHAPs, the EPA's hazardous air pollutant program, yes,
12 I don't believe -- I believe that you're in for life.
13 **Q. And that's kind of what's happening here, right,**
14 **that we're applying the required BACT technology to then**
15 **claim that we're a minor source?**
16 A. I don't believe that's the case, no.
17 **Q. Are you familiar with the fact that some EPA**
18 **regions have applied this to -- the "once in, always**
19 **in," to some criteria pollutant situations as well?**
20 A. I'm not aware of that. But I want to clarify
21 that I -- we've had what we -- BACT, for one thing, has
22 not been determined yet. But we've had emission
23 controls on these units from day one. So, for example,
24 there's always been a vapor combustor. We propose the
25 emission rates that we think -- and our control

1 technologies that we believe constitute BACT. But
2 EFSEC, your staff is going to determine what really is
3 BACT. We don't get to make that decision. We just get
4 to recommend it. It hasn't been established yet.
5 **Q. Okay. Thank you for the clarification. Let me**
6 **make sure I understand it. So what you're saying, is**
7 **that you have made a BACT determination for yourselves**
8 **in order to claim that you are now a minor source when**
9 **you apply that, but that that hasn't yet been verified**
10 **by EFSEC?**
11 A. I'm saying that the -- whether we claim it as
12 BACT, or whatever, I keep getting back to -- you're
13 saying "BACT" all the time. BACT hasn't been
14 established. I'm saying that, under the project as we
15 have proposed, the combination of control technologies
16 and operational characteristics, that emissions are less
17 than the -- way below the thresholds for major source
18 under EPA's hazardous air pollutant program.
19 **Q. Well, Mr. Hansen --**
20 MS. BRIMMER: Can we pull up Mr. Hansen's
21 direct testimony, please. I'm going to approach the
22 witness.
23 BY MS. BRIMMER:
24 **Q. My question is really just by way of example.**
25 **On pages 2 going over to 3 of your prefiled written**

1 **testimony, I think you referred to the term "BACT," and**
2 **I think at the top of page 3 -- and I gave you my copy**
3 **so I can't give you the precise line -- I think you do**
4 **make the statement, it's you have determined a BACT, but**
5 **you do say that the ultimate determination is up to**
6 **EFSEC. Am I reading that correctly?**
7 A. Yes.
8 **Q. And so you do -- and in your prefiled testimony,**
9 **you have asserted that by applying BACT, you've brought**
10 **yourself down to minor source standards?**
11 A. Okay. Yes. Okay. You're right.
12 **Q. So you took what had initially been a major**
13 **source --**
14 A. We don't have a source yet.
15 **Q. You took what was initially believed to be a**
16 **major source -- I think that was your testimony -- you**
17 **applied major source air pollution control requirements**
18 **and BACT, or at least what you believed was BACT, and**
19 **then declared yourself a minor source. That's what your**
20 **permit application trajectory is, correct?**
21 A. I think you're getting into an area where it
22 sounds to me like a legal interpretation is warranted.
23 What I'm saying is that the project as we're proposing
24 it is a minor source. I mean, where I feel like you're
25 leading me is that we have a source that is constructed

1 and operating, and somehow we want to apply new
2 technology that reverts it to being less than the
3 thresholds of a major source for NESHAP's program, and
4 that's not the case here.
5 **Q. Major determinations have to be made and are**
6 **made before you start construction under the Clean Air**
7 **Act requirements, correct?**
8 A. That's right. And we have not --
9 **Q. So it doesn't matter whether or not you're up**
10 **and operating yet?**
11 A. I'm just going to repeat myself.
12 **Q. Does it matter whether you're up and operating**
13 **yet to --**
14 A. We have taken --
15 (Simultaneous discussion interrupted by
16 reporter.)
17 MS. BRIMMER: Let me repeat the question.
18 BY MS. BRIMMER:
19 **Q. Does it matter whether you're up and operating**
20 **yet when making a major source determination for a**
21 **facility?**
22 A. We actually -- no, it does not. But the policy
23 you cited, I believe applies to an operating facility.
24 "Once in, always in."
25 MS. BRIMMER: I'm going to retrieve that.

BY MS. BRIMMER:

Q. I'm going to turn to some of the specifics of your examination and your determinations for your permit application.

First, I just want to get some terminology a couple of places. I think at one point you, in response to Mr. Johnson's questions, talked about looking at leaks as a source of emissions. Do you recall that?

A. Yes.

Q. And I just want to make clear -- or determine whether you would agree, that sometimes that's also referred to as "fugitive emissions"?

A. Yes.

Q. So those are synonymous, for the most part, in this discussion?

A. If we're talking about "components." When I talk about "leaks," it means valves and so forth, fittings, where a liquid or a gas is passing through a pipe.

MS. BRIMMER: I would like to turn to Exhibit 1, page 842. That's some tables that Mr. Johnson inquired about.

BY MS. BRIMMER:

Q. And while we're waiting for that, Mr. Hansen, in doing your analysis for the permit application, which

ozone National Ambient Air Quality Standard did you use? Did you use the newest one that's going to go into effect shortly, or did you use the older one?

A. I'm not sure what you mean by "use," but, you know, you don't evaluate ozone concentrations with dispersion models for a minor source.

Q. So is your answer that you didn't -- you didn't analyze compliance with an ozone standard at all --

A. That's correct.

Q. -- because it is a minor source?

A. That's correct. That is standard procedure. It takes a very, very large source to contribute to ozone formation, and this is a very small source.

Q. And maybe so that the council knows what we're talking about, ozone is what they call a criteria pollutant and that there is a National Ambient Air Quality Standard for it, right?

A. There is a National Ambient Air Quality Standard for it.

Q. And it tends to be a problem as a result of other pollutants contributing to it, for example, VOCs or nitrogen oxides, right?

A. Those are the two dominant contributors, yes.

Q. And someone -- a polluter that emits those is contributing to the formation of ozone because it's

1 **those pollutants in the presence of sunlight, right?**
2 A. That's correct.
3 **Q. And so a lot of times, metropolitan areas, for**
4 **example, will have ozone exceedances or problems in the**
5 **summertime?**
6 A. I don't know about a lot of times. There hasn't
7 been one in Vancouver for almost ten years.
8 **Q. I'm just asking you about how it works. I'm not**
9 **asking you whether Vancouver's in compliance.**
10 A. In Los Angeles or Houston, yes, summertime, with
11 VOCs and NOx, you do have ozone challenges.
12 **Q. And, in fact, EPA has recently revised the ozone**
13 **standard, making it more stringent, correct?**
14 A. Yes, they have.
15 **Q. And it's a health issue, for the most part?**
16 A. Yes. That's an example where EPA periodically
17 reviews the National Ambient Air Quality Standards to
18 see if they're still protective. So they reduced PM2.5
19 and SO2 and NO2 and ozone standards recently.
20 **Q. Have you looked at all about -- at whether the**
21 **Greater Portland, Vancouver metropolitan area will be**
22 **within that new standard?**
23 A. So far, it's looking very promising, yes. I
24 talked to the chief engineer at Southwest Clean Air and
25 he was not aware of any exceedances.

1 **Q. There's one monitor in Vancouver, right?**
2 A. Yes, but it's regional. You know, what we do
3 for ozone is not a local pollutant, so we don't look
4 at -- for particulate matter or sulfur dioxide or
5 something, we tend to monitor close to large sources.
6 But ozone is regional. In Seattle the ozone issue is
7 Mt. Rainier. So it's regional. Having one monitor
8 there and another south of Portland, that's fine.
9 That's typical.
10 **Q. And, in fact, pollutant sources for places like**
11 **here or Tacoma can actually contribute to, strangely**
12 **enough, Enumclaw's ozone problem, correct?**
13 A. I think that's a bit of a stretch from here, but
14 certainly Tacoma affects Enumclaw, yes.
15 **Q. Okay. So we have the exhibit up, and I think**
16 **perhaps the questions that I just asked might have**
17 **answered it. But I noticed that the tables do not**
18 **include ozone and VOCs as part of your analysis. Again,**
19 **is that because of the determination that it was a minor**
20 **source?**
21 A. It is. There's a requirement of the major
22 source program, if you exceed -- I want to say if it's a
23 hundred tons of NOx or a hundred tons of VOCs, that we
24 do an ozone analysis, but here we're talking -- I want
25 to say it's 12 tons of NOx and 33 tons of VOCs. So

1 we're far below the requirements that would be applied
2 in PSD.
3 **Q. Where on that chart are the VOCs?**
4 A. Well, you don't model VOCs. You model
5 individual constituents as part of the toxic air
6 pollutant program.
7 **Q. So when you --**
8 A. There's no ambient standard for VOCs.
9 **Q. And we care about VOCs because they contribute**
10 **to ozone, right?**
11 A. Yes.
12 **Q. In your direct testimony, you discussed**
13 **Ms. Fanning's testimony and her concerns about secondary**
14 **formulation of particulates in ozone. Do you recall**
15 **that?**
16 A. Yes, I do.
17 **Q. And you noted that the reason that that was not**
18 **addressed is that AERMOD, the modeling tool, is**
19 **prescribed for permit applications, but AERMOD doesn't**
20 **work so well for the secondary formulations. Is that a**
21 **correct understanding of your testimony?**
22 A. Yes.
23 **Q. And that you might use different modeling tools**
24 **for those secondary things. And you also at the time**
25 **used as an example, I think, again, regional haze**

1 **impacts, that is, air quality impacts to national parks**
2 **and wildernesses?**
3 A. Question? Is there a question?
4 **Q. Yes. I'm sorry. You -- in talking about that,**
5 **you used as an example of the secondary effects also the**
6 **haze impacts to national parks and wildernesses?**
7 A. That's a question, right?
8 **Q. I'm asking you to confirm that that is your**
9 **testimony.**
10 A. Yes, we would use CALPA, or there are a variety
11 of regional models that can take more chemistry into
12 account. They're regional in nature.
13 **Q. Okay. So there are models available; you just**
14 **use the one that is dictated by your permit application?**
15 A. Well, it's dictated -- yeah, EPA has a set of
16 recommendations in their Appendix W that we follow, and
17 AERMOD -- I don't think there would be any disagreement
18 among any regulators, that AERMOD is the appropriate
19 model to use here.
20 **Q. And I think you also said something about you**
21 **describe the secondary impacts as not local phenomenons.**
22 **Is that an accurate statement?**
23 A. Yes, it is accurate.
24 **Q. And that using those other modeling techniques**
25 **for the secondary effects was not warranted?**

1 A. Yes, I did say that.
2 **Q. Okay. So you didn't think it was important for**
3 **the council to have that information?**
4 A. Well, I don't know what they would do with it.
5 We have identified -- you remember we have these 8,000
6 places where we calculate concentrations. And what we
7 present in that table and the other one is just the
8 highest of those 8,000 values -- the highest value at
9 each of those 8,000 receptors.
10 What I'm suggesting is that those highest values
11 are occurring close enough to the facility that
12 secondary aerosol formation or formaldehyde creation or
13 ozone, it's all di minimus. It is not important. I
14 assure you that if it was considered to be an important
15 contributor, the EPA and Ecology would be all over us
16 with a new model.
17 **Q. I think what you had said previously, though, is**
18 **that Ecology was required if a permit or regulation**
19 **required it. What I'm asking you is, did you think it**
20 **was important for the council to have the general**
21 **information about potential secondary effects that are**
22 **identified by Ms. Fanning?**
23 A. No, I didn't. Because I thought that if we
24 demonstrated that the maximum concentrations were well
25 below the standards, that that would be sufficient.

1 There is -- we're consultants. We would be happy to do
2 study after study. We try to focus on what is most
3 important, most relevant, and I think we've done that.
4 **Q. Again, your review is primarily for the**
5 **stationary source; in other words, you didn't look at**
6 **rail impacts, for example. That would be an indirect**
7 **result of the source.**
8 A. I didn't. The application for site
9 certification focuses on the stationary source. The EIS
10 focuses on stationary and mobile sources.
11 **Q. I think in page 7, lines 19 through 20, you did**
12 **talk -- in your prefiled testimony, I'm sorry. And let**
13 **me give you that again so you're not guessing.**
14 MR. JOHNSON: He has a copy at his desk, if
15 you want to turn -- I think it's the first page there.
16 THE WITNESS: The first what?
17 MR. JOHNSON: In the notebook.
18 THE WITNESS: Uh-huh.
19 MR. JOHNSON: First document. It should be
20 your testimony.
21 THE WITNESS: Really?
22 MS. BRIMMER: Thank you.
23 MR. JOHNSON: We tried to set that up.
24 A. Yes, it is.
25

BY MS. BRIMMER:

Q. Excellent. So I'm going to ask you a question about page 7, lines 19 through 20. Are you there?

A. Yes, I am.

Q. And that's referencing diesel particulate, correct?

MR. JOHNSON: Objection. Your Honor, where we're going here is an area that is solely related to the SEPA analysis. And based on your prior ruling, this testimony regarding particulate matter relating to mobile sources is irrelevant.

As Mr. Hansen testified previously, consideration of mobile sources is not part of the air permit application process. It is solely part of the SEPA review and is therefore irrelevant under your ruling with regard to consideration of the DEIS and the foundation for that ruling, which was that is a separate process.

MS. BRIMMER: Well, this is his testimony.

MR. JOHNSON: It's his testimony.

MS. BRIMMER: Are you withdrawing it?

MR. JOHNSON: It's his testimony, Your Honor, before you issued your ruling. When we filed this testimony, it was our understanding, as it was the other party's understanding, that we would, in fact, be

1 discussing environmental impact statement issues, that
2 those documents would be in the record, that we would be
3 discussing SEPA issues, and that's not where we are now.
4 MS. BRIMMER: Your Honor, I have two
5 responses to that. First of all, the court did
6 recognize that one of the sources of information relied
7 upon by experts in this case, because it is simply a
8 source of information, is the DEIS. It does not go to
9 the adequacy. There is no challenge to the adequacy.
10 We are instead looking at evidence that this council is
11 supposed to inquire into under the statute in trying to
12 understand the balance between impacts to communities,
13 impacts to the environment and the need for the energy
14 from this facility.
15 Now, this is a piece of information about
16 impacts to the environment and what has been reviewed by
17 both the proponent and the opponent. So in that regard,
18 it does not fall within the ruling excluding any
19 challenges to the adequacy of the DEIS or the DEIS
20 itself.
21 I would also then point out, second point,
22 it is an evidentiary one. This is testimony that was
23 submitted by the proponent to this council in response
24 to the obligations that this council has and what it
25 should look at under the statute and balance.

1 If what I am hearing now is that they are
2 withdrawing and willing to strike this testimony because
3 of its reference to the DEIS, that's a different matter.
4 We can deal with it then.
5 JUDGE NOBLE: I'm going to allow
6 cross-examination on this testimony. I've been trying
7 to express a more nuanced ruling, and I have previously
8 said that some of the material that is present in the
9 DEIS could come in from either side, if it's necessary
10 for counsel to prove their issues.
11 The point of the ruling was that the DEIS
12 itself and its adequacy is not at issue in this -- in
13 this case. And so I am going to allow cross-examination
14 of this witness' testimony. It hasn't been withdrawn,
15 and so I think it's fair and appropriate to allow this
16 witness to be cross-examined about it.
17 MR. JOHNSON: Your Honor, may I respond?
18 JUDGE NOBLE: Sure.
19 MR. JOHNSON: This puts us on the horns of a
20 dilemma, because we want to, as Mr. Derr said yesterday,
21 provide all the information to the council that it needs
22 to make its decision about the application for site
23 certification. But we don't have the benefit of the
24 DEIS in evidence, which is the document that the witness
25 here was testifying about in his prefiled testimony or

1 the documents that -- it's also the document that the
2 CRK witnesses were commenting on in their prefiled
3 testimony. And the reality is, that when it comes to
4 mobile source issues, and there will be other issues
5 like this, the application process, that is, the
6 stationary source analysis, in fact, informs the SEPA
7 analysis because SEPA must consider conformance with
8 applicable standards, et cetera.
9 The converse is not true. The SEPA process
10 and consideration of factors that aren't germane to it,
11 and in this case that includes mobile sources because
12 mobile sources have -- can be considered in the context
13 of SEPA; they can't be considered in the context of a
14 permit application -- for an air permit application.
15 There's a disconnect.
16 And so what we're doing now is we're
17 proceeding with a line of questioning about an issue
18 that is solely a SEPA issue, solely a SEPA issue,
19 without the benefit of the underlying documents. And it
20 could be that we're going to have to review our
21 testimony, in light of your ruling, and withdraw it and
22 they would have to -- they would have to reciprocate.
23 So it's just -- this is -- this is
24 indicative of a problem, and it ties one hand behind our
25 back if we're going to open up the SEPA -- and this

1 issue is being dealt with in the SEPA analysis. So
2 again, if we're going to open up, it seems that we need
3 to have it open. And if we're not, then we shouldn't go
4 there.
5 MS. BRIMMER: Your Honor, I have a citation
6 that may be of assistance. The hearing schedule
7 guidelines for this body, WAC 463-30-300, provide, in
8 any adjudicative site certification proceeding, the
9 council shall -- that is mandatory language -- after
10 consultation with the parties, schedule the hearing
11 process so that the following subject areas may be
12 heard; that includes on-site and local impacts,
13 including atmospheric; it includes peripheral area
14 impacts, all categories.
15 And so it is not that we are trying to argue
16 that SEPA informs this process. What we are doing is
17 inquiring into direct exam and testimony that has been
18 proffered and apparently admitted. And so if they're
19 going to maybe have it in, then I get to cross-examine
20 on it.
21 JUDGE NOBLE: All right. I understand the
22 arguments, and I'm ready to rule. I want to remind
23 counsel that there are a number of exhibits that have
24 not yet been admitted, but I have indicated to counsel
25 that when they specifically are -- on the data requests,

1 and I have already said that if they are not presented
2 in a manner that is basically a challenge to the
3 adequacy of the DEIS or the EIS process, that I would be
4 considering admitting them. And also in an earlier
5 ruling, I believe I said that the -- that counsel on
6 each side have the opportunity to present their cases on
7 issues that they are bringing and the subject matter may
8 or may not be part of the EIS process. And this is one
9 of those subject matters. And I think that counsel
10 should understand that they're still going to be able to
11 bring evidence about subjects that maybe have been
12 considered in the EIS process or maybe not were
13 considered.
14 But you are just making the points that have
15 to do with the issues that you presented to the council,
16 and air quality is one of the issues that has been
17 presented and you are bringing testimony about that and
18 it's already been submitted to the council, and so I
19 think it's appropriate that this be explored. It's one
20 of the issues, and you are just bringing direct evidence
21 and opposing evidence about this issue. This has
22 nothing to do with whether or not you believe that the
23 draft EIS or EIS is adequate or not.
24 And so I'm going to allow cross-examination
25 on this subject, and I hope that counsel is clear about

1 the fact that you are free to bring evidence that is
2 similar to the subject matter in the EIS, as long as you
3 are not challenging the EIS, and that was not admitted
4 for that reason.
5 MR. JOHNSON: All right. I understand, Your
6 Honor, and I don't want to hold things up. And, again,
7 it's certainly our intent to respond to the council's
8 needs, and Mr. Hansen is more than capable of addressing
9 these issues.
10 However, because I was very careful in
11 crafting my direct examination to avoid SEPA-specific
12 issues, I would ask for latitude on redirect, if
13 necessary, to explore issues on direct that I avoided
14 originally, given my understanding of your earlier
15 ruling.
16 MS. BRIMMER: Well, I'm going to object to
17 that. This is the direct testimony. That is the point
18 of advanced written testimony. That is the direct.
19 JUDGE NOBLE: Well, I understand the
20 objection, but apparently there was some confusion and I
21 understand that the -- the ruling on the DEIS had to be
22 necessarily nuanced because, again, there is some
23 parallel subject matter. It's just the way that you
24 approach your proof and your opposition on the issues
25 that you've brought in the adjudication.

1 MS. BRIMMER: Your Honor, I take issue with
2 the confusion. This is their proffered testimony. He
3 wasn't confused about what he was submitting as direct
4 testimony. It does not give him additional latitude on
5 redirect. His redirect should be confined to my cross.
6 JUDGE NOBLE: You'll have an opportunity to
7 cross-examine if there are other questions coming up on
8 redirect that were not part of the basic direct.
9 MS. BRIMMER: Thank you.
10 BY MS. BRIMMER:
11 **Q. Mr. Hansen, picking up -- and, in fact, I would**
12 **like you to turn to page 8 of your testimony, please.**
13 **Lines 3 to 4 --**
14 **JUDGE NOBLE: Excuse me, I need to interrupt**
15 **you. It is 12:00, and so I'm wondering if you have much**
16 **more to your cross-examination?**
17 MS. BRIMMER: Well, I'm going to say
18 ten minutes, but we have a tendency to underestimate, so
19 you might want to double that.
20 JUDGE NOBLE: This is probably a good time
21 to break for lunch, and we are going to come back at
22 1:00. And I would like -- I have a couple of things I
23 would like to talk with counsel about. If you could
24 maybe come back five minutes early, that would be good.
25 MS. BRIMMER: Absolutely, yes.

1 JUDGE NOBLE: We are off the record.
2 (Recess taken from 12:04 p.m. to 1:04 p.m.)
3 JUDGE NOBLE: We're back on the record. And
4 I think, Ms. Brimmer, you were in the midst of
5 cross-examination of Mr. Hansen.
6 MS. BRIMMER: Thank you, Your Honor.
7 BY MS. BRIMMER:
8 **Q. Welcome back, Mr. Hansen. Good afternoon.**
9 A. Thank you.
10 **Q. When I think we broke, we were about to talk**
11 **about some of your prefiled written testimony. I think**
12 **you still have it open in front of you, correct?**
13 A. I do, yes.
14 **Q. And I would like you to refer to page 8, lines 3**
15 **through -- 3 and 4, please.**
16 A. Yes.
17 **Q. And on page 8, lines 3 through 4 of your**
18 **prefiled testimony, am I reading that correctly to say**
19 **that diesel particulate that was modeled exceeded**
20 **acceptable health risk levels?**
21 A. It exceeds -- I said that it exceeds the ASIL.
22 **Q. And define, again, for us what the "ASIL" is.**
23 A. ASIL is the project-specific threshold. It's
24 called the acceptable source impact level. So it's the
25 concentration of a toxic air pollutant that's one of

1 those regulated by Ecology from an industrial source of
2 below which it's presumed not to have a health effect.
3 **Q. But when it exceeds, it has a health effect?**
4 A. From an industrial source perspective, when you
5 go through that process, if it exceeds that, then
6 there's another step. There's a three-tiered process
7 that we use. This is sort of like the SIL, the
8 significant impact level, that I explained earlier for
9 criteria pollutants --
10 **Q. I don't need to know the rest of the process,**
11 **but I may come back to that. But thank you. Thank you**
12 **for explaining.**
13 **On page 9 of your testimony, lines 12 through**
14 **20, you again note that the diesel particulate is high**
15 **and exceeds the ASIL. And I think you point out that's**
16 **because of the location near high-density transportation**
17 **sources, like freeways, major roads, rail, marine**
18 **vessels. Is that -- am I reading that correctly?**
19 A. Well, I'm not talking about this project in this
20 particular paragraph. I'm talking about in general, our
21 experience in air quality dispersion modeling indicates
22 that near transportation sources and freeways, we
23 regularly see exceedances of the ASIL, yes.
24 **Q. In other words, diesel particulate with all**
25 **those combined sources, industrial and those highways**

1 **and things like that, can have a negative impact on**
2 **health?**
3 A. If it exceeds the ASIL, yes.
4 **Q. During your direct testimony, you were asked**
5 **some questions about vessel loading. Do you recall**
6 **that?**
7 A. Yes.
8 **Q. And in particular you were asked about capture**
9 **of emissions, and I believe you said that you understood**
10 **a different expert would testify to that?**
11 A. Yes.
12 **Q. Can you tell me which expert that is?**
13 A. I believe his name is Marc Bayer.
14 **Q. Now I would like to move to your testimony about**
15 **greenhouse gas emissions. In your direct testimony, I**
16 **believe you testified that you determined that it was**
17 **95,000 tons per year from the facility; is that right?**
18 A. Yes.
19 **Q. And that 100,000 tons per year was the trigger**
20 **for major source status?**
21 A. Well, it used to be. The rules have changed.
22 The greenhouse gases are not sufficient now to trigger
23 major source status alone. So if you have -- if we were
24 to have triggered PSD for NOx or something like that,
25 then we would have brought in greenhouse gases as well.

