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

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

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

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1 PROCEEDINGS

2 JUDGE NOBLE: Let me just go on the record.
3 We're back before the State of Washington Energy
4 Facility Site and Council, Adjudication Case
5 Number 15-001, in the matter of Application
6 Number 2013-01, Tesoro Savage LLC, Vancouver Energy
7 Distribution Terminal.

8 We have a new court reporter this morning,
9 Diane Rugh, and she will be reporting for us for the
10 remainder of the week.

11 What we have to do now before the council
12 comes in is address rulings on the remainder of the
13 prefiled testimony. I'm going to start with Dr. James,
14 Frank James, medical director -- medical doctor, health
15 officer, been a previous safety consultant for a
16 pipeline company for six years.

17 The objection is to testimony about risks
18 posed by diesel exhaust and other matters that are
19 considered to be beyond his specific skill and
20 expertise, and the objection is by the proponents. The
21 specific objections have to do, as I said, with diesel
22 exhaust, with noise, risks of train derailments, oil
23 spills, and crude oil types.

24 And I think the essence of the objection is
25 not only that he is beyond his expertise, but also that

1 he was, as the objection said, parroting the concerns of
2 the Washington Department of Health and the EPA and,
3 therefore, bootstrapping his testimony, bootstrapping
4 the information from those sources, into his testimony.

5 I find that the mention of those sources are
6 the basis of his opinion. And then looking at the
7 elements of his background, I find that they relate to
8 the issues in the adjudication. However, long quotes
9 from the documents and sources that these are exhibits
10 that have already been admitted are not as helpful as
11 Dr. James' own opinions based upon his work and his
12 sources. His testimony strictly critiquing the DEIS
13 also should be stricken and replaced with Dr. James'
14 opinions on those subjects.

15 So I want to go through his testimony. I
16 don't have an exhibit number for his CV, and if I could
17 get that at some point that would be helpful.

18 I do find that Dr. James spent a
19 considerable amount of time working with a group of
20 medical professionals who are concerned with human
21 health and the impacts of proposed coal and oil shipping
22 terminals in Washington according to his testimony. In
23 connection with that, he conducted a review of the
24 medical literature and made a recommendation that help
25 impact the part of the review process.

1 Based upon his long experience and also his
2 experience for six years working for a pipeline company,
3 I do find that he has sufficient background to testify
4 as an expert witness. He said that he reviewed several
5 hundred articles that addressed the safety and health
6 impacts of coal and oil products transported by trains,
7 ships or stored locally.

8 So the first objection is found on -- is
9 based on testimony found on Page 3 in the second
10 paragraph, and I find -- I'll overrule that objection
11 for the reasons I've just stated. And based upon his
12 medical literature review, the remaining language in
13 Paragraph A-8 will be allowed.

14 However, the objection continues on until --
15 the testimony that I will allow continues on until the
16 bottom of Page 6. That will be allowed for the reasons
17 I've just expressed; however, the testimony that is on
18 Page 7 are direct quotes from I believe the United
19 States Department of Health publication and I will not
20 allow that. So that testimony will be stricken, the
21 testimony on Page 7.

22 The testimony on Page 8 of his testimony
23 will be allowed. And then the testimony on Page 9 that
24 is in single space, that is again quotes from one of his
25 sources, will not be allowed, and that's testimony on

1 Page 8 from Line 1 through Line 13.

2 As for the testimony on the different types
3 of oil, I think there needs to be further foundation for
4 the basis of those statements before it can be allowed.
5 That is the remaining testimony from Page 9 from Line 14
6 through Line 22. So there needs to be more foundation
7 for that. That's the different types of oil. I just
8 didn't see that he expressed any particular research
9 that he had done on that subject.

10 The testimony objected to on Page 10 through
11 Page 11, Line 5, will be allowed, but the testimony on
12 Page 10, Lines 9 through 15 will not, because it is just
13 about his view of the inadequacy of the DEIS based on my
14 earlier ruling.

15 And then, finally, the testimony on Page 12
16 from Lines 6 through Page 13, Line 7 will be allowed
17 except that Dr. James needs to use his own opinion. He
18 needs to express these views in his own opinion. So I
19 will allow it provided he can provide a little bit more
20 basis for that, a little more foundation.

21 Does everybody have all those specifics?

22 MS. BOYLES: Yes, Your Honor. I just wanted
23 to tell you that Dr. James' CV is Exhibit 5568.

24 JUDGE NOBLE: Thank you.

25 Then I'd like to address the testimony of

1 Daniel Kegley, Director of Water Management for the City
2 of Spokane. The objection is that his testimony is
3 beyond the scope of his expertise and that he had no
4 expertise in hydrogeology or complex hydrogeologic
5 systems. And my ruling is that his testimony will be
6 allowed.

7 The depth and level of his testimony is
8 appropriate to Mr. Kegley's 21-year experience with the
9 City of Spokane water resources and management. The
10 testimony is not so highly technical as to require a
11 hydrogeology degree to qualify as an expert in this
12 case. He has sufficient knowledge, skill, experience,
13 and training to assist the council as an expert on the
14 effects of oil spill on the water supply and the
15 difficulties of managing the risks to the City of
16 Spokane. With regard to that, he seems highly
17 qualified, so the objection is overruled, the testimony
18 will be allowed in its entirety.

19 Next, the testimony of Wayne Senter,
20 Executive Director of Washington Fire Chiefs. With
21 regard to his communications with the Burlington
22 Northern Santa Fe Railroad officials, I agree that that
23 testimony is hearsay. Some of it is hearsay and he
24 hasn't relied upon it for his opinions, and also there
25 was an unnamed source. And from his testimony, I do not

1 see that his opinions are entirely expressed.

2 The admission of the letter is fine, but Mr.
3 Senter is more of a fact witness in this case. He can't
4 testify about his inquiries and the subject matter of
5 his requests. He can testify that his request was made
6 and that the results were not forthcoming, but I view
7 that more or less as fact testimony. Mr. Senter cannot
8 testify about what he was told in other source list
9 quotes. So certain of his testimony will be stricken.

10 MS. REED: Your Honor, could I request that
11 we have an opportunity to lay a foundation for some of
12 that testimony and identify the sources when he presents
13 his live direct testimony?

14 JUDGE NOBLE: If he is expressing an expert
15 opinion and relying on that, then he may. I have to
16 hear it first. But he doesn't seem to be testifying as
17 much as an expert witness. He seems to be, as I said,
18 more of a fact witness to what happened when he made
19 these inquiries.

20 He does have some opinions that he expresses
21 based upon his expertise, but with regard to not being
22 able to get a response and so on, that part of his
23 testimony is more fact testimony. So he'll be able to
24 testify as an expert witness, but he has to lay the
25 foundation for that and what his basis is. And I'm not

1 sure what you'll have him say, but we'll have objections
2 as we go along.

3 Looking at Page 3 of Mr. Senter's testimony,
4 the first line that starts on Line 3 and 4, regarding
5 the worst-case scenario, he's stating what he was told,
6 something presumably from BNSF, but that testimony will
7 not be allowed because there's no source and it's just
8 hearsay because he doesn't express any opinion based
9 upon that. And then it's the same for the next line on
10 Line 5 and 6, 7 and 8. Again, that's source list
11 hearsay.

12 The testimony on Lines 9 and 10 and 11, he's
13 testifying from his own knowledge and his own expertise,
14 and he says that he's aware of a comprehensive plan that
15 exists and so that will be allowed. The testimony on
16 Page 12, Lines 12 and 13 will not be allowed for the
17 reasons I've just expressed, source list hearsay. And
18 Line 14 and 15 are testimony about facts about the
19 conversations that he has had. He can testify about
20 that. He's not testifying in those lines about what was
21 said, he's saying that he had conversations. And then
22 the testimony from Line 16 through 19 is fact testimony
23 that he may testify about.

24 The objection is sustained as to those lines
25 I've just indicated, and it's overruled as to the rest

1 of Mr. Senter's testimony.