1 So it is -- it was considered the trigger for major
2 source status.
3 **Q. And if you triggered for something else, then**
4 **you'd have to control greenhouse gases as well?**
5 A. Control?
6 **Q. Or address greenhouse gases is perhaps the --**
7 A. Yes.
8 **Q. You also testified that -- for greenhouse gases,**
9 **that the facility took a voluntary limit. Am I**
10 **characterizing that correctly?**
11 A. Say that again, please.
12 **Q. For greenhouse gases, the facility took a**
13 **voluntary limit?**
14 A. I'm not aware of that.
15 **Q. Okay. That's what I heard. So correct me, what**
16 **did the facility do for greenhouse gas reductions?**
17 A. Oh, why is it lower than in an earlier
18 application?
19 **Q. As I said, the implication, from my perspective,**
20 **is that there were some reductions or some limits that**
21 **the facility adopted, and I was asking if that was**
22 **accurate.**
23 A. It is accurate. The facility replaced the
24 natural gas-fired boiler at the tank farm with one that
25 was electrically fired, and it also reduced the request

1 for how much natural gas could be combusted by the
2 boilers that produced steam for unloading rail cars.
3 **Q. So in fact, the facility did not take a limit on**
4 **greenhouse gas emissions?**
5 A. Well, we don't have a permit yet, so it's hard
6 to say what we will get. We anticipate -- I don't
7 anticipate a limit on greenhouse gas emissions; but I do
8 anticipate a limit on natural gas combustion that will
9 come with -- maybe with the vapor combustors but
10 certainly with the boilers. There will be operating
11 limits that in effect control greenhouse gas emissions.
12 JUDGE NOBLE: Mr. Hansen, make sure that you
13 wait for the questioner to stop before you start talking
14 because the court reporter can't get two people speaking
15 at the same time.
16 THE WITNESS: Sorry.
17 JUDGE NOBLE: Thank you.
18 BY MS. BRIMMER:
19 **Q. And in that regard, greenhouse gas emissions**
20 **won't have its own limit or monitoring program in the**
21 **permit; it's the technology that you've referenced?**
22 A. I believe -- I don't -- I can't anticipate for
23 sure what the permit's going to say, but it is common to
24 have a throughput limit or a fuel consumption limit that
25 effectively regulates greenhouse gas emissions.

1 MS. BRIMMER: Thank you. I have nothing
2 further.
3 JUDGE NOBLE: Is there any other
4 cross-examination of Mr. Hansen?
5 Redirect?
6 REDIRECT EXAMINATION
7 BY MR. JOHNSON:
8 **Q. Mr. Hansen, a few follow-up questions responding**
9 **to Ms. Brimmer's questions regarding the ASIL. Can you**
10 **describe how the ASIL applies to mobile sources and if**
11 **there's any difference in how it might apply to**
12 **stationary sources?**
13 A. Well, the ASIL only applies to stationary
14 sources. And by regulation, it seems like there have
15 been -- there's been more and more arm twisting recently
16 in the last couple of years for us to include ASILs as
17 an indicator for other projects. So this is not the
18 first time that an EIS has included the ASIL in it for
19 sources that weren't necessarily subject to the
20 permitting program. But strictly speaking, it does not
21 apply.
22 **Q. Okay. And is there -- well, I think you've**
23 **answered that question.**
24 **In your opinion, would it be appropriate to**
25 **apply the ASIL that applies to stationary sources to**

1 **mobile sources?**
2 A. Well, we believe that the ASIL applies directly
3 to stationary sources alone. So we -- I won't say we
4 resist it, but we don't quite understand the jump to
5 include mobile sources in that stationary source
6 program. It would be -- to me, it's like including
7 mobile sources in determining mission thresholds for a
8 permit, for example. It doesn't fit the design of the
9 program.
10 **Q. Okay. And you did do some modeling in the DEIS**
11 **process -- or some analysis, I should say, in the DEIS**
12 **process related to both mobile and stationary sources as**
13 **they relate to DPM; is that correct?**
14 A. Yes, we did.
15 **Q. Okay. And what were the results of that**
16 **analysis?**
17 A. I think I alluded earlier to the fact that the
18 combined -- when you include the vessels and the tugs,
19 the transport vessel, the tanker and the tugs, and the
20 locomotives all operating at the same time and including
21 the emergency generators being tested at the same time,
22 we showed concentrations that exceeded the ASIL and, you
23 know, most notably we acknowledge that the
24 concentrations in the neighborhood are on the order of
25 .05 to .15 micrograms per cubic meter, so, you know,

1 roughly a tenth of a millionth of a gram per cubic meter
2 in the neighborhood.
3 **Q. And given that when you combine the mobile and**
4 **stationary sources and you saw a slight exceedance of**
5 **the ASIL, what requirement might that trigger?**
6 A. Well, if this was a stationary source program,
7 the next step would be for us to evaluate whether there
8 really is a health impact, and that step warrants us
9 examining whether anybody is living at that location;
10 and it often turns out, for example, that maximum
11 impacts do not occur at a place where people can be
12 reasonably expected to live. So that's the next step.
13 And there's also a -- part of the process is
14 also to reexamine the criteria itself. Is the ASIL the
15 appropriate health criteria to be using? So both of
16 those -- it's a mixture of effort with toxicologists and
17 with air pollution people like me.
18 **Q. And did Environ make any -- draw any conclusions**
19 **about whether or not it would be appropriate to use the**
20 **ASIL that applies only to stationary sources as a**
21 **threshold to evaluate whether or not further health**
22 **impact assessment was necessary as to the combined**
23 **emissions?**
24 A. That was a long one.
25 **Q. I know it was. I apologize. I can restate it.**

A. Yeah, tighten it up for me.

Q. All right. Okay. You testified that there was a slight exceedance of the ASIL when you combined mobile and stationary sources; is that correct?

A. There is an exceedance of the ASIL, yes.

Q. Okay. All right. And did Environ draw any conclusions about whether, in light of that exceedance, it was necessary to proceed to further study or evaluation?

A. We did not. Primary focus is on the EFSEC criteria. We examined -- had the stationary source concentrations -- had the diesel particulate matter concentrations attributable to the engine testing, i.e., the stationary source exceeded the ASIL, yes, we would have gone for that second-tier risk assessment, but because of this, caused by mobile sources, we did not.

Q. And were you able to do any evaluation of -- with regard to diesel particulate matter, any evaluation or comparison of emissions -- terminal-related emissions, either mobile or stationary, to background levels?

A. Diesel particulate matter is difficult to measure in the ambient air. And I checked with Southwest Clean Air and they were not aware of any filter analyses that -- meaning ambient monitoring with

1 filters, that revealed the extent to which diesel
2 particulate matter contributes. Their focus is on wood
3 smoke, which looks a lot like diesel particulate matter.
4 It's carbon. So they're overwhelmed by wood smoke
5 certain times of the year.
6 But we did find an EPA study, called National
7 Air Toxics Assessment. And that study identifies
8 sources of diesel particulate matter at the county
9 level, that's an EPA document and then EPA goes beyond
10 that, tries to attribute it to census tracks. So they
11 distribute emissions on a county level and then use
12 models, dispersion models, to evaluate census tracks.
13 The facility in the Fruit Valley neighborhood
14 are all on the same census track. And the value they
15 came up with is about 1 microgram per cubic meter of
16 diesel particulate matter. So that's a model value, an
17 EPA model value, not a measured value. So that's --
18 we're showing -- our predictions are on the order of .50
19 to .15 micrograms and they're existing as 1. So
20 we're -- 5 to 15 percent is what we're predicting our
21 contribution to be in the neighborhood.
22 MR. JOHNSON: Nothing further, Your Honor.
23 JUDGE NOBLE: It's time for council
24 questions of Mr. Hansen.
25 MR. SHAFER: I have a question.

1 JUDGE NOBLE: Mr. Shafer.
2 MR. SHAFER: Mr. Hansen, thank you for your
3 testimony today. I have a question in terms of worker
4 safety. So this might be much more of a micro level
5 with -- in terms of air quality emissions and such. But
6 does your study include like a thorough review of the
7 operations of the facilities in like localized areas
8 where maybe there's a release valve or a pressure valve
9 or vapors that the workers are working within close
10 proximity?
11 THE WITNESS: No, we don't. Our concern is
12 only with what we call ambient air, which means
13 off-site.
14 MR. SHAFER: Okay. Thank you.
15 JUDGE NOBLE: Mr. Siemann?
16 MR. SIEMANN: So I have two questions, very
17 different topics. The first is about the vapor pressure
18 that you testified to at the beginning of your
19 testimony. And my question is -- so if I understand
20 correctly, the design of the tanks is designed to
21 accommodate vapor pressure of 11 and that the average in
22 some of the examples goes above that. And so my
23 question is, if you were to -- if the tank were to
24 accommodate vapor pressures above 11, would it require a
25 redesign of the tanks?

1 THE WITNESS: Maybe I wasn't clear when I
2 talked about the requirements of that New Source
3 Performance Standard. It's not -- it's not really a
4 structural issue; it's not the design of the tanks in
5 that manner. What I meant to say was, that as long as
6 the -- that the New Source Performance Standard that
7 governs the emissions from the tank when it fills, the
8 gases that are displaced, that as long as the true vapor
9 pressure is 11 or lower, then a floating roof -- a
10 floating roof on the liquid and a fixed roof on top is
11 what is required. It doesn't mean that if you put a
12 liquid in there with a higher vapor pressure, there's
13 any sort of threat to the stability of the tank or cause
14 a -- requires a redesign. What it means is that we
15 should have been applying a different regulation to our
16 tank and we should have installed a combustor device.
17 MR. SIEMANN: And so that's the redesign I'm
18 asking about.
19 THE WITNESS: Yes.
20 MR. SIEMANN: So if the vapor pressure were
21 to be routinely above 11 -- or expected to be above 11,
22 that a -- a different design of some sort would be
23 required?
24 THE WITNESS: That's correct.
25 MR. SIEMANN: Okay.

1 THE WITNESS: It would have been subject to
2 a different New Source Performance Standard, yes, that
3 requires something other than that floating roof.
4 MR. SIEMANN: And can you answer why it is
5 that that different performance standard was not chosen?
6 THE WITNESS: No, I can't. I really
7 shouldn't. That's really not an air quality issue.
8 That's probably an operational issue.
9 MR. SIEMANN: Fair enough.
10 And the second topic of questions regards
11 greenhouse gases. First of all, sometimes greenhouse
12 gases are measured in -- well, so we're talking about
13 tons, and there are both US short tons and metric tons.
14 Do you know if all of the measurements were done in one
15 or the other?
16 THE WITNESS: You know, I ran into that
17 myself. When sometimes I saw 95,000 tons and other
18 times I saw 86,000 tons, and that's the difference, is
19 that in our dock -- in the application for site
20 certification, we tried to focus on short tons. So I
21 said 95,000 tons. In the EIS, I noticed that it was
22 referred to in metric tons. So there is some
23 inconsistency there.
24 MR. SIEMANN: So there is a difference in
25 amount between those two. And I would -- I would have

1 to do the calculation, but it may be that if you're
2 talking in short tons, that would push it over 100,000
3 metric tons.
4 THE WITNESS: No, the other way around.
5 MR. SIEMANN: The other way around?
6 THE WITNESS: 95,000 short tons is about
7 86,000 metric tons. A metric ton is 2,200 pounds.
8 MR. SIEMANN: Okay. That's why I didn't
9 major in math.
10 Can you describe how you calculated the
11 greenhouse gas emissions and how you arrived at that
12 number?
13 THE WITNESS: Yes. There's actually --
14 there are -- there's a 40 CFR, Part 98, and some table,
15 C-1 and C-2, that identify -- yeah, sorry -- an EPA
16 regulation 40 CFR, I think it's 98, and there are --
17 Tables C-1 and C-2 identify emission factors for
18 calculating greenhouse gas emissions, ones that we're
19 supposed to use. And they're based on different fuels.
20 So the carbon content of diesel fuel is
21 different from that of natural gas. So we would -- and
22 the -- there's also different amounts of nitrous oxide,
23 N2O, and methane that's released in combustions, so the
24 emission factors also take into account the emissions of
25 those greenhouse gases.

1 So we determined the amount of fuel that
2 would be burned by an emergency engine, for example,
3 during testing, and identified the gallons or the BTUs
4 of fuel over the course of the year and multiply it by
5 an emission factor. We do the same thing for a
6 gas-fired boiler or for the marine vapor combustor unit,
7 how much fuel is combusted.
8 So given that we have an emission factor of
9 so many pounds per million BTUs of fuel combusted, we
10 just multiply that by the amount of fuel that we
11 anticipate being combusted and then we calculate pounds
12 per hour and tons per year.
13 MR. SIEMANN: And so does -- that includes
14 all of the mobile sources and stationary sources, or
15 just stationary sources?
16 THE WITNESS: I'm only -- well, you can
17 apply it to both, but we applied it to stationary
18 sources. The EIS also addressed mobile sources.
19 MR. SIEMANN: And so your system does not
20 include, for example, the trains carrying the crude
21 through the tracks; is that correct?
22 THE WITNESS: Our permit application, the
23 application for site certification, does not include the
24 mobile sources, the trains or the ships.
25 MR. SIEMANN: And does it also not include

1 the combustion of the oil that is carried in the trains;
2 is that correct?
3 THE WITNESS: Correct.
4 MR. SIEMANN: Thank you.
5 JUDGE NOBLE: Any other council questions?
6 MR. SNODGRASS: Just a follow-up to that.
7 How -- just for comparative purposes, how difficult
8 would it be to put together a rough estimate using
9 mobile sources and consumption? You had earlier said
10 that stationary sources, I think you had said, amounts
11 to -- a facility amounts to .1 percent of statewide
12 emissions. So I guess I would just be curious for
13 comparative purposes if you looked at mobile sources, as
14 well as the facility and consumption of the oil as well,
15 how that would compare to the analogous statewide
16 figure?
17 THE WITNESS: Well, it would be easy to do
18 if we knew what -- how the oil was to be used, I guess.
19 We -- the EIS already -- the draft EIS already, I'm
20 almost certain, includes an identification of the
21 greenhouse gases emitted by the ships, the tugs, the
22 trains. So mobile sources are included.
23 I don't think -- I'm virtually certain that
24 the EIS -- draft EIS does not go beyond that to include,
25 you know, the ultimate consumption of the product. It

1 could be done, yes; if you assumed that it was all
2 burned, you could calculate the greenhouse gas emissions
3 from it.
4 MR. SNODGRASS: Thank you.
5 JUDGE NOBLE: Other questions?
6 Mr. Rossman?
7 MR. ROSSMAN: Just one quick question. I'm
8 seeing in your prefiled testimony references to the
9 February and August 2014 ASCs. A new ASC was filed just
10 before the commencement of this proceeding, and I guess
11 I'm wondering if you've had a chance to review and see
12 if there's any differences based on any changes in that?
13 THE WITNESS: The one that jumps to mind --
14 one that I -- that's jumping to my mind, is that we had
15 some new information on the possible H2S content of the
16 vapor, and we assumed a certain part per million of H2S
17 for the vapor combustor and one of the things we did
18 in -- I think it's the primary thing we did in this most
19 recent version, besides addressing some of the questions
20 that EFSEC reviewers had, was to agree to install a
21 control device that would make sure that the H2S
22 concentrations reaching the vapor combustor were indeed
23 under PPM, so that if for some reason they were higher
24 than what we had anticipated in the earlier
25 applications, this control device would make sure that

1 it was still accurate.
2 MR. ROSSMAN: So is it your testimony that
3 some of your conclusions in terms of overall thresholds
4 aren't particularly altered by that?
5 THE WITNESS: No, there were no substantive
6 changes in our conclusions.
7 MR. ROSSMAN: And then my other question
8 pertains to -- you've referred to it a number of times
9 this morning as "measurements at the fenceline." And I
10 guess I'm wondering what area you're meaning by that and
11 whether that takes into account the residents on site at
12 the jail facility?
13 THE WITNESS: That's a good question. I
14 wish we could show a -- there probably is a figure that
15 shows how tight the boundaries are for the facility
16 itself. I mean, it literally wraps around the rail
17 unloading station like a big, long pencil, and then
18 there's a rectangle over by the tank farm and there's
19 another little spot by the marine vapor. So it's really
20 tight spaces, because there are other uses for that port
21 property as well.
22 The correctional center is what we call
23 ambient air, so we do calculate concentrations there.
24 It is not part of the facility. In the EIS -- in the
25 draft EIS, the boundaries aren't quite so tight. They

1 examine the results at the port's property line, but I
2 think there too, we also -- we assume that the
3 correctional center is ambient air so we calculate
4 things there.
5 MR. ROSSMAN: Okay. And then just to make
6 sure I'm sort of fully understanding that, there's been
7 a lot of discussion between stationary and mobile
8 sources -- I have the same problem that you do. So your
9 testimony in regards to the totals and staying below
10 regulatory thresholds, should we take that as testimony
11 as to health impacts of the combined emissions on folks
12 living in that area, or should we see them as sort of a
13 separate question of whether regulatory compliance is an
14 issue versus whether there are no health impacts
15 locally?
16 THE WITNESS: Could you -- I am sorry, I did
17 not quite follow you.
18 MR. ROSSMAN: So I've been trying to follow
19 the back-and-forth about the difference between mobile
20 and stationary sources and which are appropriately
21 modeled in which tense. And I think that your testimony
22 to us has been about what levels your modeling shows and
23 how those relate to regulatory standards, and I think
24 that your testimony hasn't addressed health impacts that
25 would result from the total levels, whether or not a

1 particular regulatory standard was triggered.
2 And I'm trying to understand if we should
3 interpret your testimony as reaching that second
4 question or constrained to the first.
5 THE WITNESS: Let me try. Okay. We
6 evaluated the stationary source alone in the application
7 for site certification, and we evaluated the stationary
8 source plus tanker, tugs, locomotives in the EIS. In
9 both cases, we added background or existing
10 concentrations to those predictions so that we had a
11 cumulative concentration to compare with the ambient air
12 quality standards.
13 So I believe that the ambient air quality
14 standards are protective. I mean, that's sort of been
15 our gold standard for a long, long time. So in that
16 sense, I assume that we did address the health impacts.
17 Did I understand your question?
18 MR. ROSSMAN: I think so. Thank you.
19 JUDGE NOBLE: Are there other questions of
20 Mr. Hansen from the council?
21 Are there questions based upon the council's
22 questions from Mr. Johnson?
23 MR. JOHNSON: Your Honor, it seems that the
24 applicant would go last normally, would we not, after --
25 JUDGE NOBLE: That's fine.

1 MR. JOHNSON: So I would reserve any
2 questions until after Ms. Brimmer.
3 JUDGE NOBLE: Ms. Brimmer, do you have any
4 questions based upon council questions?
5 MS. BRIMMER: No, Your Honor.
6 JUDGE NOBLE: Back to you.
7 MR. JOHNSON: None, Your Honor.
8 JUDGE NOBLE: All right. Then, Mr. Hansen,
9 you are excused as a witness. Thank you very much.
10 THE WITNESS: Thank you.
11 JUDGE NOBLE: Are you ready to call your
12 next witness, Mr. Johnson?
13 MR. KISIELIUS: Yes, Your Honor. The
14 applicant would like to call Captain Marc Bayer.
15 Remain standing while you get sworn in.
16 JUDGE NOBLE: Mr. Bayer, would you raise
17 your right hand.
18 (Witness sworn.)
19 JUDGE NOBLE: Thank you. Please be seated.
20 MR. KISIELIUS: Your Honor, before I begin
21 my examination, I was hoping to do a little bit of
22 bookkeeping with respect to exhibits --
23 JUDGE NOBLE: Yes.
24 MR. KISIELIUS: -- to which I might refer.
25 We will be relying on Exhibit 191.

1 JUDGE NOBLE: Say that again.
2 MR. KISIELIUS: 191. And Exhibit 290.
3 JUDGE NOBLE: 290?
4 MR. KISIELIUS: Correct. It's my
5 understanding there's no objection to either of those
6 exhibits. We conferred. There was initially a
7 reservation on 290, but I believe there's no objection
8 to that one.
9 JUDGE NOBLE: Is that correct from the
10 opponents; there is no objection to the admission of
11 Exhibits 191 and 290?
12 MS. BOYLES: That is correct.
13 JUDGE NOBLE: Exhibits 191 and 290 would be
14 admitted at this time.
15 MR. KISIELIUS: And one last remaining
16 bookkeeping item, and it's just not clear to me, based
17 on what we've decided to do with the exhibits that were
18 attached to the prefiled testimony. But there were two
19 that were attached to Captain Bayer's testimony that if
20 we need to go through the process of admitting them now,
21 we could.
22 JUDGE NOBLE: Yes, they were to be dealt
23 with as any exhibit would be; the attachments were to
24 become exhibits if they weren't already marked as such.
25 MR. KISIELIUS: They've been marked. It's

just --

JUDGE NOBLE: Then what are their numbers?

MR. KISIELIUS: 127 and 128.

JUDGE NOBLE: And is there an objection to Exhibits 127 and 128?

MS. BOYLES: One second. I think the answer's no. No, Your Honor.

JUDGE NOBLE: All right. Then Exhibits 127 and 128 will be admitted as well.

MR. KISIELIUS: And just to flag this, we may need to come back for the witnesses that have appeared already who had exhibits attached to the prefiled to make sure that those are formally admitted as well, but we can handle that at a later time.

JUDGE NOBLE: Right. Yes, I understand. And then tomorrow we're going to try to get a lot of the exhibits admitted that haven't been addressed already.

MR. KISIELIUS: Thank you.

JUDGE NOBLE: Good. Thank you.

MARC BAYER,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. KISIELIUS:

Q. Captain Bayer, could you please state and spell your name for the record.

A. Marc Bayer. My first name is M-a-r-c, my last name is B-a-y-e-r.

JUDGE NOBLE: Excuse me, Counsel. Could you introduce yourself?

MR. KISIELIUS: I apologize. Tadas Kisielius on behalf of the applicant.

JUDGE NOBLE: Thank you.

BY MR. KISIELIUS:

Q. Captain Bayer, did you prepare a sworn written statement?

A. Yes, I did.

Q. I'm going to hand you a binder that includes the exhibits I just mentioned as well as your sworn statement, so you can refer to it if it would be helpful.

Now, I know your written testimony provides greater detail on your training and expertise, but could you just briefly summarize your professional background and your training?