2 The next witness is a pair, Michelle (sic)
3 Hicks and Michael Broncheau. I think Mr. Hicks is Chief
4 Enforcement Officer for CRITFC, and the objection is
5 that his testimony was neither within the scope of his
6 expertise -- excuse me, the testimony of neither of
7 these gentlemen is within the scope of their expertise
8 and that they should not be allowed to opine about what
9 constitutes adequate and effective emergency response
10 services at fishing sites, tribal fishing sites. And
11 the objection has requested that I strike all the
12 testimony relating to emergency response preparedness
13 and resources for the in-lieu and treaty fishing access
14 sites.

15 I'm overruling that objection entirely.
16 Both of these witnesses are the individuals in charge of
17 the care and maintenance of the in-lieu and treaty
18 fishing access sites, including emergency response, and
19 they are qualified to offer their opinions about the
20 adequacy of emergency response preparedness and
21 resources for those sites.

22 Next is the testimony of Mr. Roger Dick, Jr.
23 Mr. Dick is harvest coordinator for the Yakama Nation
24 Fisheries, and he has been so for 16 years. He is
25 testifying about the risks to tribal members crossing

1 the tracks to fish, and the signaling and security and
2 safety improvements at rail crossings. And the
3 objection is that he has no expertise and does not link
4 his expertise that he does have from his education and
5 experience to rail crossings so he shouldn't be allowed
6 to testify as to his opinions about those things.

7 That objection is overruled entirely. The
8 witness is qualified by education, experience. The
9 testimony should be allowed. I think that Mr. Dick is
10 probably the best person to testify about tribal access
11 because of his long experience and his job duties. With
12 regard to additional derailments, I think that this
13 opinion is based also on his experience with past and
14 current levels of traffic. So his testimony will be
15 allowed.

16 Next, the last one, I think it's the last
17 one, Robert Brigham, has been a tribal fisherman for
18 60 years and he has testified in his prefiled testimony
19 that it's only a matter of time before there's a large
20 spill in the Columbia, and the objection is to that
21 statement and also that he has no personal knowledge of
22 crossing safety equipment.

23 I find that this witness is qualified by
24 experience as an expert in the exercise of tribal
25 fishing. He had a long time and wide experience all

1 along the Columbia River which is lined with railroad
2 tracks that have to be crossed at numerous places for
3 tribal members to access the river for fishing. Every
4 day Mr. Brigham crosses the tracks, therefore he has
5 sufficient knowledge of crossing, signaling and safety
6 precautions.

7 The objection to Mr. Brigham's testimony is
8 overruled except for that last sentence, which is
9 speculative, and it will be stricken. And that is the
10 sentence about his opinion that it's only a matter of
11 time before there is a large spill. And I can direct
12 you to the exact line for that testimony. We don't have
13 line numbers, but it's the last sentence after the
14 question, "Do you have any other concerns regarding
15 increased rail traffic?"

16 Mr. Brigham says, "I don't recall a large
17 spill on the Columbia, but with the increased number of
18 trains, it's only a matter of time."

19 That is the objected-to sentence, and that
20 will be stricken.

21 I think that completes the rulings on all
22 the prefiled testimony. Am I correct about that? If
23 I'm not, you can let me know later.

24 MR. JOHNSON: I think that's right, Your
25 Honor.

1 JUDGE NOBLE: All right. Thank you.

2 MR. JOHNSON: Your Honor, one quick thing
3 before we get going. One quick thing I just don't want
4 to drop between the cracks is there was an outstanding
5 request regarding Dan Gunderson and Dan Roscoe and their
6 testimony. The parties had agreed not to call them, but
7 we had asked if you could check with the council. We're
8 also working on a couple other -- or a few other there
9 are other witnesses like that that we can maybe take it
10 up later. But with regard to Gunderson and Roscoe,
11 there was an outstanding request to you to check on
12 that.