A. Yes. I graduated from the California Maritime Academy in 1982 with a bachelor of science, and a third mate's license. I went to sea until 1992. The last three years I sailed as captain. Presently, I work for Tesoro. My title is senior director of marine operations. I have reporting to me a marine assurance

1 vetting group that looks at all vessels, whether they be
2 tankers, tugs, boat carriers, in addition to terminals
3 and marine service providers, pilots, agents, inspection
4 companies, to make sure that they're operating to a
5 standard that meets our own.
6 I also have the marine loss control group, which
7 is responsible for custody transfer and reconciling and
8 accounting for all the product that goes between the
9 ships, the terminals or the barges.
10 And then they also are involved in safety when
11 it comes to utilizing the proper equipment, so that we
12 use vapor-tight and gas-tight equipment for gauging,
13 sampling and -- for gauging and sampling.
14 And then I have a commercial marine operations
15 group, which is responsible for -- it's a team of people
16 responsible for managing the day-to-day voyages of our
17 time- and spot-chartered vessels, and they issue the
18 voyage orders, they work with the shipping companies
19 that are -- that technically manage these vessels and
20 make sure that we load and discharge, prepare the tanks
21 and we also look at port costs and arrival and departure
22 times, so they're managing a voyage from the commercial
23 operations' standpoint.
24 And then finally, I have a group of people, of
25 senior mariners that are at every one of our marine

terminals, and they're actually located in the area, they live in the area and they participate in the marine community, harbor safety committees and such, and they are involved with local stakeholders, Coast Guard, pilots, agents, terminals. And they're on board the ships with -- on what are called our "boots on steel" program, to make sure the ships are operating to our standard as well, and the international standard for ISGOTT, the Code of Federal Regulations and the other regulatory bodies that we need to comply with.

Q. Thank you. So I want to start by having you describe the vessel unloading operation. We have already heard from Mr. Larrabee about the rail unloading. I want to go to the other side of the operation, the vessel loading. So if you could start maybe step by step, and start by telling us what happens when the vessel approaches the terminal.

A. So the vessel will arrive in the river in ballast. And I'm going to step right up to just before it comes to the dock. As it comes in the vicinity of Kelley Point, which is the confluence of the Columbia and the Willamette Rivers, two docking tugs approach the vessel. One will make fast on the starboard bow and one will make fast on the starboard quarter. The ship is under the direct navigational control of the pilot. The

1 pilot will then direct the ship towards the berth for a
2 port-side-to docking. The tugs will assist, and a
3 minimal use of the ship's engines will be utilized for
4 the docking.
5 The ship will come up approximately abreast of
6 the terminal in the position that it's going to tie up
7 in. The tugs will gently push it alongside. The pilot
8 has other tools at his beck and call, one of which is
9 what we call a -- it's a speedboard. And this
10 speedboard is a large signboard that has a red, a yellow
11 and a green light. So as the pilot's bringing the ship
12 alongside, he always wants to be in the green, so he's
13 going slowly. If he has a yellow or red light, that's
14 an indication that he needs to slow the approach down.
15 The ship will then dock. It will be positioned.
16 We'll have the -- probably the second mate or the first
17 mate will be standing where the manifolds are on the
18 ship. They will be talking to an individual on the dock
19 and they will position the ship so the ship's manifolds
20 are roughly directly across from the loading arms -- or
21 the -- I'm sorry, the hoses.
22 Once the ship is in position, the crew on the
23 ship will then put out the spring lines, fore and aft,
24 and what that does is it locks the ship's position
25 alongside in place. Then they'll put out the breast

1 lines which hold the ship into the dock, and the head
2 and stern lines which also contribute to that.
3 At that point, the pilot and the crew will
4 decide when the ship is all fast. They will bring
5 finish with the engines in the engine room, and the
6 terminal will put out a boom completely around the ship.
7 That oil spill containment boom, once that is on, at the
8 same time the gangway will be put over from the terminal
9 so you'll have safe access between the ship and the
10 shore.
11 At that time, the terminal person in charge, the
12 TPIC, will come on board and meet with the vessel person
13 in charge, the VPIC, who is the chief officer in this
14 particular case in the beginning, and they will conduct
15 what's called a "key meeting," using a template that's
16 spelled out in the CFRs called a DOI, declaration of
17 inspection. And that checklist allows -- has a -- quite
18 a -- is very detailed, and what it talks about is the
19 connections, the testing of alarms and making sure that
20 there's a -- security is talked about. They talk about
21 communication, backup communication --
22 MS. BOYLES: I'm sorry to interrupt. I'm
23 just trying to figure out where -- whether we're on
24 direct now or on rebuttal, since a great deal of this
25 information that Mr. Bayer is talking about isn't in the

1 written prefiled, and I just want to know where we are.
2 JUDGE NOBLE: It's my assumption that we're
3 adding to the direct examination. Is that right?
4 MR. JOHNSON: This is factual testimony
5 about the facility operations.
6 JUDGE NOBLE: Instead of expert testimony?
7 MR. JOHNSON: Correct. Captain Bayer has
8 filed prefiled expert testimony on navigation issues.
9 We thought it would be helpful for the council to hear
10 about the operations of the actual approach of the
11 vessel and, just from a factual standpoint, how that
12 works.
13 JUDGE NOBLE: All right. So he's a hybrid
14 witness.
15 MS. BOYLES: Okay. I just needed to be
16 clear. Thank you.
17 JUDGE NOBLE: Counsel usually does a
18 prefiled testimony for experts. And prefiled testimony
19 for experts was encouraged, not required, but there has
20 been a lot of prefiled testimony for the experts. But
21 fact witnesses were not required to file -- no one was
22 required to file prefile -- file prefiled testimony.
23 MS. BOYLES: We understand that he did file
24 prefile. That's why I was trying to find it in the
25 document.

1 JUDGE NOBLE: He did. This is the factual
2 portion of his testimony, which wasn't included in the
3 prefiled expert testimony.
4 MS. BRIMMER: We understand that now, but he
5 was not disclosed as the next witness. As we go
6 forward, it will be helpful to know if there was
7 something in addition to be expected, because we
8 didn't -- we didn't know that that was this witness'
9 characterization.
10 JUDGE NOBLE: All right. If there is a
11 remedy for failure to disclose, it is an opportunity to
12 talk with the witness in advance about their expected
13 testimony. I don't -- I take it, Ms. Brimmer, you're
14 not asking for that with this witness?
15 MS. BRIMMER: No.
16 JUDGE NOBLE: Well, that's -- so we can go
17 forward with that. But it seems like a reasonable
18 request to let the opponents know if you have any more
19 witnesses that are going to be testifying live about
20 anything in addition to their prefiled testimony.
21 MR. KISIELIUS: Thank you, Your Honor. We
22 will do -- we will work with opposing counsel to make
23 sure that they're aware of the contents of their
24 testimony. I think, from our standpoint, Captain Bayer
25 deals with navigation issues from the expert standpoint,

1 and, again, for purposes of communicating to the
2 council, operational description and factual background,
3 we thought that would be helpful.
4 JUDGE NOBLE: I understand. And the council
5 appreciates complete testimony. And I don't mean to
6 suggest that there was any effort to hide the ball here;
7 I just think it was miscommunication maybe.
8 MR. KISIELIUS: Understood.
9 JUDGE NOBLE: Thanks.
10 MR. KISIELIUS: Thank you.
11 BY MR. KISIELIUS:
12 **Q. Captain Bayer, I think you had just finished**
13 **describing the key meeting, was your words. I wondered**
14 **if you could pick up from there and maybe discuss the**
15 **process by which the crude oil is loaded onto the**
16 **vessel.**
17 A. Yes. So following a pre-meeting and a safety
18 inspection around the ship between the VPIC and the TPIC
19 to ensure that all the scuffer plugs, drains on the
20 sides of the ship are in place, the hoses will be
21 connected. So it will be connecting two 10-inch cargo
22 hoses and one 10-inch vapor hose onto the forward vapor
23 header of the ship.
24 At that point, if you step back for a second to
25 the pre-meeting, how the cargo transfer was going to

1 take place was discussed. So one of the steps was that
2 the ship and the dock decided that they would start the
3 rate at a slow, slow rate, roughly 2500 to 5,000 barrels
4 an hour. And the indication they would give, is the
5 terminal person would go back to the terminal and tell
6 the ship when they were ready to start cargo in the
7 ship, would then check its lineup and say, I am open and
8 ready to receive. At that point, the terminal would
9 start the pumps and they would verify flow into two sets
10 of tanks on the ship. Once flow has been verified that
11 they're receiving cargo on the ship, the additional
12 tanks would be opened and they would slowly come up to
13 full rate.
14 At the same time, they would look for an
15 increase in pressure in the vapor space on the ships,
16 and when there was a slight -- there was a slight
17 differential of a higher pressure on the ship and a
18 lower pressure on shore, they would then open the vapor
19 valve on the ship and the vapors would then flow to the
20 marine vapor combustion unit.
21 So the ship would then get up to full rate, and
22 for the ships that we bring in, they're about
23 46,000 tons. That full rate would be approximately
24 24,000 barrels an hour. They would then hold that rate,
25 loading all the tanks pretty much simultaneously until

1 the end, when they would slow the rate down and then
2 they would stagger the tanks so that they bring the
3 tanks, say, from the aft tanks going to forward tanks;
4 they would top those tanks two at a time in a controlled
5 fashion and then they would stop.
6 **Q. I'm going to interrupt you for just one second**
7 **to clarify, because you said, I think just now,**
8 **"24,000."**
9 A. Correct.
10 **Q. And there was testimony earlier in the day about**
11 **a maximum rate of 32,000. So can you explain the**
12 **difference between those two rates?**
13 A. So the ship will be coming in with ballasts. In
14 order to discharge all that ballast, they need a certain
15 amount of time to do that. If you load at that higher
16 rate on this size vessel, it -- they'll exceed that.
17 They won't get all the ballast off before they're
18 loaded. At 24,000 barrels an hour -- approximately
19 24,000 barrels an hour, all of the ballast will be off a
20 few hours before they finish loading the ship.
21 **Q. So when would you use that 32,000 rate?**
22 A. If, for instance, there was a larger ship.
23 **Q. How long does the -- how long does it take to**
24 **load the vessel?**
25 A. It takes approximately, I would say, 16 to

1 20 hours, depending on how slowly they start and how
2 slowly they -- and how they ramp down at the end. And
3 we've accounted for each vessel being at the dock
4 approximately 24 hours from first line to last line.
5 **Q. So --**
6 **JUDGE NOBLE: Excuse me, you said 16 to 20**
7 **or 16 to 24?**
8 THE WITNESS: It takes to load -- I mean, I
9 would have to do the calculation in my head, but if you
10 were to load the ship at full rate, you would load it in
11 about, I think, 20 hours -- I'm sorry, about 16 hours.
12 I would have to take 330 and divide it by 25.
13 JUDGE NOBLE: You're dropping off at the end
14 of your sentences, so I'm losing what you're saying.
15 About 20 what?
16 THE WITNESS: I'm sorry. About 16 to
17 20 hours to load.
18 JUDGE NOBLE: All right. Thanks.
19 THE WITNESS: And that's dependent on how
20 the ship loads, maybe they start more slowly, maybe they
21 end more slowly, because the whole purpose of that slow
22 start and slow finish is to have it be controlled and
23 know exactly what's going where.
24 BY MR. KISIELIUS:
25 **Q. So you've gotten us through the loaded vessel.**

1 **Now, what happens when the loading is done? What do you**
2 **do when you disconnect hoses to make sure that they're**
3 **empty?**
4 A. So the next process is the block valves on the
5 dock and the block valves on the ship are closed, and
6 then there's a means to pump the -- what's remaining in
7 the hose back into the line on shore, and they do the
8 same thing on the ship. They drain the -- that end of
9 the hose because it's -- it goes up and down so it has
10 an apex, so both sides receive what's left in the hose.
11 It's pumped out, and then you can -- by tapping the
12 hose, you can tell if the hose is empty.
13 Then the next part of the process is to
14 disconnect the hoses. And when they disconnect the
15 hoses, they put a small bucket down below on top of the
16 grating where the vessel drip pan is and they open the
17 connection from the bottom. Any drops, usually there's
18 a couple, literally drops, will go down into the bucket.
19 They break it apart, they wipe out the end of the hose,
20 they wipe out the end of the ship's manifold, they put a
21 gasket on and they put the blocks fully bolted back onto
22 the hose and back onto the -- and on the ship. And then
23 what happens is they -- the hoses are moved to shore.
24 MR. KISIELIUS: Could we have Exhibit 290
25 projected on the screen, please.

BY MR. KISIELIUS:

Q. And while we're waiting for that, Captain Bayer, I'm going to ask you to step one step back in the sequence. You started from when the vessel approaches. When the vessel is still making its way towards the terminal, is there any reporting that needs to happen in advance of its approach?

A. Well in advance of the approach, there's something called the ANOA, which is advanced notice of arrival, and that contains also the advanced notice of transfer.

The local Coast Guard captain of the port generally decides how soon you need to report your advance notice of transfer. That advance notice of transfer, which is part of the arrival, has in it a report of where -- the name of the ship, the location of where the ship is going to be transferring, what cargo is going to be transferred, how much is going to be transferred, the estimated time of start, estimated time of completion and estimated time of departure. That's then transmitted to the Coast Guard and then at the same time, it's transmitted to the Washington Department of Ecology, and it's identified in one of the WACs.

Q. So we now have Exhibit 290 projected on the screen. And I'm going to run you through a series of

photographs and for each, I'm going to ask you where the photograph was taken, and then, if you could, tell us what they depict, focusing on those aspects that are representative of what loading operations or equipment will be like at Vancouver Energy.

So let's start with this first photograph. Can you tell us where this was taken?

A. This was taken at our Martinez refinery in Martinez, California. It is our crude oil receiving dock. So this dock only receives, it does not -- we do not load ships from there.

Q. But with a receiving facility, would the -- let's focus on the equipment. Is there equipment that would be the same?

A. Yes. We have two hoses there that you can see raised up in the air. They are 10-inch hoses. It would be the same size as the ones that would be used in Vancouver. There's a shore gangway just to the right of the hoses. That will be placed on the deck of the ship once it's all fast.

What you see on either side, it's a little bit difficult to make out, are raised fire monitors for -- that can actually reach the deck and you could put foam or water onto the ship if you needed to.

You also have remote video cam -- or video

1 cameras on top of those monitors to allow you to look at
2 the deck of the ship from the shore.
3 And then there's, of course, fendering and
4 mooring -- mooring equipment on the dock as well.
5 MR. KISIELIUS: Could we move to page 2,
6 please.
7 BY MR. KISIELIUS:
8 **Q. Captain Bayer, could you describe where this was**
9 **taken and what we're looking at.**
10 A. So what we're looking at is a ship, a tanker
11 just making approach to the Amorco Wharf. And what you
12 see in the far ground is the Shell refinery dock, which
13 is just down river of the Martinez dock. And you see
14 there the tug on the starboard bow made fast in
15 preparation for docking. So we're actually turning the
16 ship to starboard for a port-side-to landing.
17 **Q. And is this the type of ship that would call at**
18 **Vancouver Energy?**
19 A. It's similar. This ship is larger. It's about
20 75,000 tons, but it's representative of the operation
21 that would take place.
22 **Q. And you had earlier described or talked about**
23 **the vessel's manifold. Could you point out what that**
24 **means?**
25 A. If you look at the picture -- and, again, it's a

1 little bit fuzzy, you can see a crane stowed mid ship.
2 And that crane -- is there a -- so anyway, that crane --
3 the base of that crane is closest to us in the picture.
4 Just aft of that, you see pipelines going afore ships,
5 and that's the vessel's manifold where the loading and
6 unloading takes place.
7 MR. KISIELIUS: Could we please advance to
8 5, page 5.
9 BY MR. KISIELIUS:
10 **Q. Again, could you tell us where this was taken?**
11 A. This is -- again, this is making final approach
12 to the berth, port-side-to Amorco in Martinez, the crude
13 oil berth. And what you're seeing here, is the ship is
14 almost in position and the tugboats are going to bodily
15 push it alongside. There's one aft and one forward.
16 If you see, there's -- what looks like there are
17 three individuals in the foreground on the dock, and
18 they've already -- it's difficult to see, again, but the
19 messenger line that picks up the ship's lines to pull
20 them onto the shore, they're already -- there's a small
21 wire there that's attached to a winch and he's actually
22 reeling them in. The two individuals on either side of
23 that are going to place the mooring lines on the hooks.
24 And those are the spring lines. As you recall when I
25 talked about mooring, they put the spring lines on

first, working the middles to the ends to tie up the ship.

And then if you look at the base of the hoses, there's an individual standing there who's communicating with the pilot and the mate on the deck, telling them, in position, two feet ahead, two feet of stern, whatever's necessary to get the ship into final position.

MR. KISIELIUS: Can we advance to page 6, please.

MS. MASTRO: I'm sorry?

MR. KISIELIUS: Page 6, please.

BY MR. KISIELIUS:

Q. So perhaps we'll just quickly ask, is this the same photograph -- or photograph of the same location that we looked at in the first photograph you described?

A. It is. It's exactly the same place. This is a ship -- looks like she's still just off the aft offender just a little bit. I can't really tell from the aspect, but it's alongside the dock, in position and they're running the lines. And that's how it would look if you were standing up on the bridge. I happened to be on board the ship taking this photograph, and we're looking at the dock and the ship from the port bridgeway.

MR. KISIELIUS: Page 8, please.

BY MR. KISIELIUS:

Q. And while we're rotating it back, can you describe where this was taken and what we're looking at.

A. So my marine superintendent in Long Beach took this picture. This is at our -- Berth 78, I believe, in Long Beach. And what you're seeing is the bow of a ship tied up. That blue, a piece of machinery where the lines come onto the dock, is -- on the top, is a capstan for heaving the messenger line, and then there are hooks, which are difficult to see there. And then if you'll notice in the water, there's an oil spill boom wrapped around the ship. And after the ship is all fast, we boom the entire vessel.

MR. KISIELIUS: Nine, please.

BY MR. KISIELIUS:

Q. Can you describe where this was taken and what we're looking at.

A. So this was taken in the same place in Long Beach. Again, this is a better picture of the capstan and the mooring heads. And if you look, the lines, the way they're set over the hooks, that's how they tie up. And those would be the breast lines, the lines that hold the ship directly into the dock.

Q. And, again, similar --

A. This is the -- representative of what's going to

take place in the Vancouver Energy.

MR. KISIELIUS: Can we go to page 10, please.

BY MR. KISIELIUS:

Q. Can you describe where this was taken and what this is.

A. This was taken in Long Beach at, I believe, our Berth 86 by our marine superintendent. And this is the boat that we use to deploy the boom and retrieve the boom around the ship. And you'll notice on the -- just above the motors -- you see the motors are raised, but just above the motors is a tow bar. That tow bar is used to tow the boom in position. And then on the dock, you'll see what looks like balloons or floats or buoys or whatever you want to call them, and laying on the dock are Danforth anchors and some chain and line, and that's what we use to anchor the boom off the side of the ship.

Q. And again, would you have similar equipment at Vancouver Energy?

A. We would have similar equipment in Vancouver. The difference is we would have more of an all-weather boat because of the rain. There would be a covering or a doghouse for the people working the boat. It would have tow gear and it would be a little bit larger.

1 MR. KISIELIUS: Can we jump to page 12,
2 please.
3 BY MR. KISIELIUS:
4 **Q. Could you describe where this was taken and what**
5 **it depicts.**
6 A. This is the Amorco Wharf where we watched the
7 ship dock earlier. And what you're looking at is the
8 shore manifold. If you -- where that 90-degree blue
9 steel angle is on the right side of the picture, that's
10 called a Chiksan. It's actually a small swivel. The
11 hose is attached to that with an insulating flange
12 between the hose and the Chiksan, and then it comes down
13 into that 90 degrees, going into a motor-operated valve,
14 and that's -- the motor-operated valves are the ones
15 with the purple actuators on top, and those are
16 30-second valves as well. They open and close within
17 30 seconds. And then they go through a spool piece into
18 what you see are two gate valves. Those gate valves are
19 rising stems, so you can see the stem is above the
20 wheel. So we know those valves are open; the vessel's
21 probably discharging right now, or in this picture. And
22 then they go into a common line which then goes back to
23 the refinery.
24 **Q. Yesterday we heard some testimony about the**
25 **containment at the dock. Can you describe or can you**

1 **show us that containment area in this photograph?**
2 A. So the containment area is all along the bottom.
3 That whole manifold system rests in the containment
4 area. And if you see the wood planking to the right,
5 which in this dock we happen to call piano keys, right
6 where the wood ends, there's a metal face and that's the
7 edge of the containment. So that whole area is like
8 a -- just a large containment area.
9 MR. KISIELIUS: I would like to jump to
10 photograph 15, please.
11 BY MR. KISIELIUS:
12 **Q. Again, while she flips it, could you tell us**
13 **where this was taken at.**
14 A. Again, this was taken at our Amorco facility in
15 Martinez, California.
16 **Q. Can you point out for us again where the**
17 **containment area is on this photograph?**
18 A. So if you look at that -- it's a gray area and
19 it's a little bit rusty on the inside, and that's from
20 rain water standing in it. And it's that entire area.
21 It runs from the -- what looks like might be freshly
22 painted area on the far side of the picture, all the way
23 back to outside the picture in this direction. And then
24 it runs out to the wooden piano keys and then back
25 behind the dock manifold.

1 **Q. And that containment area, we heard testimony**
2 **about its capacity to handle oil that might spill. Does**
3 **it handle stormwater as well?**
4 A. Handles stormwater, oil, anything that -- any
5 liquid that would -- that could be in it. It's
6 generally just water.
7 **Q. And then can you tell us -- there appear to be**
8 **lines that are hanging from scaffolding running towards**
9 **the hose. Can you tell us what those are.**
10 A. So those are support lines and they're also
11 connected to booms up above for moving the hoses. So
12 when the hoses are stowed in the upright position,
13 they're also rotated inwards away from the side of the
14 ship. When the hoses are then put onto the ship, those
15 lines are used to support the hose at different
16 locations with what's called hose buns, those red
17 saddles that are attached. And those help to support
18 the hose, and then also up on top, the ship's crane is
19 used to support the hoses as they come over the rail.
20 MR. KISIELIUS: Let's jump to photograph 20,
21 please.
22 BY MR. KISIELIUS:
23 **Q. Again, we tried to maximize the photograph for**
24 **page viewing, but that requires some rotation. So could**
25 **you tell us what we're -- well, first of all, where was**

1 **this taken?**
2 A. So this photograph was taken at our Avon dock,
3 which is also at our Martinez refinery. The ship is
4 port-side-to the dock and it's loading. I believe it's
5 loading at this point, or getting ready to load. And
6 what you're looking at in the foreground is the cargo
7 hose and the cargo hose is connected to one of the
8 forward headers. And then -- which is part of the
9 ship's manifold. And then the after hose is -- the
10 yellow hose tells me right away that it's a vapor hose
11 and then the markings on the ship's header, the red and
12 the yellow with the red band at the very end, indicate
13 that that's the vapor connection for the ship, and every
14 vessel has one forward and one aft.
15 In this particular case, we're using the after
16 vapor header. And you cannot cross-connect a cargo hose
17 or a vapor hose because on the vapor header, there's a
18 small nipple that protrudes at the 8:00 -- I'm sorry, at
19 the 12:00 position on the presentation flange on the
20 ship and for all of these spool pieces as well.
21 And then on the vapor hose, there's a recessed
22 place for that nipple to fit into when it's connected to
23 the ship. The cargo hoses do not have that. So you
24 can't connect a cargo hose to a vapor header because
25 that nipple would make that impossible.

1 **Q. There's a yellow bucket underneath the cargo**
2 **hose.**
3 A. Yes.
4 **Q. Can you describe what that is.**
5 A. So earlier I described the connection and
6 disconnection when you break apart or you make your
7 connection. So that bucket is placed there during the
8 connection. It's only left there, you know, when
9 they're connected or not connected, not when they're
10 loading or discharging. And that bucket, if you were to
11 look in it right now, probably contains a couple of rags
12 and some bolts, and that's not the drip pan or the
13 containment area.
14 That entire area with grating underneath the
15 cargo -- cargo and vapor manifold is what's called the
16 ship's drip pan. So if you were to say -- we say that
17 we keep everything in primary containment. That's
18 inside the ship. If you were to have a leaky hose or
19 something were to happen, the first place it would go is
20 into secondary containment, which would be that manifold
21 drip pan. That manifold drip pan, I don't know the
22 capacity of that drip pan, but on the ships that would
23 be coming to the terminal, the ones that we have, it
24 ranges in size from about 70 barrels to 110 barrels for
25 ships.

1 **Q. If I could interrupt for just a quick question.**
2 A. Yes.
3 **Q. The vessel size, what we're seeing here, is that**
4 **a representative size of vessel of what you would expect**
5 **to have at Vancouver?**
6 A. No. This ship is a little bit larger. It's
7 75,000 tons. It can carry upwards of 650,000 barrels.
8 This is a foreign-flagged vessel. The ships that will
9 be coming to the terminal are US-flagged vessels, and
10 the only ones available are approximately 47 -- 45 to
11 50,000 tons.
12 So this particular ship is -- while -- it's just
13 a larger version of what would come to the terminal.
14 And then I would like to -- just like to point out
15 that -- so that's -- the secondary containment would be
16 the drip pan.
17 The tertiary containment would be the fishplate
18 which runs around the entire perimeter of the ship, and
19 it's between 8 and 14 inches in height, and it's -- as I
20 talked about earlier in the safety round, they make sure
21 that all of the drains or scuffers are plugged
22 beforehand.
23 And there's -- if you also look in this picture,
24 there's multiple places where you can pump this out back
25 to the ship's slop tanks, but the easiest place to see

it is, if you look at the manifold in the foreground, just below it, barely to the left, you see a piece of pipe that's come at a 90-degree angle and goes right down into the drip pan, and that's how you would evacuate that if there were any kind of liquid in it.

Q. I would like to switch topics here, subject matter, and ask you to elaborate on something you mentioned earlier in your description related to the vapor hoses. Let me just ask. We've heard some prior testimony about the -- whether vessels are vapor tight. Are the vessels vapor tight?

A. Yes, they are.

Q. What does that mean?

A. "Vapor tight" means that there's -- there are no fugitive emissions coming from the ships. All of their gaskets are tight, all of their -- the pressure vacuum relief valves are tight; there is no area where the inner gas or hydrocarbon vapors in the tanks is leaking to atmosphere.

And the way we know this, particularly at this dock, is when they're loading under vapor recovery, I believe, I don't -- I'm not positive, but we have to have a company, by one of the third-party independent inspection companies, come out with a VOC sniffer and test the apertures around the ship. And I happen to

1 know that this ship was tested and it was 100 percent
2 vapor tight. There was no leakage.
3 **Q. So are -- the vessels are occasionally tested,**
4 **and how frequently?**
5 A. We test them, I would say, randomly and in
6 San Francisco Bay when we're loading, because of the Air
7 Quality Management District, I believe we do some
8 percentage, if not all, vessels that load by vapor
9 recovery.
10 And as a matter of fact, we just -- I think it
11 was last week, one of our ships, the Overseas Nikiski,
12 which is one of the ships that would come to the
13 terminal, was used to test our vapor recovery system at
14 the Long Beach terminal, and at that time, we also had
15 them go out and test, and the ship was 100 percent vapor
16 tight.
17 We also load under vapor recovery in Valdez,
18 Alaska, at the Valdez Marine Terminal, and just recently
19 I took the opportunity to again do a test of both the
20 Overseas Boston and the Overseas Martinez, the sister
21 ships to the Overseas Nikiski, and they were also
22 100 percent vapor tight.
23 **Q. So with a vapor-tight vessel, as you are loading**
24 **cargo into the vessel, I'm imagining there's some**
25 **pressure situation. So what do you do to address**

1 **pressure in the vessel itself?**
2 A. So by law, we have to maintain a positive
3 pressure in the ship of 100 millimeters or four inches
4 of water gauge. They're the same -- I'm not good at
5 going from one -- from millimeters of water gauge to
6 inches, but that's -- they're the same. And that's laid
7 out in the Code of Federal Regulations, and I think
8 that's Part 40 CFR 46. I think it might be 46 CFR 42
9 something. And it spells that out clearly there.
10 So when -- the way it works is, as you're
11 loading the ship, you're push -- you're filling the
12 space where the vapors previously were. You have a
13 slight positive pressure. When you have a positive
14 pressure on the ship and a slight -- and a lesser
15 pressure on the shore, then the vapor flows from the
16 high pressure to the low pressure, and the vapors flow
17 to the marine vapor -- depending on what the system is,
18 but in the case here, it would be the marine vapor
19 combustion unit.
20 **Q. And are you familiar with Dr. Sahu's testimony**
21 **that -- on this topic, on the topic of pressure of**
22 **ships?**
23 A. Yes, I am.
24 **Q. And I believe that he says that vessels must be**
25 **under, quote, significant negative pressure, end quote.**

1 **Is that correct?**
2 A. That is not correct. Again, a vessel that would
3 do that would violate the federal law under the Code of
4 Federal Regulations. You have to maintain when you're
5 loading or discharging a positive pressure of
6 100 millimeters, or four inches of water gauge, at all
7 times.
8 But -- and I want to say this, just to add to
9 that, as long as you have a positive pressure in the
10 ship and there's a slightly lesser pressure on the shore
11 side, the vapor's going to flow from the high to the
12 low.
13 **Q. And so again, to be clear, how do you avoid that**
14 **negative pressure?**
15 A. So the ships are required to have a -- pressure
16 vacuum sensors that keeps them within a working range so
17 that you don't exceed the certain pressure on the ship
18 or you don't go into a vacuum situation. And the way
19 they protect the ships is you have a pressure vacuum
20 relief valve on every single tank, and that valve is set
21 to, I think 80 -- I'm not sure of the numbers, but it's
22 set to a point so that if you start to exceed a pressure
23 situation, it will -- it will just relieve enough to
24 bring the pressure back down. There are also visual and
25 audible alarms that will go off and allow the ship's

1 crew to know this.
2 But the ship's crews are well-trained. We have
3 the ability, especially in the vapor recovery, to either
4 relieve the pressure or, if we get down into a vacuum
5 situation or we get close -- I've never seen a ship go
6 into a vacuum situation, but as you get close, you turn
7 on your inner gas system and you can pump it up.
8 If there's a big vapor volume in the ship, it
9 takes a little bit longer, but if you're -- the tanks
10 are close to being full, it takes maybe 10, 15 minutes.
11 It's just a very small vapor space to fill.
12 **Q. So you used that phrase, "that inert gas**
13 **generator." Is that what is used to inert the vessel?**
14 A. Correct. We have essentially a diesel engine on
15 the ship. That engine runs and we use the exhaust gas
16 off of that. That engine, that exhaust gas is filtered.
17 It is then delivered to the tanks. The oxygen content
18 of that gas being delivered is generally between one and
19 two per -- 1 and 3 percent O2 by volume. It's required
20 that the tanks remain less than 8 percent by volume at
21 all times. On any of the ships that we use, if you were
22 to go and test them at any given time, they would be in
23 the 5 percent O2 range.
24 **Q. And so will all of the vessels that call at**
25 **Vancouver Energy, all the potential vessels, be equipped**

1 **with this technology to inert the vessel?**
2 A. Yes. It will be a requirement of the terminal.
3 Every vessel that comes to the terminal will have to be
4 certified vapor tight and will have inert gas.
5 **Q. And that applies -- because I recall your direct**
6 **testimony gives the different categories of vessels.**
7 **There were tanker vessels of different sizes. You also**
8 **described ATBs, articulated barges. Would that apply to**
9 **the barges as well?**
10 A. It would. All of the ATBs that would come to
11 the terminal would have inert gas generators, and the
12 tanks would be fully inerted before they even came to
13 the dock. That's just a -- that's a requirement.
14 **Q. I would like to ask you a couple of questions --**
15 **actually, before I get there, I would like you to expand**
16 **on one other thing you mentioned in your testimony in**
17 **your description of the approach. You talked about**
18 **pilots. So I want to focus on that for just a minute.**
19 **What are pilots? How does that system work?**
20 A. So pilots are experienced mariners who have
21 chosen not to go to sea anymore, "go to sea" as in
22 offshore, or they might be, in some cases, tugboat
23 captains that are very familiar with the area. These
24 individuals are experts in the area where they work.
25 So for the Columbia River Bar pilots, for

1 instance, I believe there are 16 or 17 of them, and all
2 they do is bring ships from the entrance to the river,
3 to Astoria, and back out. They have memorized the
4 charts. They have memorized all of the depth contours.
5 They know where all the buoys are, all of the -- all of
6 the navigation areas, the points of land, the distances,
7 the width of the channel, and -- I guess I could go on,
8 but they're experts. They could almost do it with their
9 eyes closed. I would hope they don't.
10 And what they bring to the table is that local
11 knowledge of currents, tides, wind, weather. And also
12 it's a very -- it's sort of a special ability that you
13 learn if you're going -- at sea, if you're going onto a
14 vessel or coming off a vessel. And they use -- they
15 happen to use helicopters when they're offshore to go on
16 and off the vessel.
17 **Q. Is there any training required for those pilots?**
18 A. So these pilots have -- hold two licenses. They
19 hold a federal license issued by the US Coast Guard, and
20 they hold a license issued by the Oregon Board of Pilot
21 Commissioners who regulate both the river and the bar
22 pilots. And so they go through a one- to three-year
23 training period. And then once they have finished the
24 training period, they start them off on smaller vessels,
25 and then they start bringing larger and larger vessels

1 in until it's -- you could say it's unlimited. There's
2 not a limit on the size ship they can bring in.
3 The river pilots have something similar. These
4 individuals board in Astoria and they memorize the
5 river. And when I say "memorize," they memorize the
6 landmarks, the channel widths, the locations of the
7 buoys, you know, the turns in the river, and they --
8 they're able to actually -- part of the test for both of
9 these pilots is to draw the chart on a blank sheet of
10 paper with the depths, every depth that's on the chart.
11 So they also have this expertise and they go
12 through a -- I would say a one- to three-year training
13 period. They go to -- both pilots go to what's called
14 "manned model," where they -- it's a ship-handling
15 school where they just size everything down to
16 miniature, and they get opportunities to practice
17 different maneuvers and they do that every five years.
18 Again, they have a similar program, once you've become a
19 pilot, you're -- you start on smaller vessels and work
20 your way up until there's no restriction.
21 **Q. So in your opinion, does the river and bar pilot**
22 **program contribute to navigation safety?**
23 A. Oh, absolutely. And the other -- the other part
24 of it is, I mean, we rely on these highly trained
25 individuals to guide the ship from outside the sea buoy

to its final berth and then back out in the other direction.

Q. I would like to ask you a couple of questions about the testimony of Susan Harvey.

A. Yes.

Q. Did you read that testimony?

A. I did.

Q. I'm going to start with a couple of questions about tugs. I'm going to read you a quote from page -- paragraph 31 of her testimony. "It is important for Tesoro and the other shippers planned to service this proposed facility to clarify how they intend to use escort and docking tugs to prevent spills."

So could you please help clarify that. Why don't we start with docking tugs and maybe start by explaining what those are.

A. So docking tugs are -- I guess I would equate them to when you're in an airplane at an airport and they bring a little tractor to push the plane in or take the plane out of its final position. The docking tugs do something similar. So every vessel that will dock at the terminal will have two docking tugs. These tugs will have -- based on the size of the ship, will have minimum requirements.

The minimum requirement for Tesoro for the

1 terminal will be two tugs for docking and two tugs for
2 undocking. They'll be twin screw, minimum twin screw
3 conventional or tractor tug, and they'll be between --
4 right now, probably between roughly 3,000 and 6,000
5 horsepower. That's what's available on the river today.
6 So that's a requirement of the terminal to come
7 to the terminal. And that will -- that's agreed on
8 during the vetting process in the beginning.
9 The ship will be, you know, approved to call to
10 the terminal subject to the use of tugs, escorts,
11 whatever other parameters we want to put on it. And
12 before -- once that clearance is issued, we then send it
13 to the ship and the ship owner and they have to confirm
14 that they will comply with that. Once that confirmation
15 is made, we then say -- we issue the final clearance for
16 the ship to come to the dock.
17 **Q. So just to clarify, I want to come back to the**
18 **tugs, but what you just described there, you had some**
19 **testimony in your written statement about vetting**
20 **policies. Is that what you're describing there?**
21 A. I am. That is part of the vetting policy.
22 **Q. And is that the mechanism by which you ensure**
23 **that the terminal ensures that this condition is met?**
24 A. That's one of the mechanisms. We also will have
25 a port captain at the terminal. We will have an agent

1 at the terminal, just like our other facilities. And
2 now they'll be in communication with the ship, the ship
3 agents, before it comes alongside, while it's alongside
4 and on departure, to make sure that coordination with
5 the pilots, coordination with the tugboats, coordination
6 with the line handlers and then the connection,
7 disconnection and the loading, how all that goes.
8 **Q. And let's talk now -- we just talked about**
9 **docking tugs. Let's turn to escort tugs. And in**
10 **paragraph 29, Ms. Harvey says that the measure was not**
11 **proposed by the applicant nor is currently included in**
12 **its application. Is that true?**
13 A. It is true that it was not proposed in the
14 application. We were still considering if that was
15 necessary. We saw during the -- in the DNV GL risk
16 assessment, that it reduces the risk of grounding by
17 over 90 percent, so -- and we just made the decision
18 that that would be a prudent measure and we're now --
19 we're going to require an escort tug on every outbound
20 loaded passage.
21 **Q. And to be clear, for docking tugs and escort**
22 **tugs, is that going to be a requirement just for vessels**
23 **chartered by Tesoro, or is that for all customers of the**
24 **terminal?**
25 A. That's -- that will be all customers coming to

1 the terminal. No vessel that comes to the terminal,
2 whether it's a Tesoro time charter, a Tesoro voyage
3 charter or a third-party vessel from some other
4 customer, the requirement is of course pilots, tugboats
5 and escort tugs.
6 **Q. And if -- turning back now to Exhibit 290.**
7 MR. KISIELIUS: If we could take a look at
8 page 3, please.
9 BY MR. KISIELIUS:
10 **Q. So again, can you tell us where this was taken**
11 **and what we're looking at.**
12 A. So this was taken in San Francisco Bay, and what
13 you're looking at is a ship coming up to our Amorco
14 terminal. And that tugboat, I don't know if you can see
15 the -- what looks like a piece of rope between the bow
16 of the tug and the stern of the ship. That piece of
17 rope has a tremendous breaking strain. Probably in --
18 close to a million pounds.
19 On the stern of that ship, there's a bit that's
20 a 200-ton bit and a chalk for the line to pass through
21 that's rated at 200 tons as well. And that is connected
22 to the stern of the ship. That tugboat there, I
23 believe, is about 6,000 horsepower. It's a tractor tug.
24 It's got a deep skeg and it's representative of what we
25 might see in the river. It was -- in the DNV GL risk

assessment, we modeled this way of escorting. Depending on what the pilots are going to want to do, it may be a little different, but I would leave that up to them because they're the ones that will be utilizing the escort tug.

Q. So you just said "what we might see." Were you referring to the specific configuration or the presence of the tug?

A. I'm referring to this particular configuration. This configuration is utilized in San Francisco Bay and it's utilized in Puget Sound. In Los Angeles, Long Beach, they use a slightly different configuration. So the river might be different as well.

MR. KISIELIUS: Can we turn to page 4, please.

BY MR. KISIELIUS:

Q. Again, can you describe where this was taken and what it's depicting.

A. So this was also taken in San Francisco Bay. And what you're seeing is the Overseas Nikiski, which is a ship that would come to the terminal; it's on time charter to Tesoro at this point -- or at this time. It's 46,000 tons. Those tugboats are in the configuration I would expect to see when docking. I don't know if the lines are up yet, but the forward tug

1 would have a line going from the bow of the tug up to
2 just above where -- on the ship, just -- what's called
3 the break in the foam sea layer. And then on the stern,
4 that tugboat there would have line up just forward of
5 the break of the house.
6 **Q. And that would be comparable to the --**
7 A. That would be the same I would expect to see
8 here in the Columbia River.
9 MR. KISIELIUS: Your Honor, I'm going to ask
10 just briefly -- I'm prepared to keep going with this. I
11 just observed it's 2:30. We've got about 20 more
12 minutes, 25 more minutes' worth of questions. So I
13 could proceed, but --
14 JUDGE NOBLE: I was lost in thought about
15 the exhibits. Thank you for the reminder. I think we
16 should break now. We'll be off the record for
17 15 minutes until 2:45.
18 (Recess taken from 2:31 p.m. to 2:47 p.m.)
19 JUDGE NOBLE: Back on the record.
20 BY MR. KISIELIUS:
21 **Q. Captain Bayer, I have a couple of questions for**
22 **you about the vetting policy you just described, but I**
23 **want to start by reading you a quote from Susan Harvey's**
24 **testimony, paragraph 32 of her testimony. And she says,**
25 **"The terminal will be serviced by a host of unnamed**

1 **shipping companies with unknown safety records, unknown**
2 **navigational experience transiting the Columbia River,**
3 **unknown spill prevention plans, unknown tank vessel**
4 **design, unknown tug escort plans and unconfirmed**
5 **response capability."**
6 **So do you agree with her assessment?**
7 A. I do not.
8 **Q. And why?**
9 A. Well, first, I think the easiest way to say it
10 is these are Jones Act US flag vessels, and we're
11 familiar with all of the US flag companies that operate
12 tankers and large ATBs.
13 Secondly, we have some of those companies on
14 time charter and -- or have had them in the past. So
15 we're familiar -- I, personally, am familiar, and my
16 team is familiar, and some of my team has actually
17 sailed on these ships in command capacities -- or
18 command positions. So they're all familiar to us.
19 Part of our vetting process requires that we
20 look at the vessel federal response plan, that it's
21 appropriate for the captain of the port zone where the
22 vessel will be going. We look at -- to make sure that
23 they have the proper insurance, they meet -- all of
24 their licensure and certificates are valid, they have --
25 belong to MFSA and subscribe to that plan for coming in

1 the river. I don't recall -- there was quite a few
2 items there that -- I don't agree with any of what she
3 said, because part of our process is that we review the
4 operations of the ship right down to the time on board
5 for the individuals and our expectations of, you know,
6 how long they've been at rank, and then not only how
7 long they've been at rank, but how long they've worked
8 on tankers.
9 **Q. And to be clear, can a vessel that doesn't**
10 **comply with your vetting policy berth at the terminal?**
11 A. No. It would be rejected and there would be --
12 it wouldn't come to the terminal. There might be
13 further discussion, but if it doesn't comply with the
14 policy, there's -- if it doesn't comply with the policy,
15 it's black or white.
16 **Q. I'm going to turn now to navigation issues more**
17 **generally and Ms. Harvey's navigation-related testimony.**
18 **First, during your career, have you personally navigated**
19 **the Columbia River in a tanker vessel?**
20 A. Yes, I have, on tankers, and I've also -- the
21 first time I came up the river was in 1979 as a cadet on
22 the training ship Golden Bear. I think I've been up a
23 few times. And then subsequent to that, as I went to
24 sea, I was on a small product tanker that came up the
25 river on a fairly regular basis. And then when I was

1 further along in my career, again, as chief mate and
2 then captain, I loaded -- happened to load grain in the
3 river on a ship where I spent a lot of time, which is
4 called the OBO, and it carried oil, bulk products or
5 ore. We never carried ore, but the ships carried
6 petroleum and grain, and we loaded grain in the river a
7 few times.
8 And then after that, during my time at BP Oil
9 Shipping, we used to -- I was responsible at the end of
10 my time there, before we transitioned into the joint
11 venture company Alaska Tanker Company, I was responsible
12 for the BP time-chartered ships, which were -- some of
13 them were -- I had three that were 125,000 tons and I
14 had four that were -- well, three that were 165,000 tons
15 and one that was 125,000 tons. It was the same class,
16 but they had actually cut a middle section out of the
17 ship. I was responsible for those ships. Those ships
18 were approximately -- the smaller 125s were about -- I
19 think 800 and -- I can't be quoted correctly --
20 directly. But they're 136 feet wide by roughly 860 feet
21 long, and then the 165s were 173 feet wide and they were
22 about nine hundred and, let's say, ten feet long. And
23 those ships, we would bring them up to Swan Island.
24 I was also, during my career, on board a ship
25 called the BT Alaska, which is 188,000 deadweight tons,

1 and she was 166 feet wide by -- I should remember
2 this -- 960 feet long. And we used to bring them in the
3 river to go to Swan Island or, in the later years, they
4 were laid up.
5 We also had -- there were other ships that --
6 eventually that I had a partial responsibility for after
7 I moved to Alaska Tanker Company that were -- they
8 ranged in size from 75,000 tons to 190,000 tons.
9 **Q. So can you describe the navigation channel in**
10 **the Columbia River? How wide is it?**
11 A. So at the mouth of the river, the entrance at
12 the bars goes -- ranges in size from 2,000 feet wide on
13 the Army Corps of Engineers' maintained channel. As you
14 come into the river, the channel width goes to 600 feet
15 wide in the maintained marked section, 600 feet wide.
16 Just above Kelley Point, the channel goes to -- it sort
17 of varies between -- it goes down from 600 to 500, and
18 then it goes up to 800 in a couple of areas where there
19 are marked turning basins just below the I-5 bridge.
20 **Q. Are you familiar with Ms. Harvey's testimony of**
21 **how the navigation channel operates with lanes?**
22 A. Excuse me?
23 **Q. Are you familiar with Ms. Harvey's testimony,**
24 **the portion that describes lanes within the navigation**
25 **channel?**

A. Yes.

Q. Can you describe what your recollection of her testimony is?

A. Uh-huh. She claims that the 600-foot wide channel is broken up into an up-bound lane and a down-bound lane, similar to like a two-lane highway -- or two-lane road.

Q. Is that correct?

A. It's not really correct, because a vessel in the channel has the full use of the entire 600 feet. When you pass another vessel in the channel, then each ship will move to the outer edge of the channel. And there are what are called navigation rules of the road. And it's the same system we have, where you -- you know, one vessel moves off to the right and the other vessel moves off to the right so you have a port-to-port passage when they're passing.

What happens in the river is, when vessels pass, the pilots are in communication with each other and they're actually able to see each other via an electronic means on something called TV32, which tells them where their vessel is, they know exactly where they are, they know what the depth of water under their keel is, they know what their draft is, they know their location, but what they're also able to see on this

1 same -- I think it looks something like an iPad, what
2 they're able to see is the other vessels that are around
3 them. And they also know from their dispatch office
4 what vessels are at what docks, when they may leave or
5 when they may arrive. And so they're able to talk to
6 each other on the radio and coordinate passage in an
7 area of the river where, say, it's a wider area of the
8 river and they choose to -- one vessel may go outside
9 the actual marked channel because they know from bank to
10 bank what the depths are and their exact location. And
11 so maybe there's a large vessel coming down loaded, gets
12 the entire 600 feet channel to navigate in. And that's
13 a normal practice, everyday practice.
14 **Q. So in paragraph 21, Ms. Harvey testifies to her**
15 **concerns about vessels that are up to 157 and a half**
16 **feet wide because they will be, quote, using more than**
17 **half the 300-foot lane. She also suggests in**
18 **paragraph 24 that this is, quote, not an optimal**
19 **location, closed quote, for tank vessels of this size to**
20 **navigate. Do you share her navigation concerns?**
21 A. No, I don't. And I don't because of the pilots,
22 the training they have, the tools they have at hand with
23 TV32, with the training of the crews and the
24 incorporation of the pilot into the vessel's bridge
25 management team.