13 JUDGE NOBLE: It's my understanding that you
14 were not intending to call those witnesses?

15 MR. JOHNSON: Correct. We coordinated with
16 the opposing parties and we weren't going to call, they
17 weren't going to cross, so it puts them in the category
18 of those that maybe the council wants to hear from
19 anyway.

20 JUDGE NOBLE: I'll talk with them at noon
21 time, try to get you an answer.

22 MR. JOHNSON: Thank you.

23 JUDGE NOBLE: Thank you.

24 Anything we need to do on or off the record
25 before we bring the council in? All right. We'll go

1 off the record so I can go up and bring them down.

2 Thank you.

3 (Recess taken from 9:24 a.m. to 9:41 a.m.)

4 JUDGE NOBLE: We are back on the record.

5 Council is in the room.

6 Mr. Kisielius, are you presenting the next
7 witness?

8 MR. KISIELIUS: I am, Your Honor.

9 JUDGE NOBLE: Would you call that witness?

10 MR. KISIELIUS: The Applicant would like to
11 call Dr. James Thomas.

12 JUDGE NOBLE: Mr. Thomas, would you raise
13 your right-hand, please.

14

15 JAMES THOMAS,

16 having been first duly sworn, testified as follows:

17 MR. KISIELIUS: Your Honor, before we begin,
18 just to clarify on an issue you raised earlier related
19 to the scope of the witness' testimony, we have
20 conferred with the opposing parties and have confirmed
21 that rebuttal to their direct written prefiled is what
22 they expect our witnesses to handle and they have no
23 objection to that. So, by way of example, Dr. Thomas is
24 going to be rebutting some of the written prefiled
25 testimony that the intervenors have presented and our

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1 understanding is that they do not have an objection to
2 that.

3 JUDGE NOBLE: Thank you for that. You may
4 proceed.

5
6 DIRECT EXAMINATION

7 BY MR. KISIELIUS:

8 Q. Could you please state and spell your name for
9 the record.

10 A. James Kelly Thomas. That's J-a-m-e-s,
11 K-e-l-l-y, T-h-o-m-a-s.

12 JUDGE NOBLE: Dr. Thomas, you have a soft
13 voice so make sure that you keep the microphone close to
14 you and speak up if you can.

15 THE WITNESS: Yes, ma'am.

16 BY MR. KISIELIUS:

17 Q. Dr. Thomas, did you prepare a sworn written
18 statement?

19 A. Yes, I did.

20 Q. Could you briefly state your area of expertise?

21 A. The development and application of empirical and
22 analytical and numerical models for prediction of
23 flammability and explosion-related phenomena, performing
24 consequence-based and risk-based assessments of hazards
25 for industrial facilities such as refineries and

KISIELIUS / THOMAS

1 chemical plants and performing the investigation of
2 accidental explosions.

3 MR. KISIELIUS: And for the council's
4 reference, Dr. Thomas's CV is Exhibit 309.

5 BY MR. KISIELIUS:

6 **Q. Can you please identify what you were asked to**
7 **do by the Applicant related to this facility?**

8 A. Yes. I was asked to review the draft
9 environmental impact statement and comment on it
10 relative to hazards and risk descriptions and to perform
11 a quantitative risk assessment at the facility.

12 **Q. And did that analysis result in any written**
13 **reports?**

14 A. Yes, it did.

15 MR. KISIELIUS: For the council's benefit,
16 those were Exhibits 118 and 119, both of which were
17 attached to Dr. Thomas's prefilled testimony.

18 BY MR. KISIELIUS:

19 **Q. Dr. Thomas, I've put in front of you a binder**
20 **that includes your sworn statement as well as the**
21 **exhibits to your sworn statement should you need to**
22 **refer to those during your testimony today. I'd like to**
23 **start just at a very big picture level.**

24 **If you could just summarize for us the**
25 **conclusions of that quantitative risk assessment that**

KISIELIUS / THOMAS

1 you referred to.

2 A. Sure. The conclusions are best expressed in
3 terms of the risk profiles, the FN curves, but at a high
4 level what we found was that the offsite -- risk to
5 offsite populations was acceptable, well below what we
6 reviewed as a tolerable risk without any further
7 mitigation or prevention actions and that the risk to
8 onsite populations was also acceptable, but there were
9 no opportunities to look at potential risk reduction
10 specifically relative to flash fires in the loading area
11 to personnel working there.

12 **Q. So just by way of clarification, you referred to**
13 **two different populations that you investigated. Could**
14 **you describe -- you said offsite and onsite. Can you**
15 **tell us what you looked at for offsite populations**
16 **first?**

17 A. Sure. So for the offsite populations we looked
18 at buildings located off the fence line or the property
19 line of the facility and in terms of the impacts to
20 people in those buildings.

21 **Q. And then when you referred to onsite**
22 **populations, what were you referring to?**

23 A. So for onsite we looked both at buildings that
24 were located at the facility as well as some areas that
25 personnel were working at outside the buildings.

KISIELIUS / THOMAS

1 **Q. And you had also used a term earlier in**
2 **describing your conclusions; you had used the word "FN**
3 **curves."**

4 **So I'm going to ask Ms. Mastro if you could pull**
5 **up Exhibit 118, Page 6, please.**

6 **And while she's doing that if you could just**
7 **tell us, what are FN curves?**

8 A. Sure. It's a way of expressing risk. The "F"
9 is frequency, the "N" is consequence; in this case,
10 fatalities. And so what it shows is the relationship
11 between the frequencies of events that would cause a
12 prescribed number of casualties. It's probably easier
13 to point at a diagram rather than paint a word picture.

14 **Q. There you go. One more. There.**

15 A. So this is the FN curve for the offsite
16 population. So on the X axis is the N, the consequence
17 in this case, fatalities, and on the Y axis is the
18 frequency with which that would occur be exceeded.

19 So, for instance, the black line represents the
20 facility risk profile, the green and the red lines
21 represent risk tolerance criteria. So the upper line,
22 or the red line, represents a risk tolerance criteria
23 that if that is exceeded, based on normal accepted
24 industry risk tolerance, you'd need to institute
25 additional preventive and/or mitigative actions to bring

KISIELIUS / THOMAS

1 the risks down.

2 The space between the red and the green line is
3 an area that if your risk profile falls in that area,
4 then you need to consider actions to prevent or mitigate
5 fires or explosions or toxic releases, whatever is
6 riding the risk. And to the degree that it's practical
7 and cost effective, you need to implement them and go
8 ahead and drive the risk down. If you're below the
9 lower green line, then it's generally acceptable as is
10 without further mitigation or prevention actions.

11 **Q. So you had already summarized your conclusions,**
12 **but if you could sort of restate those with reference to**
13 **this particular exhibit.**

14 A. Sure. It can be seen for the offsite
15 population, the risk profile facility is well below the
16 lower risk tolerance criteria meaning it's acceptable as
17 is without further prevention or mitigation actions for
18 the offsite populations.

19 MR. KISIELIUS: Ms. Mastro, if you could
20 move it back one page, please. Thank you.

21 BY MR. KISIELIUS:

22 **Q. If you could now explain your conclusion with**
23 **reference to this particular page as well.**

24 A. So this is the same format way of expressing the
25 results, but for the onsite worker population, not the

KISIELIUS / THOMAS

1 offsite population. And again, there's an upper risk
2 tolerance criteria above which if you're above that you
3 definitely need to institute additional prevention and
4 litigation systems to drive the risks down. There's a
5 lower green line which represents the line. If you fall
6 below that, you're acceptable as is without any further
7 prevention or mitigation actions. And if you're in
8 between, then you need to consider such actions in an
9 attempt to drive the risk down further and if agreed
10 it's practical and cost effective, they should be
11 implemented.

12 In this case, you can see for the onsite
13 population, they do broach the -- this facility does
14 have a risk profile as calculated right now that's a
15 little above the lower risk tolerance criteria and
16 that's driven primarily by flash fire hazards in the
17 vicinity of the loading area.