1 Also they have the ability to say, we may choose
2 not to pass another vessel that size or large vessel in
3 the river, and one vessel either will be held at a
4 berth, won't enter the river or, you know, they'll
5 choose to pass in one of the areas I described earlier,
6 in a wider section of the river where the other vessel
7 can step outside of the channel.
8 **Q. I want to turn to a couple of her specific**
9 **locations that she identified. But before I get there,**
10 **for context, to your knowledge, have there been vessels**
11 **of that size in the river? Now, I know you've described**
12 **a couple that you yourself were aboard, but are there**
13 **others that you know of?**
14 A. I do know of others. I know that there are
15 large container ships that, up until very recently, were
16 on, I think, a weekly run, and I think it was maybe -- I
17 think it was MOL was bringing ships that were about a
18 hundred -- I'm assuming about 130 feet, 135 feet wide
19 and maybe 900 feet long up the river on a regular basis,
20 in addition to large cruise ships, the standard bulk
21 carrier in the rivers of roughly, I think, what we
22 call -- not post-Panamax, but the older Panamax, 75,000
23 tons, or about 740 feet long by 105 feet wide.
24 Then there are all the large ships going up to
25 Swan Island, in addition to others. And I asked the

1 pilots -- the river pilots, what ships have come up the
2 river, and they were able to provide me with data from
3 the bigger shipyard of the large -- for ten years' worth
4 of shipping.
5 **Q. And did that list include vessels of that larger**
6 **size?**
7 A. It did. It did.
8 **Q. You've referred to Swan Island once or twice.**
9 **Can you identify what that is?**
10 A. Swan Island is the -- it's a shipyard and it's
11 located on the Willamette just -- if you go up the
12 Willamette a little ways, I believe it's just past the
13 St. John's Bridge across from Portland, and they're a
14 large ship repair facility. And they take ships -- the
15 biggest ship I've ever seen up there is the SeaRiver
16 Long Beach which is 211,000 tons. I believe it's --
17 it's close to a thousand feet long and at least 165 feet
18 wide, maybe more.
19 MR. KISIELIUS: Ms. Mastro, could you please
20 project Exhibit 191.
21 BY MR. KISIELIUS:
22 **Q. And as we're getting that exhibit loaded, are**
23 **you familiar with the portions of Ms. Harvey's testimony**
24 **in which she gives two examples of specific locations**
25 **that in her testimony are representative of the**

1 **narrowness of the river and the navigation risk that she**
2 **believes?**
3 A. Yes, I am.
4 **Q. Do you remember those locations?**
5 A. Yes. One is near Kelley Point called Pearcy
6 Island, and the other one is Prescott, which is a little
7 ways down the river from there as well.
8 **Q. Let me stop and ask you to set the stage for**
9 **this map. Did you -- was this map prepared at your**
10 **direction?**
11 A. Yes, it was.
12 **Q. Okay. And does it show -- well, does it show**
13 **those two locations?**
14 A. It does. And what you see -- first you see
15 obviously a map of the river, and then you see a
16 snapshot of the actual navigation chart depicting that
17 location in the river.
18 **Q. So let's talk first about the area near**
19 **Prescott. Is this one of the areas identified by**
20 **Ms. Harvey?**
21 A. Yes, it is.
22 **Q. So what about her testimony that -- there's this**
23 **notion that two vessels would have a hard time passing**
24 **each other at this location.**
25 A. Well, I believe she says that the narrowness of

1 the channel, it's only 1,966 feet wide -- it's difficult
2 to see here, but if you look at the actual navigation
3 chart, which I brought because my eyes just aren't good
4 enough to look at that, you can see that the depth of
5 the river is actually deeper than the maintained
6 navigation channel almost bank to bank. So you have
7 quite a wide area in which to navigate a vessel. And I
8 have the chart in which -- I mean, I can see it if you
9 would like me to show you.
10 **Q. Are those callout boxes excerpts of the**
11 **navigation chart?**
12 A. They are excerpts of this chart that I
13 brought -- these charts that I brought.
14 **Q. And let's talk about the second location, the**
15 **vicinity of Pearcy Island. Again, there I think she**
16 **indicates there's only 664 feet on either side of the**
17 **navigation channel and says, quote, there's little or no**
18 **room for navigation error and insufficient time to react**
19 **to a loss of vessel steering.**
20 **Does that specific location or the scenario that**
21 **she describes create any unique navigation concerns, in**
22 **your opinion?**
23 A. No, it does not. And the reason is Pearcy
24 Island, which if -- it's hard for me to see, but it's
25 the bottom of the three chartlets there in the map. And

1 what you're seeing is the Willamette River and the
2 Columbia River come together just to the north there of
3 Kelley Point. And so all along -- Pearcy Island is --
4 it's difficult to tell, but the -- if you look at Kelley
5 Point and you come south -- if that chartlet is in the
6 right angle, you come southeast along the river, and
7 then you see Hayden Island is that spit that comes out
8 there. That whole area between Kelley Point and the
9 terminal is noted as an anchorage area. So deep draft
10 navigation vessels can anchor there. So you actually
11 have a lot more water there to navigate with, and that
12 channel is just defined so that tanker ships don't
13 anchor in the channel. You want to keep the navigation
14 area clear.
15 The other interesting part about that is you
16 have about five miles to go between Kelley Point and the
17 I-5 bridge. And when a ship's getting ready to dock,
18 any ship, the docking tugs meet the ship in the vicinity
19 of Kelley Point and make up. And when they make up,
20 they -- again, they put a line up to the bow, a line up
21 to the stern. And so now the ship is under positive
22 control of the pilot with the tugs and the ship's
23 engine. So he has even more tools to work with. So,
24 no, I don't see that as an area of concern.
25 **Q. Switch to an entirely different location that's**

1 **referenced in Ms. Harvey's testimony. Are you familiar**
2 **with her comparison to the Valdez Marine Terminal in**
3 **Prince William Sound, Alaska?**
4 A. Yes, I am.
5 **Q. And do you recall what she characterizes as the**
6 **narrowest spot that tanker vessels need to navigate in**
7 **that location?**
8 A. She said that the narrows which connects Prince
9 William Sound to the Valdez, the little bay that holds
10 the Valdez Harbor and the marine terminal, that channel
11 she says is four thousand nine hundred and something
12 feet wide. In actuality, there's a rock in the middle
13 called Middle Rock. And the actual distance between
14 Middle Rock and the shore is about 1600 feet.
15 What's required is that -- there's something
16 called an optimum track line. And all vessels going
17 into or out of Valdez through the narrows must stay on
18 that optimum track line. That optimum track line is
19 300 feet wide. So they have to stay within the confines
20 of that narrow corridor. And at one point, they are in
21 a narrower portion of the river.
22 The other thing that -- about the Valdez Narrows
23 is you have a range of tide that's approximately 15 feet
24 twice a day. So it goes up 15 feet and it comes down
25 15 feet, and you have a lot of currents. And these

1 cross currents are not very predictable. And then also
2 that entire body of water from bank to bank in the
3 bottom is hard granite.
4 The river is primarily sand and mud. The river,
5 except for a few areas, flows generally in one
6 direction. It's tidally influenced in some areas, but
7 not very much. And you don't see extreme currents. In
8 the Valdez Narrows, I think you can see currents well in
9 excess of 3 or 4 knots because of the narrowness. You
10 have a very wide body of water and then you have a
11 narrow entrance and then you have a relatively large
12 body of water, and that flowing through there with a
13 15-foot range of tide, gives you sort of a toilet bowl
14 effect, so you get a big flushing motion in both
15 directions.
16 **Q. So is the comparison between the river and the**
17 **Valdez Narrows helpful or accurate, in your opinion?**
18 A. I don't believe so. I think we're talking about
19 two entirely different challenges when it comes to
20 navigating a ship. You know, the nice thing about
21 operating in a river is when you're stemming the
22 current, we call that in some cases a poor man's tugboat
23 because you have something to create flow through the --
24 through the -- past the rudder.
25 In the narrows, not only do they have the

1 optimum track line, but a ship can't go more than
2 6 knots. So the ship needs to maintain slow steerage
3 through there, which makes it even more challenging to
4 take it through that body of water because you can't get
5 a lot of flow of water past the rudder to maintain
6 positive steerage control. In the river that's not an
7 issue.
8 **Q. Just to clarify, have you, personally, navigated**
9 **the Valdez Narrows?**
10 A. Many times. I was -- many times as marine
11 superintendent, and then I was on a large ship,
12 190,000-ton tanker, going in and out of Valdez about
13 every two weeks.
14 **Q. Switch locations now to the Columbia River Bar.**
15 **Are you familiar with Ms. Harvey's testimony related to**
16 **the navigation risks at the Columbia River Bar?**
17 A. Yes, I am.
18 **Q. Can you characterize her portrayal of that risk?**
19 A. I think she portrayed the bar as the graveyard
20 of the Pacific, and said that since 1793 I believe 2,000
21 ships have -- 2,000 large vessels have been lost and, I
22 don't know, 500 people have died -- or 700 people have
23 died.
24 I looked at that information, and the graveyard
25 of the Pacific -- I looked up I believe the same

1 information she did, because I looked up the numbers,
2 and the 2,000 ships is the Oregon coast. And I would
3 say maybe 95 to 98 percent of those vessels were before
4 1930, when they were sailing ships.
5 The bar itself, the last -- I think it said
6 there were 200 wrecks off the bar, and all of those, to
7 my knowledge, were prior to 1930, with the exception of
8 a tuna seiner that went down, I believe, in 1976, and
9 there was no detail for me to investigate that.
10 So I think that's a sort of -- it's history.
11 It's something that happened before motor ships came
12 around, and it's been almost -- I mean, before 1930, so
13 we're not -- we don't use sailing ships in bars anymore.
14 **Q. So just to be clear, do you believe that that --**
15 **her testimony is an accurate portrayal of the navigation**
16 **risk of crossing the bar now?**
17 A. No.
18 **Q. I want to read to you a passage of specific**
19 **issues she raises in that location. She acknowledges**
20 **that the applicant will, "restrict latent tanker transit**
21 **to a minimum ten feet of clearance across the bar and**
22 **use Columbia River pilots."**
23 **But then she also says, "These prevention**
24 **measures alone would be insufficient in the case of**
25 **tankers steering where propulsion is lost during a**

1 **crossing."**
2 **You had previously described the commitment to**
3 **use escort tugs. Would those escort tugs be available**
4 **in the scenario that she's just described?**
5 A. Yes.
6 **Q. And in your opinion, would those escort tugs**
7 **address that risk adequately?**
8 A. I believe so.
9 **Q. Let's turn to the testimony -- her testimony on**
10 **the Mobil Oil tanker spill. She talked at length about**
11 **that spill. Are you familiar with it?**
12 A. Yes, I am.
13 **Q. Do you remember what year it was?**
14 A. I believe it was 1984.
15 **Q. Can you describe the changes in navigation**
16 **technology, vessel operations and vessel design that**
17 **have been put in place since the time of that incident.**
18 A. Yes. All tankers, without exception, today are
19 double hulled. And all tankers, without exception,
20 subscribe to something called the ISM, International
21 Safety Management System. And every vessel owner has
22 what's called a safety management system for their
23 fleet. And that safety management system is comprised
24 of their policies, their procedures, checklists,
25 training, the ability to track the crew training --

1 excuse me, track the crew training. So that's one piece
2 of it.
3 And I would kind of like to just break this up a
4 little bit, if I could. So the second part of it -- and
5 I'll -- I would like to go back to that in a second.
6 The second part of that is the technology on board the
7 ships is much different today.
8 When that vessel went aground, they had
9 something called the engine order telegraph, and they
10 gave -- you would be standing on the bridge of a ship,
11 and all ships were like this, and you would say, give me
12 full ahead, and you'd bring it up. I think we've all
13 seen those old movies. And then someone down in the
14 engine room would jump up and say, he wants this engine
15 speed or maneuver, and he would reply that he was going
16 to do it. And then there would be that delay, and you'd
17 have to rely on the people in the engine room to do
18 that.
19 Today what you have is you have direct engine
20 control from the bridge, just like you do in your car
21 when you're driving it.
22 So in that case, once they recognized that they
23 had lost steering, they could have just walked over and
24 simply pulled the throttle back to full astern and done
25 a crash stop. That would have started to slow the ship

1 down.
2 The next thing they could have done was to
3 self-arrest the ship, which they didn't do. They didn't
4 have anybody on the bow of the ship standing by the
5 anchors to let go. Today that -- even when I was going
6 to sea, starting in 1978, we did that.
7 So one of the things that we do is, the minute
8 you get into piloted waters, you have a lookout on the
9 bow with a radio and/or a sound-powered telephone
10 communicating directly with the bridge so that he's not
11 only telling you what he sees as the ship's moving
12 through the water, but if I said, drop the anchor, drop
13 the port anchor at five shots in the water, he just
14 walks over to the anchor, swings the pawl and lets the
15 anchor go and then puts the brake on and off we go. So
16 we have somebody right there that can respond within the
17 amount of time it takes for me to walk from here to that
18 screen.
19 The next piece of it is the steering motors.
20 The steering engine, which is the mechanism used to turn
21 the rudder, has two steering motors and they can be
22 separate or they can be run in parallel. Typically, we
23 run them separately. And we don't have these linkages
24 that tell you that, you know, if a pin falls out, then
25 what happens is you lose control of the rudder. Today

1 if you lose control of the rudder, you get an audible
2 and a visual alarm on the bridge and in the engine
3 control room.
4 Not only that, it's -- if you lose -- say one of
5 the steering motors fails, the other steering motor
6 kicks in automatically. So the helmsman on the ship
7 wouldn't even notice that he had lost steering
8 momentarily. It's just an instantaneous switch. But he
9 would know, and everybody on the bridge would know, that
10 the steering -- one steering motor had failed, and at
11 that time, the engineer in the engine control room would
12 walk -- actually probably run, but would run back to the
13 steering gear, assess the situation and he would have
14 the ability to take local control with the press of a
15 button.
16 And, again, you know, after reading her
17 testimony, I wanted to just reassure myself, you know,
18 how much time it would take to walk from the engine
19 control room to the steering view room on a ship, and
20 they're both on the same flat, the ships are designed
21 that way, and so I did it at a leisurely pace on the
22 Overseas Nikiski, that's the ship I happened to be on
23 last week, and it took me 24 seconds. So I know that if
24 I moved a little more quickly, I could have been there
25 in probably 10 or 15 seconds.

1 And then it's very simple to assess what the
2 situation is. It's literally pressing a button and
3 pulling a cotter pin -- excuse me, a cotter key out of
4 the controls. And the only reason the cotter key is
5 there, whether it was out or in, is just to keep the two
6 levers from flapping around, and I can take positive
7 control of the steering right there. You have the gyro
8 repeater, you have a rudder angle indicator, you have
9 the ability to communicate with the bridge with a
10 handheld radio, what's called a sound-powered telephone
11 that doesn't require power, and just the regular ship's
12 telephone.
13 So you have three modes of communication; you
14 have a rudder angle indicator, you actually have at
15 least two of them down there, and you have a gyro
16 repeater. So you can steer the ship remotely from the
17 after steering station.
18 **Q. So to focus on one other piece, the double-hull**
19 **design, do you know offhand how far there is between the**
20 **two hulls, approximately?**
21 A. Well, I can't tell you the -- I can tell you
22 approximately, yes. I can stand up and walk underneath
23 the double hull and I can lie down in the sides, and I
24 believe it's like a meter -- it's over two meters, the
25 width of the double hull.

1 **Q. And are all current tanker vessels that are in**
2 **service that would be calling at the facility equipped**
3 **with the technology that you described?**
4 A. Yes. After -- first off, after, I believe it
5 was, 1/1/15 or after 2015, all ships had to be double
6 hulled. Tesoro went to full double hull years ago. And
7 I don't recall the last time there was a single-hull
8 tanker on the West Coast.
9 So all of the steering -- the requirements for
10 steering are also the same or similar on every ship.
11 There are two different types of steering systems, but
12 they operate the same way, they have the same controls
13 and they're -- I mean, I can take anybody in this room
14 and teach them how to switch over and take control of
15 the after steering in, I would say, ten minutes. And so
16 there are those additional safeguards, and there are
17 many others.
18 **Q. So what about the river itself? Has it changed**
19 **since 1984?**
20 A. Well, the river's been recently dredged in the
21 last few years to, I believe, 45 feet at zero water --
22 or zero tide. So you could -- with two feet of
23 under-keel clearance, which is all that's required in
24 the Harbor Safety Plan and by the pilots in the river,
25 you've got 43 feet of water in the marked channels at

1 zero tide. And oftentimes you have more due to runoff,
2 and then in addition to that, water is released every
3 day at a certain time and it's actually calculated what
4 the rise of water, as the water's released from the
5 dams, is in each location as it goes out the river. So
6 if you wanted to have extra water, extra water for
7 navigation on a ship going down river, you time your
8 departure with that release and you ride that high water
9 out the river, and that's actually how it's done.
10 **Q. So in your opinion, is that 1984 incident**
11 **relevant or an accurate comparison for determining the**
12 **risk of an incident when you take into consideration the**
13 **changes that you had described?**
14 A. No. I -- technology has changed, training has
15 changed. Training has changed for the pilots, for the
16 crews. The technology on the ships is totally different
17 today than it was in 1984. In 1984, that ship, I
18 believe, was 25 years old at the time. It was built
19 around 1960. So -- and it was single hull.
20 **Q. Just a couple more questions for you. We talk**
21 **about -- Ms. Harvey's testimony about the planning**
22 **standard. She notes in paragraph 137, that the MFSA**
23 **vessel response plan is limited to 300,000 barrels, and**
24 **then suggests it's unclear how this, what she describes**
25 **as a shortfall in oil spill responses, will be addressed**

1 **by the applicant's tanker fleet.**
2 **So first, can you just describe what's the**
3 **planning standard for oil spill volumes on the river.**
4 A. So the planning standard is developed by the
5 Department of Ecology. And what it says is that you
6 have to have a certain amount of equipment to respond to
7 a spill up to 300,000 barrels. That 300,000 barrels is
8 not just -- not just cargo on board. It's actually the
9 sum of your cargo, your fuel and your lube oils. And
10 right now the planning standard is set at 300,000
11 barrels. To go to a higher level, additional skimming
12 equipment will need to be brought in to the system.
13 **Q. Just to be clear, you talked about how it's set.**
14 **What is the planning standard restricting?**
15 A. The planning standard is restricting the amount
16 of oil, cargo, fuel and lube oil, that can be carried on
17 the ship in the Columbia River and Willamette River
18 today.
19 **Q. So just to be absolutely clear, can a vessel**
20 **carry any more than that limit right now?**
21 A. No, it cannot.
22 **Q. How can you be sure?**
23 A. Well, one of the ways that -- we report it to
24 the Washington Department of Ecology and the US Coast
25 Guard every time a vessel is getting ready to come to

1 the Columbia River to discharge, or in this case would
2 be to load, we report the name of the vessel, the
3 location of the transfer, so the terminal, the quantity
4 of oil to be transferred, the estimated start time, the
5 estimated completion time and the estimated sailing
6 time. So that's trackable right there.
7 We also have our own loss control people, and we
8 have third-party inspectors who are responsible for
9 measuring the cargo that goes on the ships. So they're
10 measuring what's in the terminal and what's not in the
11 terminal, what's on the ship. And that report is
12 also -- becomes part of the record and is auditable.
13 And then I believe the terminal has the same
14 requirement as the vessel. So you have two entities
15 reporting what's called the advance notice of transfer.
16 And that has to be done I believe at a minimum of
17 24 hours before arrival. But that's dependent on the
18 captain of the port who makes that decision. And that
19 is also in a WAC, listed in one of the WACs; I believe
20 it's 175 something.
21 **Q. So the vessel types that you've described, even**
22 **if they have cargo-carrying capacity in excess of that**
23 **300,000 barrels, until that standard is changed, can**
24 **they carry any more?**
25 A. No, they cannot.

1 **Q. And is it the project's intent to seek to change**
2 **the standard?**
3 A. Yes, it is.
4 **Q. Okay. And is there a process for accomplishing**
5 **that change?**
6 A. Yes, there is. We would work with MFSA to
7 identify what the shortfalls are. Today I believe it is
8 just additional skimming. And then MFSA would make
9 application to Ecology, and Ecology would then review it
10 and make a decision if that was enough, or whatever they
11 might decide. My colleague Eric Haugstad is going to
12 talk more in depth about that.
13 **Q. Last couple of questions here about ballast**
14 **water. Are you familiar with the testimony of Blaine**
15 **Parker about ballast water?**
16 A. Yes, I am.
17 **Q. Do you remember what Mr. Parker said about**
18 **ballast?**
19 A. Yes, I do. He claimed that the amount of
20 vessels that we would be bringing into the river would
21 be -- the ballast water that they would carry would be
22 the equivalent of 50 percent of the outflow of the
23 Columbia River. I was a little shocked that he made
24 that claim, so what I did was I took the standard
25 ship -- the ship that we're going to be bringing to the

1 river is 46 to 50,000 tons. If you put as much ballast
2 as you possibly can into the ship, that equates to
3 25,000 cubic meters per ship. If you multiply that out
4 by, let's say, 365 ships, you get -- I'm doing this from
5 memory -- I think it's 9.1 million cubic feet of water.
6 So -- I believe that's the right number. I mean, we
7 can -- if we got the information, I could do it quickly.
8 So then what I did was I went on to the
9 Washington Department of Ecology website and I looked at
10 what is the river outflow. And the river flow is
11 approximately not -- what is it? It's like 200,000
12 cubic meters per second at a fairly high flow rate, and
13 at a -- at the low flow rate, it's 120,000 cubic meters
14 per second. I then converted everything to cubic feet,
15 and that's per second, and we would discharge almost
16 like 9.3-ish million cubic feet of water. If you were
17 to -- if you take the percentage of what that is at low
18 flow, which is the most conservative position you could
19 take, it comes out to .000085 percent of the river's
20 flow annually. And since the river flows at a much
21 higher rate than 120,000 cubic meters per second, it's
22 obviously an even smaller percentage of the total flow.
23 MR. KISIELIUS: Thank you, Captain Bayer. I
24 have no more questions.
25 JUDGE NOBLE: All right. Before we have

1 cross-examination, an administrative law judge has the
2 obligation to ensure that the record is complete, and
3 there's been so much testimony about Susan Harvey's
4 testimony that has, until now, been the subject of
5 objections, or at least the subject of objections, until
6 now not been released to the council. I am at this time
7 going to overrule the objections. There has been a lot
8 of testimony about it, and it would be unfair to not
9 have Susan Harvey's testimony read by the council in
10 order to evaluate the full record.
11 The objections primarily had to do with
12 qualifications, and the paragraphs that were objected to
13 were -- in Susan Harvey's testimony were 16, 17 through
14 44, 61, 63, 89, 95, 97 and 134. Because the objections
15 mainly centered on her qualifications, I'm also going to
16 admit the exhibit that is her resume. I'm not sure what
17 number that is. If counsel for Columbia Riverkeepers
18 could tell me, I think it's in the range of 5501 to
19 5514. And so the objections being to her
20 qualifications, that council will be able to look at her
21 qualifications, and that argument about her -- that will
22 go to the weight that the council gives to her
23 testimony.
24 MR. KISIELIUS: Understood, Your Honor. Can
25 I ask for a quick clarification?

1 JUDGE NOBLE: Sure.
2 MR. KISIELIUS: Because I believe Captain
3 Bayer's testified to the navigation-related issues in
4 her testimony.
5 JUDGE NOBLE: Yes.
6 MR. KISIELIUS: I believe our objections
7 were wider ranging, that there were several other
8 topics. This was the largest, I think, but there were
9 several other topics to which we objected that Captain
10 Bayer has not yet addressed.
11 JUDGE NOBLE: Right. You were objecting to
12 the fact that she was talking about volcanic activity,
13 slope and seismic risks. And I think that the council
14 will be able to take a look at her resume and make a
15 determination about the weight of her testimony on
16 those. They were brief statements of her opinion.
17 MR. KISIELIUS: Thank you.
18 JUDGE NOBLE: Thank you.
19 So testimony is released to the council in
20 full, and I need to know the exhibit number for her
21 resume. Do we have that?
22 MS. BOYLES: Yes. Your Honor, it's 5517.
23 JUDGE NOBLE: 5517. Exhibit 5517 will be
24 admitted.
25 MR. BARTZ: Your Honor, might I have a

1 moment?
2 JUDGE NOBLE: Of course.
3 MR. BARTZ: My name is David Bartz for the
4 Port of Vancouver. We were one of the parties moving to
5 strike portions of her testimony -- not all of it, just
6 portions of it. Because you've ruled that it goes to
7 the weight, I would ask that our motion papers be
8 provided to the council so they can read our analysis as
9 to why some of her testimony shouldn't be accorded
10 weight. We thought it should be stricken. If you're
11 allowing it, then they should just be able to read our
12 explanation as to why we thought it should be carrying a
13 little weight.
14 JUDGE NOBLE: I think they already have it.
15 All the pleadings have been released to the council. I
16 think so. We've had such massive amounts of paper to
17 ensure the council is able to read, the pleadings are
18 posted on the web -- on the SharePoint site for the
19 council to read, and I haven't personally checked to
20 make sure that that one has been posted. If it has not,
21 it will be.
22 MR. DERR: Thank you, Your Honor.
23 JUDGE NOBLE: Cross-examination of
24 Mr. Bayer.
25

1 CROSS-EXAMINATION
2 BY MS. BOYLES:
3 **Q. Good afternoon, Mr. Bayer.**
4 A. Good afternoon.
5 **Q. My name's Kristen Boyles, and I'm one of the**
6 **attorneys for the intervenors in this action. I just**
7 **have a very few questions for you today.**
8 **And these questions sort of jump around in your**
9 **testimony, so I will try to set it up firsthand. I want**
10 **to talk a little bit about the booms that you mentioned**
11 **that would be put up during loading.**
12 **Once a vessel is at your terminal, will an oil**
13 **spill boom always be deployed before -- before and**
14 **during loading?**
15 A. It's our intention to always have booms around
16 the vessel. I believe at certain current speeds, the
17 boom may not be effective, but we have other mitigation
18 measures, and my colleague, again, Eric Haugstad is
19 going to talk about those.
20 **Q. Okay. And so if the boom can't be deployed, do**
21 **you stop loading?**
22 A. We don't, no.
23 **Q. And you have other mitigation measures?**
24 A. That's correct.
25 **Q. Does the boom fully encircle the vessel?**

1 A. Yes, it does.
2 **Q. When you talked about ballast water, you talked**
3 **about the ballast going out when the oil comes in. What**
4 **is that ballast?**
5 A. So what it is, is these ships, these
6 double-hulled tankers, have what's called segregated
7 clean ballast. This is water that is either -- the
8 result of deep ocean ballast water exchange. And so
9 that's -- that's what that is. It's water that was
10 brought on board in over I think it's 2,000 meters of
11 water -- excuse me, 2,000 meters of depth. And then --
12 or if the vessel has an approved ballast water treatment
13 plant, then that water is just pumped through that
14 ballast water treatment plant.
15 **Q. And does the -- do you anticipate having an**
16 **approved ballast water treatment plant?**
17 A. We do anticipate it. Right now the IMO has
18 approved certain ballast water treatment systems. The
19 Coast Guard has not accepted any of them yet, but is in
20 the process of finalizing them. So until that time, we
21 do ballast water exchange, and that's -- and each ship
22 has a -- actually a ballast water exchange manual, and
23 they have records that are auditable.
24 **Q. And in your written testimony, you said that you**
25 **could hold a loaded vessel at the dock until it could**

1 **depart and proceed directly to sea; is that correct?**
2 A. That's correct.
3 **Q. And you do that for safety reasons, I presume?**
4 A. That's correct. We don't want to anchor a
5 loaded tanker in the river. So the idea is that you
6 don't load the next vessel until one can depart safely
7 for sea. Once it departs, you can bring the next vessel
8 in.
9 **Q. And do you know whose care and custody the oil**
10 **is in when a vessel is being held at the dock like that?**
11 A. I would assume it's the vessel's. It's in the
12 vessel's care and custody. The -- again, that's going
13 to be addressed later by one of my colleagues.
14 **Q. Is that Mr. Haugstad?**
15 A. Yes.
16 **Q. You just stated in response to one of**
17 **Mr. Kisielius's questions, that all vessels will be**
18 **double-hulled that call at Tesoro Savage; is that**
19 **correct?**
20 A. That's correct.
21 **Q. And does that include foreign flagged tankers?**
22 A. Well, foreign flagged -- excuse me.
23 **Q. It's hard to say.**
24 A. I'm getting tongue-tied. If foreign flagged
25 tankers were to come to the dock, they would be

1 double-hulled. But right now, all we are bringing is
2 Jones Act tankers, so that's the requirement, so they
3 would be US-flagged.
4 **Q. So no non-Jones Act tankers will call at Tesoro**
5 **Savage?**
6 A. That's my understanding.
7 **Q. Can foreign-flagged tankers be single-hulled?**
8 A. No, they cannot.
9 MR. KISIELIUS: Ms. Boyles, I just want
10 to -- Captain Bayer, could you speak more into the mic?
11 I think you're trailing off.
12 THE WITNESS: Oh, I'm sorry. I was trying
13 to speak to the individual.
14 BY MS. BOYLES:
15 **Q. You don't have to look at me. You can look at**
16 **the council. I want to ask you just a question about**
17 **the VOC sniffer --**
18 A. Yes.
19 **Q. -- which I believe was on one of the pictures.**
20 **Will you use that VOC sniffer every time a vessel is**
21 **loaded?**
22 A. It was not our intention to do so.
23 **Q. What was your intention?**
24 A. Well, the ships are certified vapor tight and we
25 do check them periodically, and the last five or six

ships that we tested were all 100 percent vapor tight. I don't see a need to reverify that every single time we load.

Q. Do you know what the setting is for that sniffer?

A. I don't know what the setting is. But I know how sensitive they are, and I know that if -- we had a -- if you were holding a sniffer and I were to take a marking pen, that it would set it off.

Q. Do those sniffers start set at zero?

A. I don't know the answer to that. I just know that they're extremely sensitive. So if there's any hydrocarbon present, you hear it. It detects it.

Q. How many vessels do you expect will be calling at your docks per week to load oil?

A. Per week? Approximately one a day. There will be delays due to weather, due to scheduling, but approximately one a day, so I would say 350 or less a year.

MS. BOYLES: Thank you. That's all I have.

JUDGE NOBLE: Is there any other cross-examination of Mr. Bayer?

Is there any redirect?

MR. KISIELIUS: No, Your Honor.

JUDGE NOBLE: No?

1 Are there council questions of Mr. Bayer?
2 MR. MOSS: I have a quick question.
3 JUDGE NOBLE: Mr. Moss.
4 MR. MOSS: Thank you. I was interested in
5 your testimony about using Jones Act vessels, which I
6 learned about the other day from another witness, and I
7 understand these are ships that are built in the United
8 States and manned by US-based crews?
9 THE WITNESS: That's correct. To be a Jones
10 Act ship, the vessel has to be built in the United
11 States and then manned with US citizens or I believe
12 people with green cards can also work on them. But all
13 of the officers have to be a US citizen and hold a US
14 Coast Guard license.
15 MR. MOSS: Okay. Who owns the ships? Does
16 Tesoro own them or Savage or some independent owner?
17 THE WITNESS: They're -- I'll just give you
18 a few examples, but the majority of the Jones Act ships
19 are owned by one -- one of the companies is American
20 Petroleum Tankers, and they're operate -- the ships are
21 operated by Crowley Maritime. There's another company
22 called Seabulk down in Fort Lauderdale that has some of
23 these tankers, and they operate them themselves. Then
24 there's Overseas Shipholding Group out of Tampa,
25 Florida. They have, I believe, 15 or 16 of these

1 tankers. And that's the majority of the Jones Act fleet
2 that would come to this terminal.
3 There are -- there's -- obviously there's
4 Alaska Tanker Company, there's Polar Tankers and there's
5 SeaRiver Maritime. Those ships are not intended to come
6 to the terminal.
7 MR. MOSS: Are there a large number of these
8 Jones Act ships available? Sounds like you're going to
9 have a lot of ships coming and going.
10 THE WITNESS: I think there're -- if you go
11 out and you were to do an inquiry and it said, you know,
12 how many Jones Act tankers are there, you would -- all
13 of a sudden you would get not just the tankers, you
14 would get barges, you would get ATBs. Of the tankers --
15 I don't want to speculate on number. I don't recall.
16 It might be like 25, 26, maybe maximum 30.
17 MR. MOSS: Okay.
18 THE WITNESS: That information is available.
19 MR. MOSS: Does Tesoro, for example -- you
20 mentioned Tesoro chartering the Overseas Nikiski earlier
21 in your testimony. Would Tesoro charter these Jones Act
22 ships or barges or whatever they are for its operations
23 at the terminal?
24 THE WITNESS: Yes, we do. We have four
25 Jones Act tankers on time charter right now. So they

1 work strictly for us. Three of them are -- come from
2 OSG, and one of them comes from American Petroleum
3 Transport which is operated by Crowley. And those three
4 ships are all -- three of them are identical and the
5 third -- the fourth one is almost exactly the same, same
6 configuration. It's -- they have 12 cargo tanks and two
7 slop tanks.
8 MR. MOSS: Okay. Well, thanks for clearing
9 that up for me. I appreciate it.
10 THE WITNESS: You're welcome.
11 JUDGE NOBLE: Mr. Siemann?
12 MR. SIEMANN: If you were to ship
13 overseas -- I realize you're not anticipating to do so
14 now, but if you were to ship to Asia, would you still
15 use Jones Act ships, or would you likely use other
16 ships?
17 THE WITNESS: Well, you cannot -- I don't
18 believe we can bring anything but a Jones Act ship to
19 the terminal, so we wouldn't be shipping overseas.
20 MR. SIEMANN: What is the restriction for
21 bringing -- for not bringing anything other than a Jones
22 Act ship?
23 THE WITNESS: What is the restriction?
24 MR. SIEMANN: Yes.
25 THE WITNESS: I believe there was an -- it's

1 part of the lease agreement that you can only use Jones
2 Act tankers. You can't export from the terminal.
3 MR. SIEMANN: Is it possible that that could
4 be changed?
5 THE WITNESS: I don't know. I can't
6 speculate on that.
7 MR. SIEMANN: Okay. A separate question. I
8 think I heard you say that escort tugs reduce the risk
9 of grounding by 90 percent based on an assessment which
10 is why you decided to use the escort tugs; is that
11 correct?
12 THE WITNESS: That's correct. That's what
13 the DNV GL study identified.
14 MR. SIEMANN: What is the actual risk of
15 grounding? Reducing it by 90 percent would suggest to
16 me that there is still some risk of grounding. What is
17 the actual -- is that part of that study also?
18 THE WITNESS: That is, that's correct. And
19 a gentleman by the name of Dennis O'Mara is going to
20 speak to that later on. I think it would be better
21 coming from him.
22 MR. SIEMANN: Fair enough. Thank you.
23 JUDGE NOBLE: Mr. Rossman?
24 MR. ROSSMAN: Yeah. Could you talk a little
25 bit more about the process by which Ecology would need

1 to make that determination to increase the vessel cargo
2 limit.
3 THE WITNESS: You know, I can only tell you
4 that it's -- I guess what they do is they submit the
5 request and they identify the equipment they're going to
6 put in the river, and then Ecology says it meets it or
7 doesn't meet it. I'm not really qualified to speak
8 about that, and I would leave that to my colleague Eric
9 Haugstad.
10 MR. ROSSMAN: Is that approval integral for
11 this project going forward, or would this project go
12 forward at the current level?
13 THE WITNESS: It's not in my wheelhouse to
14 answer that question. I'm sorry.
15 MR. ROSSMAN: Turning a little bit to the
16 operations at the loading point. Can you talk a little
17 bit about how the crew there would be managed. And my
18 understanding is that's a Tesoro crew; whereas a lot of
19 the personnel at the unloading at the rail would be a
20 Savage crew; is that right?
21 THE WITNESS: That's correct. Tesoro has --
22 we have five -- we have multiple docks up and down the
23 West Coast. We have them in Alaska, we have them in
24 Washington state in Anacortes, we have them in
25 San Francisco Bay and we have them in Long Beach. We

1 have -- that's something we do. That's part of our
2 expertise. So Tesoro will manage the shipping side of
3 it on the -- from the marine side.
4 MR. ROSSMAN: Can you talk about how the
5 management structure of that group of people would be --
6 would relate to the management structure of others
7 involved in the Vancouver Energy project?
8 THE WITNESS: Well, I think the terminal
9 manager is -- I can't really talk about it because I
10 just don't know how that's going to be, but that marine
11 group, the terminal, the dock personnel, the marine
12 superintendent, would report -- some of them would
13 report in to my group, the marine superintendent and the
14 agents, and then the dock folks would report and my
15 folks would have a dotted line to the overall terminal
16 manager for the Tesoro Savage facility.
17 MR. ROSSMAN: Okay. Thank you.
18 JUDGE NOBLE: Mr. Paulson?
19 MR. PAULSON: Captain Bayer, thank you for
20 taking some time with us. I have a couple or three
21 questions, if I may.
22 You mentioned the channel can be to 45 feet.
23 I think it was to 43 feet instead. Does that make any
24 difference in your comments regarding steerage and depth
25 under keel?

1 THE WITNESS: So my understanding, talking
2 to the pilots, they say that the river has 43 feet of
3 usable draft at zero tide and that you're required to a
4 have a two-foot under-keel clearance. So when you're
5 at -- I'm sorry, did I say zero draft? Zero tide. So
6 when you have 45 feet of zero tide, the depth of the
7 river, then your usable draft with two feet of
8 under-keel clearance is 43 feet. So it's my
9 understanding that the river was dredged to 45 feet, and
10 that under the -- in the Harbor Safety Plan and with --
11 in agreement with the pilots and the users of the river,
12 that you're limited to a 43-foot draft.
13 I realize that it's a little bit confusing
14 the way it's described. In most places we only talk
15 about depth. And when you talk about depth, then you
16 talk about what your required under-keel clearance is.
17 In this case, it's a little bit different the way they
18 describe it here in the river.
19 MR. ROSSMAN: I think you were talking about
20 different vessels, and you have pictures in here. One
21 is a 46,000-plus tons and I think it's deadweight tons,
22 that's not the vessel weight. That's the cargo weight,
23 I assume?
24 THE WITNESS: That's what's considered the
25 cargo-carrying capacity of the ship.

1 MR. PAULSON: And that would take the
2 300,000-or-so barrels. If you went to 600,000, what
3 difference would it make in the ship size?
4 THE WITNESS: Well, you would have to have a
5 ship -- to put 600,000 barrels on it, you would need a
6 ship of approximately 100,000 deadweight tons. 100 to
7 105,000 deadweight tons. That ship would not be able to
8 load a full cargo. It would be limited to the 600,000
9 barrels.
10 And I believe in my testimony there's a
11 graph that shows you what the draft of the different
12 size vessels would be with the amount that can be
13 loaded, whether it's the 330,000 barrels or the 600,000
14 barrels. And as the ship becomes larger, the draft --
15 600,000 barrels is less -- much less than 43 feet. I
16 believe it's -- I would have to refer to my testimony,
17 but I believe it's 39 feet. Might even be less. 39,
18 40 feet. So at that point in the river, you would have,
19 let's say, four feet of under-keel clearance instead of
20 two.
21 MR. PAULSON: You would have less -- you
22 would have more clearance but larger amounts?
23 THE WITNESS: Sure. You would.
24 MR. PAULSON: How is that?
25 THE WITNESS: Well, I mean, think of the

1 ship. So you take a 46,000-ton ship that's 600 feet
2 long by 105 feet wide, and I want to make a bigger ship
3 with the same or similar tank configuration. So I make
4 that ship 840 feet long by 140 feet wide. So you can
5 put more in it, but it doesn't displace as much water.
6 MR. PAULSON: So it's displacement?
7 THE WITNESS: It displaces more water, but
8 its surface area is such that it doesn't go as deeply in
9 the water.
10 MR. PAULSON: Thank you.
11 THE WITNESS: You're welcome.
12 JUDGE NOBLE: Mr. Stohr?
13 MR. STOHR: Thank you for being here,
14 Captain Bayer. I have two set -- or two types of
15 questions. One, we talked quite a bit about tankers,
16 but you also mentioned the tug and barge arrangements,
17 or ATBs. Can you tell us a little bit more about the
18 size of those, the operating characteristics that -- you
19 know, that would differ from a tanker in terms of going
20 up and down the river; the number of those we might
21 expect a week or a day or whatever?
22 THE WITNESS: Yes. So ATBs, we would
23 only -- it's my understanding, we would only use ATBs
24 maybe in the very beginning when the terminal is just
25 starting. The ATBs we would use would be approximately

1 20,000 deadweight tons. These ATBs, it's a tug barge
2 unit. The ones that would be available to -- that would
3 be accepted at the terminal are the Crowley 550,
4 650-type ATBs. They're essentially a tanker without a
5 rigidly connected stern. So what they have is they have
6 a twin screw, approximately 10,000-horsepower tugboat,
7 semi-rigidly connected. These ships, because they are
8 small ships, have the same equipment that you would find
9 on the deck of a tanker; these do. They have remote
10 gauging; they have inert gas. If they're going to run
11 crude, they're going to have to have crude oil wash.
12 The difference -- the major difference is
13 the manning of the ATBs is less. That's what I would
14 say is the difference. Some of the advantages of the
15 ATBs is they are more maneuverable. You have redundancy
16 of having twin screw. I believe they have -- I don't
17 want to be quoted on it. I believe they have twin
18 rudder. They have similar training. The licensing
19 requirements are a little bit different, but they're --
20 essentially we treat them the same as tankers. They
21 would have escorts. They would have docking tugs. It
22 would be the same requirements.
23 MR. STOHR: Double-hulled?
24 THE WITNESS: They're all double-hulled.
25 There is nothing that would not be double-hulled that

1 would come to the terminal.
2 MR. STOHR: Okay. Second question is, what
3 does the regulatory presence look like? As the tankers
4 arrive or they load and leave, I mean, are Coast Guard
5 involved? State inspectors involved? What's that look
6 like?
7 THE WITNESS: I think the Department of
8 Ecology has their own inspection program. I don't
9 believe they always come to the ship, but they're --
10 they have complete access to the vessel. The Coast
11 Guard has complete access as well. And the Coast Guard
12 also does -- they'll do transfer monitoring. They may
13 come down and endorse the COI or ask to do renewals.
14 We don't -- typically don't allow class or
15 Coast Guard or anybody to do -- to draw the crew away
16 from the job at hand and do testing. So if there was
17 idle time at the dock, we would consider that; but we
18 wouldn't allow them to, say, drop light boats while
19 we're loading, or test equipment.
20 MR. STOHR: Thank you.
21 JUDGE NOBLE: Mr. Stone?
22 MR. STONE: With regard to -- with regard to
23 ship traffic on the Columbia River, is there an
24 equivalent to air traffic control? I mean, is there one
25 entity that manages the traffic on the river to avoid

1 any conflict between ships?
2 THE WITNESS: So in the river there's
3 something called a VTIS, vessel traffic information
4 system. And that vessel traffic information system is
5 the TV32 program that the pilots use and they do it
6 themselves. In other places, the Coast Guard is
7 involved and they have what's called a VTS, vessel
8 traffic system, where the Coast Guard monitors and the
9 ships check in along the way. It's realtime in the
10 sense that the people in the VTS see what's going on.
11 They don't have direct navigational control.
12 The VTIS that the pilots operate, which is
13 an information system, allows everybody who's using it
14 to know exactly what everybody else is doing at the same
15 time. And a VTS, that -- that ability exists to some
16 degree with the new technology ECDIS, which, you know,
17 identifies other vessels and actually puts them on the
18 electronic charts.
19 MR. STONE: So the traffic is managed
20 basically by the pilots working together using this
21 system?
22 THE WITNESS: That's correct.
23 MR. STONE: Thank you.
24 JUDGE NOBLE: Mr. Shafer?
25 MR. SHAFER: Captain Bayer, thank you very

1 much for your testimony today. I have three questions.
2 In the early part of your testimony, we heard quite a
3 bit of commentary and also saw a number of illustrations
4 which showed the loading of the oil, the type of
5 facilities, the pumps, the piping and anchoring and
6 such, and the comment was that these would be facilities
7 that are typical of the Vancouver facility. Do you
8 happen to know, will there be anything in terms of the
9 connecting facilities which may be peculiar to the
10 Vancouver facility or unique or used for the first time?
11 THE WITNESS: Not necessary -- not used for
12 the first time, and may be unique to the river, but not
13 unique to the West Coast of the United States. One
14 thing that I think is a really nice addition is there's
15 going to be a mooring line management system. And so
16 all of the mooring lines will be placed on hooks that
17 are monitored. That monitoring reads the tension so you
18 can tell if your lines are tight, you can tell if your
19 lines are loose and you get a warning, an alarm, if the
20 lines are too loose or if the lines are too tight. And
21 it also gives you early warning if something is
22 happening, that all of a sudden you have a lot of
23 tension or you need to adjust your lines. So that's a
24 really -- I think that's a unique -- it's unique to this
25 area. I don't know of any other terminal in the river

1 that has that.
2 The other nice piece about that is once the
3 lines are placed on the mooring hooks, when it's time to
4 let go of the lines, people don't have to touch them.
5 With this system, it's automated enough that somebody
6 has an interlock and it's sort of, let's release the
7 forward spring lines, and somebody pushes a button and
8 the hooks release and the lines slip off.
9 Mooring line injuries in the past are
10 something that, you know, we're all very careful about
11 not having it happen, but what better way to manage that
12 than to not have to get involved in lifting that heavy
13 rope off of a hook.
14 MR. SHAFER: Okay. Thank you.
15 Second question, and forgive my
16 generalization on this, but I'm going to say, time is
17 money, and I can only imagine when you've got a fully
18 loaded ship there ready to go with oil, there's got to
19 be some sense of urgency to move that. My question is,
20 in terms of inclement weather, wind or storms or river
21 flow or currents, is there anything there in terms of
22 the environment that would cause you to reconsider to
23 not disembark? I mean, is there -- can you help us with
24 maybe some of the consideration that's given in making
25 that decision?