18 **Q. I want to step back and ask you a bigger picture**
19 **question.**

20 **What is this whole standard and the thresholds?**
21 **Where does that come from and what are they based on?**

22 A. So the risk tolerance criteria that are kind of
23 generally accepted by industry come from a variety of
24 sources. There isn't a U.S. government regulation or
25 mandate on what risk is tolerable, so other sources are

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1 used. The U.K.'s Health and Safety Executive, or HSE,
2 has risk tolerance information that can be accessed.
3 The Dutch government has also developed risk tolerance
4 information, as well as a number of different
5 governments and industry groups and private
6 organizations. And that's where we've drawn this type
7 of information from.

8 **Q. Is it a generally used tool within the industry**
9 **for assessing risk?**

10 A. Yes. These type of FN curves are a commonly
11 accepted practice for how to compare the risk profile of
12 a facility for either offsite and/or onsite risk
13 relative to the facility risk profile.

14 **Q. And I heard you mention that the metric here is**
15 **fatalities. So are the thresholds you describe specific**
16 **to human health and safety risk?**

17 A. Yes.

18 **Q. Is the threshold the green and red line that you**
19 **described, are those used for determining general**
20 **environmental risk?**

21 A. No. There's not a direct relationship between
22 what we've done to calculate risk to people that you can
23 scale or apply a factor to look at risk to the
24 environment.

25 **Q. Okay. And then one last framework question.**

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1 Are the thresholds, where you set the green and
2 red line, the same for when you're assessing risks to
3 onsite populations versus offsite populations?

4 A. No. The onsite population risk tolerance
5 criteria is higher than the offsite risk tolerance
6 criteria, and the basic concept is people that come to
7 work at a facility accept some level of risk in doing so
8 that somebody that is not associated with the facility
9 and living in the vicinity doesn't accept the same risk
10 except a lower level of risk.

11 **Q. So one more overarching question.**

12 **As an expert in risk science, what are the two**
13 **components of risk that you consider?**

14 A. Well, as displayed by the plot, both frequency
15 and consequence are vital in assessing risk. Neither
16 one can be considered on its own. The two must be
17 considered together in order to get an accurate and
18 complete picture of risk and to provide a foundation for
19 decision-making.

20 **Q. So I want to point you to the testimony of**
21 **Ms. Susan Harvey. Are you pretty familiar with that**
22 **testimony?**

23 A. Yes, I've read that.

24 **Q. And in Paragraph 90 she says, "Low probability,**
25 **high consequence spills occur."**

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1 And so in terms of your way of looking at it, do
2 you think that gives adequate consideration to the
3 probability of an incident?

4 A. No. I think you have to explicitly look at the
5 probability, the frequency with which an event would
6 occur.

7 **Q. What happens if you look at just the consequence**
8 **to the exclusion of the probability?**

9 A. Well, the issue is that you can always come up
10 with a bigger consequence. There can always be an event
11 that has a worse consequence than what you've
12 postulated, and so to a certain degree it's a path that
13 doesn't have an end.

14 So what you have to do is for each consequence
15 that you're considering, consider the frequency with
16 which that consequence may come into play in order to
17 accurately portray the risk. You can't just look at the
18 consequence by itself.

19 **Q. So I'm going to ask you a couple specific**
20 **questions related to the prefiled testimony of Eric**
21 **Peterson. Are you familiar with that prefiled**
22 **statement?**

23 A. Yes. I read Dr. Peterson's statement and his
24 report that's part of that statement.

25 **Q. Okay. And does Dr. Peterson purport to use the**

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1 same general approach of considering both probability
2 and consequence when assessing the risk of the facility?

3 A. Yes, he does.

4 Q. I want to draw your attention -- and I should
5 mention Dr. Peterson's prefiled statement is in the same
6 binder you have in front of you should you need to refer
7 to that.

8 A. Thank you.

9 Q. I'm going to read you something from his
10 testimony. He said he did a "consequence-based
11 screening assessment and a Quantitative Risk Assessment,
12 QRA."