1 THE WITNESS: I'm not completely
2 understanding your question. You mean to depart the
3 terminal?
4 MR. SHAFER: Yes. I mean, are there times
5 when your decision to disembark would be given the
6 urgency to start to move that oil, is that ever tempered
7 as a result of inclement weather or conditions in the
8 environment: wind, weather, storms and such?
9 THE WITNESS: Well, absolutely. The bar
10 pilots actually control when vessels can go over the
11 bar, and they also -- there are times when the bar is
12 closed, and that's why, you know, we say that it's not
13 likely you're going to have one ship per day because I
14 believe last year the bar was closed for 20 days
15 altogether.
16 So if the weather is such that it's not safe
17 to go over the bar, the ship's going to sit there at the
18 terminal. And that decision to sail is made right up
19 until the vessel leaves. And that's through close
20 communication with the bar pilot, the river pilot, in
21 coordination with the agent and my port captain or
22 marine superintendent who will be at the facility. So
23 we're going to step in. We're not going to say, hey, if
24 we hurry up, we can make it, and then get down to the --
25 Astoria and we're not going to take you across the bar

1 so you're going to go anchor. We don't do that. We err
2 on the conservative side, and that's part of my team's
3 job in the marine assurance process.
4 MR. SHAFER: Given the distance between the
5 facility and the bar, is the bar the only controlling
6 factor there? I mean, might there even be more local
7 weather conditions that would cause you to reconsider?
8 THE WITNESS: Not that I'm directly aware
9 of. Maybe if you had extreme flow and there were a lot
10 of stuff going on in the river.
11 MR. SHAFER: Is it fair to say that's more
12 of a judgment call as opposed to like set standards in
13 terms of like river flow or wind speed or --
14 THE WITNESS: It's actually spelled out in
15 the Harbor Safety Plan pretty clearly about navigation.
16 So you might have fog, and you don't leave if you can't
17 see a certain distance. It just doesn't happen. So you
18 may have the perfect bar conditions in fog and you're
19 not going to go. And that's -- you know, it's -- we're
20 all part of that process. Tesoro is part of the
21 process, the shipmaster is part of the process, the
22 pilot's a part of the process.
23 MR. SHAFER: Thank you. Final question. I
24 believe you had made reference to vapor testing and I
25 was curious, is that -- is that done as an independent

1 test? Do you have an independent agency that's
2 providing that, or is that reviewed independently or do
3 you report that to a regulatory agency?
4 THE WITNESS: So we use an independent
5 inspector. To my knowledge, there's no requirements
6 reported to an independent agency. In San Francisco
7 Bay, I believe we provide it to the Bay Area Air Quality
8 Management District when we do it. But I don't know of
9 any requirement other than that.
10 MR. SHAFER: Okay. Thank you very much.
11 THE WITNESS: You're welcome.
12 JUDGE NOBLE: Are there -- Mr. Snodgrass?
13 MR. SNODGRASS: Good afternoon. Just a
14 couple of follow-up questions largely to what Mr. Shafer
15 had raised. It sounds like unless the bar is closed --
16 which is that a Coast Guard decision, to formally close
17 the bar?
18 THE WITNESS: It's a decision made with the
19 bar pilots and the Coast Guard captain of the port to
20 warrant it.
21 MR. SNODGRASS: So the decisions on
22 essentially whether to say -- both the decisions on the
23 river traffic and the decisions on whether to disembark
24 with a full load are collective, it sounds like there's
25 a larger collective of the pilots making -- monitoring

1 the overall traffic on the river and maybe perhaps a
2 smaller group on the decision to disembark. Is that
3 fair to say?
4 THE WITNESS: I'm a little confused by the
5 term "disembark."
6 MR. SNODGRASS: Okay.
7 THE WITNESS: So I think you mean depart.
8 MR. SNODGRASS: Depart.
9 THE WITNESS: Just to be clear. The
10 decision to depart the berth is a collective decision.
11 If any one of the people or groups involved in that
12 decision says no, then no it is. So if the bar's
13 closed, the bar is closed and the ship doesn't depart.
14 I mean, there really isn't anything more you can say
15 about that. If there's fog and the fog is such that you
16 can't meet the requirement laid down in the Harbor
17 Safety Plan, you don't leave. It's pretty -- it's black
18 and white.
19 MR. SNODGRASS: And it sounds like from your
20 testimony that the system is -- that is working?
21 THE WITNESS: The system is very robust.
22 MR. SNODGRASS: And I think one of the
23 things either you could help us with or perhaps later
24 testimony is that projecting through the project period
25 more traffic -- I believe, from the EIS, significantly

1 more river traffic is projected. So will these
2 collective systems still function appropriately?
3 THE WITNESS: Yes. These systems will
4 remain in place the way they are. I mean, at this
5 point -- or at this time, the river traffic is at -- I
6 hesitate to say, but I think it's at more like historic
7 lows, and that's not -- it's not going to really impact
8 anything.
9 When you say we're going to bring 365
10 ships -- let's say we say we're going to bring 365 ships
11 in -- one ship a day, and there are I think 10 to 15
12 ships a day on a busy day coming up the river, you're
13 adding one more, so you're 11 to 16. And most likely
14 that number is much less. So it's not -- you know, when
15 you talk about the big number in one spot, it looks
16 large, but in -- the reality is, it's -- it's very few
17 vessels on the river navigating at any particular time.
18 MR. SNODGRASS: Thank you.
19 JUDGE NOBLE: Mr. Stephenson?
20 MR. STEPHENSON: Thank you. When the
21 decision is made to depart -- I guess I'm using that
22 right now.
23 THE WITNESS: Yes, thank you.
24 MR. STEPHENSON: -- how long does it take
25 for the tugs that are there to get you turned around

1 going back down the river now?
2 THE WITNESS: So your question is how long
3 does it take for the tugs to get to the ship before it
4 departs, or once the tugs are there and made fast and
5 you make the decision to depart until you're turned
6 around and gone?
7 MR. STEPHENSON: My concern is, I'm
8 assuming, tell me if I'm right, that the ship needs to
9 kind of turn around and go back down. I'm just asking
10 how long does that process take? So, yes, after the
11 tugs are there and ready to go.
12 THE WITNESS: How about if I just walk
13 through the process for my own -- for clarity's sake.
14 So the ship is going to depart at, say, 1600 today. So
15 seven minutes ago. So the tugboats will be there
16 probably 45 minutes, 30 minutes to 45 minutes beforehand
17 and they'll be made fast, one on the starboard bow, one
18 on the front quarter -- or starboard quarter.
19 The process of releasing the lines and
20 bringing them on board probably takes, let's say,
21 20 minutes, 15 to 20 minutes. Once the lines are all on
22 board, they'll say -- we have the propellors cleared so
23 there's nothing can get fouled in the propellor. At
24 this time, the pilot will say, back slow on both tugs,
25 and we'll pull the ship bodily off the dock. That might

1 take 10, 15 minutes. And then they'll turn the ship to
2 starboard because the bow is headed up, the inboard side
3 is port, so we'll turn to the right. So we'll pull the
4 ship off the dock enough so that the stern lifts clear
5 of the dock. So I would say 30 to 40 minutes maximum.
6 MR. STEPHENSON: Thank you.
7 THE WITNESS: I am sort of making that up as
8 I go along, but that seems like a reasonable amount of
9 time.
10 JUDGE NOBLE: Mr. Siemann?
11 MR. SIEMANN: Thank you. Do the ship's
12 engines continue to operate while the ship is at dock?
13 THE WITNESS: No. We stop the engine.
14 They're direct start -- or direct drive, so you start it
15 and go. So when you're at the dock, you stop it and
16 it's in a -- essentially a standby mode. We say we're
17 finished with engines, but they could start the engines
18 quickly if they needed to.
19 MR. SIEMANN: So are there any emissions
20 coming out of the ship's engines when it's at the dock?
21 THE WITNESS: While the ship is at the dock,
22 there are no emissions coming out of the main engine
23 once it's stopped. We do have one generator operating
24 for a hotel load because we're loading. We're not
25 discharging. The only thing it's doing is putting the

1 lights on and keeping the -- and operating the bow's
2 pump, and that can be done with one generator.
3 And then the ships only utilize
4 ultra-low-sulfur diesel. So there's no heavy fuels,
5 there's no heavy particulate matter because they're
6 operating within the ECO. And then for Tesoro -- even
7 when we go outside the ECO, we only manage one type of
8 fuel and that's the ultra-low-sulfur diesel. We call it
9 something else, but there's nothing else available on
10 the West Coast.
11 MR. SIEMANN: For the hotel load, has there
12 been any consideration of providing shore power, I guess
13 it's called, sort of an electric line from shore to the
14 ships so that you didn't have to have a generator going?
15 THE WITNESS: I think we discussed it, but
16 we -- it's not really -- it's not a practical solution
17 for tankers or bulk carriers. It's really a solution
18 for ships that are going to the same place every time,
19 the same ship. And the ship has -- all the ships would
20 have to be designed to accept that technology. But
21 again, this is a very low load.
22 JUDGE NOBLE: Any other council questions?
23 Mr. Paulson?
24 MR. PAULSON: I have a follow-up question
25 related to Mr. Stephenson. What's the normal time on

1 the dock, coming in, stopping, loading, departing?
2 THE WITNESS: I would -- I'm estimating that
3 a ship, you know, just for the purposes of scheduling
4 24 hours alongside, it's probably going to be more like
5 18 to 20 hours alongside, all fast to last line.
6 JUDGE NOBLE: Any other questions?
7 Well, it's time for questions based upon the
8 council's questions. We may have time for that, but we
9 were going to break at 4:15. So are there going to be
10 extensive questions, do you think?
11 MS. BOYLES: There are going to be no
12 questions.
13 JUDGE NOBLE: All right.
14 MR. KISIELIUS: I have just one.
15 JUDGE NOBLE: One will work.
16 REDIRECT EXAMINATION
17 BY MR. KISIELIUS:
18 **Q. Captain Bayer, you had talked about the number**
19 **of vessels per day and I just want to ask you the -- if**
20 **the planning standard was increased to 600,000 such that**
21 **you could fill the larger vessels of the greater amount,**
22 **knowing that there's a permit limit of 360,000 barrels**
23 **per day, does that change -- would that change how many**
24 **vessel calls you would have on average?**
25 A. It could. The problem we would run into is

1 there are no larger vessels available.
2 **Q. And how would it change?**
3 A. Well, you would be at the dock a little bit
4 longer so that you didn't -- you didn't exceed that
5 360,000 barrels in any 24-hour period. But again, there
6 are no vessels that size available in the Jones Act that
7 can come to the terminal right now.
8 MR. KISIELIUS: Thank you. That's it.
9 JUDGE NOBLE: Is that it?
10 MR. KISIELIUS: No further questions.
11 JUDGE NOBLE: All right. I'm sorry I've
12 been calling you Mr. Bayer. Should I have been calling
13 you Captain Bayer?
14 THE WITNESS: That's okay. I've been called
15 other things.
16 JUDGE NOBLE: Well, Captain Bayer, thank you
17 for your testimony. We appreciate it and you are
18 excused as a witness.
19 THE WITNESS: Thank you.
20 MR. STEPHENSON: Allow him to depart.
21 JUDGE NOBLE: We are -- this is a good time
22 to take our break, and so we'll be off the record until
23 4:30.
24 (Recess taken from 4:14 p.m. to 4:32 p.m.)
25 JUDGE NOBLE: We're back on the record. Are

1 you ready to call your next witness, Mr. Johnson?
2 MR. JOHNSON: Yes, Your Honor, the applicant
3 would call Mr. Dan Shafar.
4 Mr. Shafar, if you could just approach the
5 table there and remain standing to be sworn.
6 JUDGE NOBLE: Mr. Shafar, would you raise
7 your right hand.
8 (Witness sworn.)
9 JUDGE NOBLE: Please be seated.
10 You may proceed, Mr. Johnson.
11 MR. JOHNSON: Thank you.
12 DANIEL SHAFAR,
13 having been first duly sworn, testified as follows:
14 DIRECT EXAMINATION
15 BY MR. JOHNSON:
16 **Q. Mr. Shafar, could you state your full name for**
17 **the record and spell it for the court reporter, please.**
18 A. Yes. It's Daniel Shafar, D-a-n-i-e-l
19 S-h-a-f-a-r.
20 **Q. All right, Mr. Shafar. And I understand you**
21 **provided prefiled testimony in this matter; is that**
22 **correct?**
23 A. That is correct.
24 **Q. And I also understand that you included a copy**
25 **of your CV with that prefiled testimony; is that**

1 **correct?**
2 A. That is correct.
3 **Q. Okay. Can you just briefly describe for the**
4 **council your area of expertise.**
5 A. Yes, for this project I was the civil
6 engineering task lead at BergerABAM responsible for much
7 of the upland civil engineering portions of the project.
8 That included specifically grading, stormwater
9 management systems and the on-site utilities.
10 **Q. All right. And before we continue, I need to**
11 **admit a few exhibits, so if you could bear with me.**
12 MR. JOHNSON: And, Your Honor, I realize
13 we're going to try to get some stipulated exhibits in
14 tomorrow morning, but for the time being, I have
15 coordinated with the City of Vancouver and I would move
16 to admit the following exhibits which we stipulated to
17 admission.
18 JUDGE NOBLE: Ready.
19 MR. JOHNSON: All right. Exhibit 209,
20 exhibit -- and 209, those are -- I'm sorry, I should be
21 more careful. These are TSS exhibits. So 209, 284,
22 again that's a TSS exhibit, 285, 286, 220, 221 and 219.
23 JUDGE NOBLE: Is one of those Mr. Shafar's
24 CV?
25 MR. JOHNSON: Mr. Shafar's CV is -- it's

359, so I move to admit that as well, Your Honor.

JUDGE NOBLE: Is there any objection to exhibits whose numbers have just been recited by Mr. Johnson?

MS. BOYLES: No.

JUDGE NOBLE: No objection. Then Exhibits 209, 284, 285, 286, 220, 221, 219 and 359 are all admitted.

MR. JOHNSON: Thank you, Your Honor.

BY MR. JOHNSON:

Q. Mr. Shafar, have you reviewed the prefiled testimony of Mr. Tyler Clary, City of Vancouver water engineering program manager?

A. Yes, I have.

Q. Okay. And did you also review the exhibits to his testimony?

A. Yes, I did.

Q. Okay. And I'm going to ask you some questions about Mr. Clary's testimony. Mr. Clary suggests that information provided to you -- or to BergerABAM, your employer, at the preapplication stage of the project was, quote, purposely vague, unquote.

Can you provide the council with further background on the preapplication process concerning water supply and the accuracy of that statement?

1 A. Yes. We began looking at the utility side of
2 this project in about May of 2013 and had coordinated
3 with City staff to obtain some background information
4 related to the water system, its network layout and the
5 capacities of that system.
6 As part of that review, we had estimated for our
7 facility some of the internal demands, both domestic
8 water for the employees, lunchrooms and restrooms,
9 features of that nature, and then we told the City that
10 we were also thinking about looking at connecting to the
11 City system for fire suppression water and had asked for
12 some data from the City related to hydrant tests that
13 maybe had been conducted in the vicinity of that project
14 site.
15 In early May and June, in preparation for that
16 preapplication conference, we provided some of those use
17 estimates to the City. And in the response from the
18 City's review, the design of the facility hadn't
19 advanced far enough that we could provide pipe
20 diameters, really specific engineering details for that
21 process. And so some of the comments back from
22 Mr. Clary at the preapplication hearing did include some
23 parentheses and question marks that indicated that there
24 were a few unknowns at that time, and that's very common
25 for preapplication meetings, when we're still starting

to look at what the facility would need to provide in terms of mitigation measures.

Q. Okay. Again, I know it's difficult, but particularly when you're speaking in my direction, so if you could talk into the mic so that everybody can hear.

And did you receive flow test data related to the City's water system from the City back in -- later in time?

A. We did in preparation -- even before that preapplication conference. So in early May, we had requested those maps and some data, and we received some data from the City, from City staff. We reviewed the data that we received and provided them with some updated -- we actually used the maps that the City provided to us and indicated on those maps where our facility would be located and had requested some additional fire hydrant test data be obtained for a few specific locations. And in early June, we did receive back from the City the results of those hydrant tests.

MR. JOHNSON: And Ms. Mastro, if you could display Exhibit 220, please, page 1 of Exhibit 220.

BY MR. JOHNSON:

Q. And while we're waiting for that, the City hydrant test data that was provided to you, what did you use that for?

A. Yeah. So the hydrant test data is very informative especially for the fire protection engineer designer, in this case, that was Pool Fire. They did the design of the fire suppression system for the facility. And the hydrant test data is used because -- well, what they do is they actually flow fire hydrants in that vicinity and they take specific measurements using some gauges and pressure tests to verify and estimate what the actual capacity is of the water system in that location to deliver the fire flow.

Q. And can you -- now that the exhibit is displayed, can you explain what this exhibit depicts?

A. Yes. We created and -- "we," BergerABAM created this exhibit in support of these hearings to give an overview of the project vicinity. You see there kind of the shaded area in blue is our area 200, the area in green is where the storage facility is and down at the berth is obviously where the marine terminal is. And we indicated on this map the approximate locations where we have hydrant test data.

Q. And those are marked with letters A through D; is that correct?

A. That is correct.

Q. Okay. And with regard to hydrant test B that you've shown there, did you conduct a test there?

1 A. We did not. We received a test that was done
2 and completed by the City of Vancouver.
3 **Q. Okay. And did you receive similar information**
4 **for the other areas?**
5 A. We did. Hydrant test A and B were tests that
6 had been done prior to our coordination with the City
7 and those were provided to us by the City as
8 representative examples where we had indicated where the
9 rail unloading facility would be. And then
10 approximate -- those approximate locations for hydrant
11 test C and D, those were locations in which the City
12 conducted site-specific hydrant test data upon our
13 request.
14 **Q. Okay. And can you explain the term "available**
15 **fire flow"?**
16 A. Yeah. When they do hydrant tests, they actually
17 use two hydrants and so they flow two hydrants and
18 measure the pressure loss and the flow at both of those
19 two hydrants. The City water mains, you can kind of see
20 on this map, are decently sized. We have 16-inch
21 diameters and 12-inch diameters. And hydrant testing is
22 conducted in accordance with the National Fire
23 Protection Association guidelines. There's a regulation
24 in which the City follows to conduct those tests. And
25 because we're flowing through a hydrant, you're only

1 flowing through either a four-inch diameter test port or
2 a two-, two-and-a-half-inch diameter port on that
3 hydrant. And so the calculations in NFPA 291 are used
4 to take the flow data observed in those smaller ports to
5 calculate what the system's capable of when you have the
6 larger diameters and to calculate the full availability
7 of that water system to deliver.
8 MR. JOHNSON: And could you please display
9 Exhibit 221, page 18.
10 MS. MASTRO: 221, 18?
11 MR. JOHNSON: Yes, 221, page 18, please.
12 BY MR. JOHNSON:
13 **Q. And while we're -- we already have it? Do you**
14 **recognize that -- I'm sorry. I'm sorry, excuse me.**
15 **I've got my reference wrong again.**
16 MR. JOHNSON: Page 11, Ms. Mastro. I
17 apologize.
18 BY MR. JOHNSON:
19 **Q. Do you recognize that -- I'm not sure we have**
20 **the right document. The bottom paragraph there?**
21 A. Yes, I do.
22 **Q. And what's that referring to?**
23 A. So this exhibit is the City staff report for the
24 Keyera Vancouver Terminal project. Keyera NGL Propane
25 constructed a receiving facility that is located

1 immediately east of the administration and support
2 building areas of our project. And as part of their
3 review with the City, the City provided this staff
4 report that includes some conditions of approval. One
5 of those, on that second-to-last line, is a requirement
6 for fire flow.
7 **Q. Okay. And is there a certain volume of water**
8 **and/or pressure that's required when you're assessing**
9 **fire flow?**
10 A. There is. So maybe to back up and discuss the
11 fire design a little bit. We obtained the hydrant test
12 data from the City of Vancouver, which included the
13 hydrant test data, what they actually observed, and then
14 a calculated value, and I believe we'll show you those
15 here in just a second of what the City -- the City's
16 water main is capable of flowing in terms of a fire
17 flow. And that data that we received was provided to
18 Pool Fire, and that was provided as the data came in in
19 both May and June of 2013, and they used that data as
20 the basis of their fire protection design. And the fire
21 protection system design was designed in accordance with
22 NFPA, API standards, as well as FM Global, which also
23 has some requirements for the design of the fire system.
24 **Q. Okay. And, again, is there a specific flow rate**
25 **and/or PSI that's required?**

1 A. Right. So they -- "they," Pool Fire took a look
2 at the available fire flow and the regulations that were
3 the basis of their design and they came up with what the
4 facility would require in terms of what the facility
5 needs to provide to meet all of the regulations that
6 were imposed from those standards.
7 At area 200, which is the rail unloading
8 building, and then at area 400, the berth, the
9 calculated required fire flow that the facility needed
10 to provide was 2,000 gallons per minute, and that's
11 usually assumed at a residual PSI at the supply side of
12 that auxiliary pump at 20 PSI, pounds per square inch.
13 The required fire flow at area 300 at the
14 storage tanks was --
15 MS. REED: Can I object? Is this -- or just
16 maybe interject a question. Is this with reference --
17 is this testimony with reference to this exhibit?
18 MR. JOHNSON: Well, in part it is. You'll
19 note that there's a reference to 2500 gallon per minute
20 at 20 PSI for that project. So that's consistent with
21 what he's testifying to.
22 MS. REED: Okay. I'm sorry.
23 MR. JOHNSON: So I was going to ask that
24 question, but I'm not going to ask it now because I
25 think we've covered it, so we're going to be moving to

1 another exhibit.
2 MS. REED: I'm sorry.
3 BY MR. JOHNSON:
4 **Q. I'm sorry you got cut off, so hold that thought.**
5 MR. JOHNSON: Ms. Mastro, could you pull
6 Exhibit 219, page 1, please.
7 BY MR. JOHNSON:
8 **Q. And, Mr. Shafar, do you remember where you were?**
9 A. Yes.
10 **Q. Okay. Can you please continue.**
11 A. So in that area 300, the fire protection
12 designer determined that our required fire flow there
13 was 2500 gallons per minute at 20 PSI.
14 **Q. Okay. Now, if I could draw your attention to**
15 **this exhibit, and if you could just describe for the**
16 **council what this represents, please.**
17 A. So this is hydrant test A. We've indicated on
18 this map the location of both area 600, where the boiler
19 building will be located, and the proximity to area 200,
20 the rail unloading building. And I have pointed for us,
21 easy to read, where the most closest, nearest hydrant is
22 and the hydrant test that was available, and this was
23 provided to us by the City as a map indicates that there
24 is an available fire flow at this location of 2,471
25 gallons per minute based upon the 20 PSI residual.

1 MR. JOHNSON: Could we see page 2, please.
2 MS. MASTRO: I'm sorry, sir?
3 MR. JOHNSON: Page 2, please.
4 BY MR. JOHNSON:
5 **Q. And can you briefly describe what this exhibit**
6 **shows?**
7 A. This is the hydrant test report that was
8 completed by the City of Vancouver and provided to us
9 following a question of City staff to conduct a hydrant
10 test closest to the rail unloading building. The
11 response we received from the City said that there was a
12 recent test conducted in this area. This was done in
13 2011. There were not significant changes to the
14 distribution system between 2011 and 2013, so this was
15 still representative. And you can see on this form that
16 this fire flow at the bottom line was 2,501 gallons a
17 minute. And --
18 **Q. Okay. I'm sorry. And this was for which**
19 **hydrant test that you referred to on the earlier**
20 **diagram?**
21 A. So this is hydrant test B, which was located at
22 the Keyera site. You see indicated the Keyera entrance
23 is one of the fire hydrants noted as part of this test.
24 **Q. Okay.**
25 MR. JOHNSON: And then page 4, please.

BY MR. JOHNSON:

Q. And could you just describe briefly what this reflects.

A. This is the hydrant test data from hydrant test C. This is located at the marine terminal, and I should say it's more representative of the marine terminal. This was taken, for those of you familiar with the site, on the Subaru portion of the property near their warehouse. And the fire test here yielded a fire flow of 3,992 gallons per minute based on a 20 PSI.

MR. JOHNSON: And page 8, please.

BY MR. JOHNSON:

Q. And if you could, just briefly describe what's reflected here.

A. This is hydrant test D. This is located on the south side of Far West Steel, which is immediately west of the storage tanks. And this hydrant test yielded a fire flow of 3,660 gallons per minute at 20 PSI.

Q. Okay. And so for areas C and D, the fire flow exceeded 2,000 gallons per minute at 20 PSI; is that right?

A. That is correct, at, I should say, B and C.

Q. I'm sorry.

A. Yes.

Q. And is that considered to be adequate fire flow?

A. For the facility, yes.

Q. Mr. Clary's testimony raises concerns about the system's ability to provide fire flows at the required flow and pressure. Do you recall that testimony?

A. I do.

Q. Okay. And how would you respond?

A. The fire protection system for the facility requires that we provide, as I mentioned, 2,000 or 2500 gallons per minute of flow. The on-site portion of that requires a pressure of approximately 115 pounds of pressure. And so the City system is not able to provide 115 pounds of pressure as indicated in the hydrant test and therefore fire pumps are required to augment the pressure on the facility side of that system.

Q. And upon commissioning of the pumps, will they be tested?

A. Yes. The NFPA standards, as well as the API standards, require that upon completion of the facility that these pumps be ran at 150 percent of their rated capacities, and that during that test we will be monitoring the inlet side of that pump to make sure that the residual pressure does not dip below 20 pounds of pressure.

Q. So it'll maintain 20 pounds of pressure. Is there any kind of an engineering solution in the off

1 **chance that you couldn't maintain 20 PSI?**
2 A. Yes. If the City system is determined during
3 that test to not deliver sufficient flow, we could
4 provide some additional storage capacity for fire water
5 at the facility that would then make up the difference
6 so that we could maintain 20 pounds of pressure on the
7 inlet side of that pump.
8 **Q. Okay. And Mr. Clary notes that during some**
9 **preapplication questions, there were issues raised**
10 **regarding adequacy of some of the water line sizes. Do**
11 **you recall that testimony?**
12 A. During -- yes, I do.
13 **Q. And can you address that?**
14 A. Yeah. During our preapplication conference with
15 the City, the preapplication report from the City
16 indicates that there is an approximate fire flow, and
17 this is part of that purposely vague conditions that
18 were in that report, of about 3500 gallons per minute.
19 And so the City estimated that -- went on to say in that
20 same paragraph of the report, that in order to obtain
21 3500 gallons a minute, there may be some additional
22 looping of on-site water mains, if that was required or
23 not.
24 **Q. Okay. And then in general, can you just state**
25 **what your conclusions are regarding the adequacy of the**

1 **water's system for this project, specifically as it**
2 **relates to firefighting?**
3 A. Yes. Based on the hydrant tests that we
4 received from the City, the City's system is more than
5 capable of providing the required fire flows for the
6 facility demand.
7 **Q. Okay. And I wanted, again, to have you focus on**
8 **Mr. Clary's testimony, but because you're the only**
9 **witness that's scheduled to testify about some other**
10 **water-related issues, I would like you to just briefly**
11 **summarize the work that you've done with regard to**
12 **compliance with site certification requirements**
13 **concerning water quality necessary to obtain the**
14 **required permits. Can you just give a brief overview of**
15 **that work?**
16 A. Yes. For the upland facility design, as part of
17 the civil engineering components, we did develop
18 construction and operation phase water quality plans and
19 permits. So we identified very early on that we would
20 require a construction individual permit to construct
21 the facility for construction stormwater runoff.
22 We've provided a construction stormwater
23 pollution prevention plan that was developed in support
24 of that permit.
25 We also identified that this facility would

1 require industrial individual stormwater permit and have
2 prepared a comprehensive NPDES engineering report to
3 support the application of that permit.
4 The operation stormwater prevention plan has
5 also been submitted and developed for the record, and
6 both of those, the operation SWPP and the construction
7 SWPP, contain a detailed list of best management
8 practices during operation and construction that the
9 contractor or the facility operations staff would need
10 to implement to be in compliance with those permits.
11 To support some of the construction activities,
12 we completed a contaminated materials management plan,
13 being that Terminal 5 is the site of the former ALCOA
14 smelter, and there were some identified areas of that
15 facility that had some soil contamination and caps that
16 were already completed and constructed. And so we
17 developed a plan to mitigate if during construction we
18 encountered any of those soils.
19 We prepared construction spill prevention and
20 countermeasure plan, as well as an operation spill plan
21 as well. And for construction near the water and over
22 water, there is also a water quality protection and
23 monitoring plan that has been developed.
24 **Q. And are all of those plans included in the**
25 **revised application for site certification from May of**

2015 -- 16?

A. Yes, they are.

Q. Okay. And as a general matter, in your professional opinion, do you have any conclusions regarding the project's compliance with state water quality standards and federal, state and local standards designed to protect groundwater?

A. Yeah, we -- based on the analysis that we've completed to date, the stormwater discharges from that facility would meet state water quality standards to the Columbia River. The industrial discharges -- I should mention that we've also applied for a waste discharge permit to the City of Vancouver for some of the industrial processed water. That's been submitted already. And that the industrial process discharges from the facility would meet the City's pretreatment ordinance that's already in place.

MR. JOHNSON: All right. Thank you. Nothing further.

JUDGE NOBLE: Is there any cross-examination of Mr. Shafar?

CROSS-EXAMINATION

BY MS. REED:

Q. Mr. Shafar, good afternoon. I'm Karen Reed with the City of Vancouver, and I have a few questions for

1 **you. I think we should go --**
2 **JUDGE NOBLE: I think your mic isn't on,**
3 **Ms. Reed.**
4 MS. REED: Is that better?
5 JUDGE NOBLE: Yes.
6 BY MS. REED:
7 **Q. Before we start, though, there's one exhibit**
8 **that I want to refer to in a little bit, and I thought I**
9 **could ask for that to be pulled up now.**
10 MS. REED: Page -- I'm sorry, Exhibit 194.
11 Could you pull that up? Thanks.
12 BY MS. REED:
13 **Q. So, Mr. Clary [sic], did I understand you**
14 **correctly that the City's water supply will be the**
15 **primary source for the fire suppression systems for all**
16 **areas at the proposed facility?**
17 A. The fire pumps that would be connected to the
18 City system are located at the rail unloading building
19 at the storage area and at the marine terminal.
20 **Q. Okay. And are you aware of the Washington State**
21 **requirement in Washington Administrative Code**
22 **246-290-230 that a city maintain a fire flow pressure of**
23 **at least 20 PSI systemwide?**
24 A. Yes, I am.
25 **Q. And have you examined whether the combined load**

1 **of your fire suppression systems from all of these areas**
2 **would have any effect on the City's system?**
3 A. We have compared the demands from each
4 individual area with the City system specifically.
5 **Q. Have you looked at the combined demand on the**
6 **City's system?**
7 A. We have not.
8 **Q. Okay.**
9 MS. REED: Could you please go to page 57 --
10 I'm sorry, page 3 of Exhibit 194.
11 JUDGE NOBLE: Are we still in the
12 identification stage of this? I don't think there's
13 been an objection to this exhibit. Is this one of the
14 ones we're going to be admitting tomorrow anyway?
15 MR. JOHNSON: I'm sorry, you're
16 introducing --
17 MS. REED: I'm sorry, could we go back to
18 page 1. This exhibit, as far as I'm aware, there are no
19 objections.
20 BY MS. REED:
21 **Q. Do you recognize this exhibit, Mr. Clary [sic]?**
22 MR. JOHNSON: I just want to confirm the
23 exhibit number. Is it 194?
24 MS. REED: Yes.
25 MR. JOHNSON: No objection, Your Honor.

1 It's our own exhibit.
2 JUDGE NOBLE: What did he say? I didn't
3 hear that.
4 MR. JOHNSON: I'm sorry. It's getting late.
5 MS. REED: I seem to be making a habit out
6 of introducing your exhibits.
7 JUDGE NOBLE: Exhibit 194 will be admitted.
8 MS. BOYLES: Thank you, Your Honor.
9 BY MS. REED:
10 **Q. Mr. Clary [sic], do you recognize this document?**
11 A. I do not.
12 MS. REED: Could you please turn to page 3.
13 I'm sorry, could you go back to 1 for just a moment.
14 BY MS. REED:
15 **Q. Are you familiar with the Fire Protection**
16 **Research Foundation?**
17 A. No, I am not.
18 **Q. Okay.**
19 MS. REED: Now could you go to page 3.
20 BY MS. REED:
21 **Q. Would you be able to read the first paragraph**
22 **there on that page? Can you make that out?**
23 A. "Fire pumps are relatively complex
24 electro-mechanical devices that perform a vital
25 emergency function on an infrequent basis. They are an

1 integral and essential component of built-in fire
2 protection systems, and to assure reliability they are
3 tested periodically. However, the type and frequency of
4 these tests is the subject of ongoing debate that
5 extends to the earliest days of the NFPA Technical
6 Committee on fire pumps established in 1899."
7 **Q. Are you in general agreement with that -- with**
8 **that paragraph?**
9 A. I am not familiar with the debate in specific --
10 related to the frequency of the testing.
11 **Q. Do you -- would you agree with the remainder of**
12 **that paragraph?**
13 A. I would agree that fire pumps are a vital
14 emergency function and that they are used on an
15 infrequent basis.
16 **Q. Okay. Would you agree that they need to be**
17 **tested periodically?**
18 A. Yes, absolutely.
19 **Q. Do you have an opinion as to how frequently fire**
20 **pumps should be tested?**
21 A. I do not. I'm not a fire protection engineer.
22 **Q. Do you happen to know how frequently the fire**
23 **pumps at the proposed facility have -- are planned for**
24 **testing?**
25 A. I do not know the specific frequency of that

1 testing.
2 **Q. Okay. Do you know whether the City would**
3 **approve a request to connect the facility's fire**
4 **suppression system to City water?**
5 A. The comments from the preapplication conference
6 with the City indicated that, pending final engineering
7 review, there was sufficient capacity for the demands
8 that we estimated at the time of that preapplication
9 conference.
10 **Q. And so by indicating that there was sufficient**
11 **supply, they were indicating that there was sufficient**
12 **amounts of water, not sufficient water pressure,**
13 **correct?**
14 A. The letter from Tyler Clary in the
15 preapplication conference -- I should say we also
16 received a letter of water availability from the City
17 also confirming water availability for the facility, and
18 that was for the water volume that we required. It did
19 not reference a specific pressure.
20 **Q. Okay. Do you have any knowledge about the**
21 **specific locations of the testing of the City's water**
22 **hydrants?**
23 A. The information that I have related to which
24 hydrants were specifically tested we obtained from City
25 staff following the hydrant test. We received an e-mail

with a map that was marked up that indicated which hydrant was the residual test and which hydrant was -- did they do the flow testing at.

Q. Okay. So you didn't gather any -- independently gather any additional information in that regard?

A. I did not, no.

Q. Okay.

MS. REED: I have no further questions.

JUDGE NOBLE: Is there any other cross-examination of Mr. Shafar?

Redirect?

REDIRECT EXAMINATION

BY MR. JOHNSON:

Q. Mr. Shafar, you were asked a question related to systemwide maintenance and 20 PSI and you were asked whether or not you looked at combined demand on the City -- the combined demand on the City system, and you said that you didn't do that. Is there a reason that you didn't do that?

A. The analysis that we completed was specific assuming that there was an incident at one location of the facility at a time. And so that fire flow -- the hydrant test data was provided by the City that we used. We did not perform systemwide analyses, but interpreted the data provided to us.

1 MR. JOHNSON: Nothing further, Your Honor.
2 JUDGE NOBLE: Council questions?
3 Mr. Shafer?
4 MR. SHAFER: I have one question,
5 Mr. Shafar. Thank you for your testimony today. One
6 question. When you're designing your fire suppression
7 system, if you could just help clarify it for us, do you
8 also attempt to model the fire event itself to say like
9 the size and the intensity, the location, duration of
10 the fire so that you've got confidence that those two
11 things match up or that your suppression system of
12 course will sustain the needed response to the fire
13 event?
14 THE WITNESS: So we will have other people
15 testifying specifically as to what was considered in
16 terms of the facility risks and fire. What we looked at
17 was specifically taking a look at what was available and
18 making sure that the facility could design a fire
19 suppression system that met the guidance from NFPA and
20 API based upon their experience in those regulations.
21 MR. SHAFER: Okay. Thanks.
22 JUDGE NOBLE: Mr. Lynch?
23 MR. LYNCH: Good afternoon.
24 THE WITNESS: Good afternoon.
25 MR. LYNCH: I don't know if you're the

1 person to ask this question to, but you reference it in
2 your prefiled testimony, so I'm going to try.
3 On page 8 of your prefiled testimony, you
4 mention about some work being done in the area of --
5 where there's protective caps because of hazardous waste
6 in the past. I am just wondering if -- who has to
7 buy-off on this -- and to your knowledge, about the work
8 done if you're going to be doing work with protective
9 caps?
10 THE WITNESS: Specifically regarding an
11 agency selecting or having to approve of that work, is
12 that the question?
13 MR. LYNCH: Right. I mean, is this
14 something that EPA originally approved the caps or the
15 Department of Ecology, and if you're going to be doing
16 this work in the area of protective caps, you need
17 buy-offs from them and maybe the Port or -- I'm not sure
18 just who's -- to your knowledge, if you -- who has to
19 buy-off on this?
20 THE WITNESS: So the Terminal 5 site is
21 under a restrictive covenant, and maintenance and
22 monitoring of that is completed by the Port and that's
23 supervised by the Washington State Department of
24 Ecology.
25 MR. LYNCH: So you just -- so your

1 understanding is that any work in this area, the Port
2 and the Department of Ecology will work together on
3 this?
4 THE WITNESS: That is my understanding, yes.
5 MR. LYNCH: Okay. And do you know if any of
6 the ground improvements, such as stone columns, or any
7 of the jet grouting will be going through areas where
8 there's protective caps? You mentioned the ground
9 improvements in your prefiled testimony as well.
10 THE WITNESS: The ground improvements are
11 not located in areas where there's any areas of known
12 contamination.
13 MR. LYNCH: Okay. Thank you.
14 JUDGE NOBLE: Any other questions for
15 Mr. Shafar?
16 Are there questions based upon Mr. -- the
17 council's questions?
18 MS. REED: No, Your Honor.
19 MR. JOHNSON: No, Your Honor.
20 JUDGE NOBLE: Mr. Shafar, thank you for your
21 testimony. You are excused as a witness.
22 THE WITNESS: Thank you.
23 JUDGE NOBLE: Well, here we are at 12 past 5
24 and ready for another witness, but I don't -- I don't
25 know that that's very efficient to get started now.

1 MR. JOHNSON: No, Your Honor. We think
2 folks are probably ready to be done for the day and we
3 can start fresh in the morning. If you can bear with me
4 for a minute, we'll get you the witness list for
5 tomorrow.
6 And one other issue, Your Honor, before I
7 get there. Based on the council questions to
8 Mr. Larrabee yesterday regarding corporate structure,
9 responsibility, liability, organization of the joint
10 management committee and the LLC and that line of
11 questions, and in keeping with our intent to respond
12 with as much information as we can to the council, we
13 would offer to make available Mr. Keith Casey, who is
14 the executive vice president for operations for Tesoro,
15 to provide information about those issues. And he's not
16 a witness that we had intended to call, but we -- again,
17 we want to make the information available if we can do
18 that in a way that gives the other parties an
19 opportunity to cross-examine him.
20 Because of the time constraints, what we
21 would propose would be that if there are written
22 questions perhaps that could be provided to Mr. Casey
23 and then he could respond and become -- be available for
24 cross-examination, perhaps remotely, you know, and we
25 can work through those arrangements, but we wanted to

1 make the offer now so that if we -- if the council is
2 inclined to accept and we can work this out with the
3 other parties, you know, we can make it happen before we
4 get too far down the road in the adjudication.
5 JUDGE NOBLE: Are you suggesting the council
6 should come up with written questions?
7 MR. JOHNSON: Well, that would be an
8 approach, Your Honor. There were very specific
9 questions related to -- you know, related to those
10 issues. We just want to make sure that we respond as
11 well and as efficiently as we can.
12 JUDGE NOBLE: Would Mr. Casey be available
13 by telephone?
14 MR. JOHNSON: I think we can -- I'll ask
15 Mr. Derr to address that question.
16 MR. DERR: Your Honor, I'm working on
17 logistics. We think we can get him here. We think
18 July 11th. But I'm still working on the logistics of
19 that. So we can have him here to answer questions. We
20 can send him the transcript of the questions that were
21 asked of Mr. Larrabee by the council to have him ready
22 to answer those questions. If that covers the ground,
23 we thought we could do it in writing that way, but if
24 you want him here, we can do that.
25 JUDGE NOBLE: Well, I don't want to use

1 people's time unnecessarily, and it's up to you whether
2 you want to present him by telephone or in person, but I
3 don't want to constrain the council. It could be they
4 have other questions based upon the answers. And so I'm
5 thinking they might want to orally ask those questions.
6 I haven't talked with them about it, of course.
7 MR. DERR: And we realize this is a new
8 development, but when the questions came up yesterday,
9 we thought we ought to see what we can do and we
10 realized we needed to make him available for intervenors
11 to cross-examine him as well.
12 JUDGE NOBLE: Do you need to know that
13 tonight? Because perhaps we could give you an answer
14 about that -- I think they're going to prefer that he
15 just answer the questions that they put to him orally,
16 but I don't know.
17 MR. DERR: That will be fine. And we
18 will -- I will work with him on either being -- sounds
19 like we have an option of phone or in person.
20 JUDGE NOBLE: You do.
21 MR. DERR: What I'll probably need to do is
22 schedule a specific slot, because he's responsible for
23 operations all over the place. So we might schedule a
24 particular time increment on -- and we're looking at
25 July 11 is probably the best time.

1 JUDGE NOBLE: Well, that's certainly
2 possible to schedule a certain time slot.
3 MR. DERR: Thank you.
4 JUDGE NOBLE: All right. And maybe we'll
5 discuss a little bit more in the morning after the
6 council's had a chance to let me know what their
7 preference is. Thank you.
8 We have those other witnesses that -- where
9 there were council questions as well, we still have to
10 work that out.
11 MR. JOHNSON: Yes, Your Honor.
12 JUDGE NOBLE: That was go to be at the end
13 as well.
14 MR. JOHNSON: That's our plan, Your Honor.
15 JUDGE NOBLE: All right. Is there anything
16 else we need to do on the record before we adjourn for
17 tonight?
18 MR. JOHNSON: Well, I wanted to let you know
19 what we're planning for tomorrow, Your Honor.
20 JUDGE NOBLE: Oh, right.
21 MR. JOHNSON: So we're assembling that now.
22 So I'll just give you last names tonight.
23 JUDGE NOBLE: That's fine.
24 MR. JOHNSON: So we would expect to call
25 Mr. Schatzki. He provided prefiled testimony in this

1 matter. It's generally testimony related to economics
2 issues. He'll be rebutting Mr. Johnson and Mr. Goodman,
3 primarily.
4 Mr. Rohrbach, who provided prefiled
5 testimony related to seismic issues and he will be
6 rebutting primarily Mr. Wartman.
7 Mr. Shanahan also will be testifying
8 regarding seismic issues. He also filed prefile and
9 would be testifying in response primarily to
10 Mr. Wartman.
11 Mr. Haugstad, and he would be --
12 JUDGE NOBLE: Can I just interrupt you? The
13 main purpose of this is, first, for the council to know
14 who will be testifying, but they have the benefit of
15 prefiled testimony for a lot of these people. But we're
16 also talking to the public so they can understand what
17 subject matters will be covered. And they don't know
18 what was covered in that prefiled testimony that will be
19 rebutted. So if you could just say what subject
20 matters.
21 MR. JOHNSON: I'm sorry, I thought I did.
22 So Mr. Schatzki was economics; Mr. Rohrbach seismic;
23 Mr. Shanahan seismic; Mr. Haugstad, also he had prefiled
24 and he will be primarily discussing spill prevention.
25 And Mr. Haugstad will be providing testimony that

1 responds to a number of witnesses, including Susan
2 Harvey and Jerry Johnson -- no, I'm sorry. I thought we
3 did that.
4 JUDGE NOBLE: You don't need to put too fine
5 a point on this.
6 MR. JOHNSON: I'm sorry. So Mr. Schatzki --
7 I said Mr. Johnson. We have two Mr. Johnsons at least
8 right here, the court reporter and myself. So it's
9 Jerry Johnson's prefiled testimony that he will be
10 rebutting. I'm sorry for the confusion.
11 JUDGE NOBLE: Mr. Snodgrass?
12 MR. SNODGRASS: I don't know if we're
13 procedurally out of order here, but similar to your
14 ruling on earlier having a complete record, as it's been
15 several weeks since I read -- or days since I read
16 Mr. Schatzki's prefiled, but as I recall, it extensively
17 rebuts Mr. Johnson and I don't know that I can fully
18 adequately participate without having access to
19 Mr. Johnson's prefiled.
20 MS. LARSON: Excuse me, Your Honor.
21 Mr. Johnson is one of the witnesses that the applicant
22 objected to extensive portions of his testimony.
23 JUDGE NOBLE: Yes, I know. And one of the
24 issues that we have about that is the attachments to the
25 testimony, which are still in Olympia. And so I've read

1 the testimony and I need to just take a look at the
2 attachments. And I'll read it again to see if it would
3 be possible to make a decision on the testimony itself
4 without having seen the attachments.
5 MR. DERR: Your Honor, if I can help. I
6 think I can help.
7 JUDGE NOBLE: Okay.
8 MR. DERR: The objections to Mr. Johnson --
9 Jerry Johnson's testimony that we filed related to his
10 expert opinion on oil markets, and that's not what
11 Mr. Schatzki will be rebutting. He will be rebutting
12 his testimony in his study of sort of the economic
13 impacts of downtown Vancouver and the waterfront
14 project. So there may be a way to -- and the
15 attachments I think were all about that latter topic.
16 JUDGE NOBLE: All right. So I will look at
17 Mr. Johnson's testimony again tonight and decide whether
18 or not it can come in or be distributed, whether the
19 objection should be overruled or not.
20 MR. DERR: I think that will help you focus.
21 We just objected to the oil market issues which our
22 first witness, Mr. Roach, already talked about.
23 JUDGE NOBLE: All right. We will try to
24 walk that fine line, then, and get you the testimony, if
25 I can do that.

1 MR. JOHNSON: And one last matter. What
2 time did you want counsel -- the lawyers here tomorrow,
3 Your Honor?
4 JUDGE NOBLE: It seems to work well for the
5 council to gather upstairs and allow ten minutes or so
6 to just do housekeeping and ask questions.
7 MR. JOHNSON: Okay. I just thought that
8 tomorrow you asked us to be here a little early to go
9 over exhibits.
10 JUDGE NOBLE: Well, I think I'm going to be
11 able to go ahead and admit a lot of exhibits, and we can
12 do that with the council here.
13 MR. JOHNSON: Okay.
14 JUDGE NOBLE: It's not necessary to do that
15 in the morning before they come in. So maybe at 8:45
16 tomorrow morning for counsel and then we'll try to get
17 started at 9:00 sharp.
18 MR. JOHNSON: All right.
19 JUDGE NOBLE: With the attorneys.
20 MR. JOHNSON: Thank you.
21 JUDGE NOBLE: All right. Is there anything
22 else we need to do either on or off the record before we
23 adjourn for today?
24 There being nothing, we are adjourned until
25 9:00 tomorrow morning.

1 (Hearing adjourned at 5:23 p.m.)
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C E R T I F I C A T E

STATE OF WASHINGTON)
) SS.
COUNTY OF CLARK)

I, Micheal A. Johnson, Registered Diplomate Reporter and Certified Realtime Reporter, do hereby certify that the foregoing transcript is true and accurate to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this 12th day of July, 2016.

MICHEAL A. JOHNSON, RDR, CRR