13 Is that similar to analysis to what you did?

14 A. Well, we both did Quantitative Risk Assessments,
15 so in both cases the frequency and the consequences of
16 postulated events are being considered. Based on a
17 review of the report, he used more simplified input data
18 and assumptions and modeling techniques, but we both did
19 QRAs and so we both considered consequence and risk --
20 consequence and frequency together in order to create a
21 picture of risk, and to that degree they're similar.

22 Q. So I think in Paragraph 17 he refers to his as a
23 "initial Quantitative Risk Assessment study," and in
24 Paragraph 15 he calls it a "concept level evaluation."

25 What are those?

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1 A. Well, so the implication at least is that it's a
2 simplified treatment, maybe approach cut treatment based
3 on preliminary information as opposed to a more detailed
4 QRA that uses facilities-specific information.

5 **Q. Would you characterize your report as a concept**
6 **level evaluation or an initial QRA?**

7 A. No, I would not.

8 **Q. Okay. So let's dig in to some more details**
9 **comparing what Dr. Peterson did with your report. Let's**
10 **start first with facility information that you**
11 **considered in your model.**

12 **What information did you use in conducting your**
13 **analysis related to the facility?**

14 A. We used the detailed plot plans, both plant-wide
15 and unit level, process load diagrams, material balance,
16 the PNID, the material specification information that
17 was supplied by the facility to us.

18 **Q. Did Dr. Peterson also consider that information?**

19 A. He does not appear to have considered that level
20 of detail, no.

21 **Q. And how did using -- in a big picture sense, how**
22 **did using detailed site documents impact the difference**
23 **between your analysis and his analysis?**

24 A. There's a number of areas that comes in to play,
25 for instance, the specific location of piping runs,

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1 whether they're, in this case, right on the physical
2 boundary of the Jail Work Center or whether they're some
3 distance away from that.

4 The pressure of the fluid, for instance. We
5 took information from the facility process load diagrams
6 that indicated the source pressure for the fluid in the
7 pipelines would be about 80 PSIG. He assumed 120, which
8 may have been preliminary information. But that's a 50
9 percent higher source pressure, so it obviously gives
10 you a higher release rate, and, as a result, a larger
11 flammable cloud, a larger thermal hazard.

12 Similarly, some of the lines adjacent to the
13 Jail Work Center are buried, they're not above ground,
14 and he treated them as if they were elevated at
15 2 meters. And again, that may have been accurate on a
16 preliminary description of the facility and certainly
17 would be possibly reasonable for a concept or a
18 screening level, but with more accurate information
19 available you can get a better picture of the risk.

20 **Q. I'm going to return to some of that in just a**
21 **second, but Dr. Peterson, his report refers to something**
22 **called a parts count approach in relation to all this**
23 **information. Can you describe what that is?**

24 A. Sure. It's a way of assessing the frequency of
25 releases, so it's looking at a length of line and making

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1 some assumptions about the number of flanges, the number
2 of valves that will be on that line, and those are all
3 components that can leak.

4 In Dr. Peterson's case, the source he refers to
5 is a source that was developed primarily for offshore
6 applications, like offshore platforms that tend to be a
7 lot more dense in terms of the amount of those parts per
8 unit foot. And so that could lead you, and I'm not
9 crystal clear on exactly how he used that information,
10 it's not spelled out in his report, but I would expect
11 it to lead you to a higher release frequency, a higher
12 frequency of releases than if you were looking at the
13 specifics of what actually is at this facility.

14 **Q. And using that parts count approach, can you**
15 **speak to how that would affect analysis, because you**
16 **talked about sort of specific examples. If you use that**
17 **assumption throughout the facility design, what does it**
18 **do to the consequence?**

19 A. Sure. My expectation is it would increase the
20 frequency that you predict specific releases. And since
21 you're increasing the frequency releases, you're
22 increasing the calculated risk associated with those
23 releases.

24 **Q. Let's talk a little bit about more facility**
25 **information that you used.**

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1 What assumptions did you make about the location
2 of buildings?

3 A. We took the actual location of the buildings,
4 both onsite and offsite, based on plot plans and aerial
5 images.

6 **Q. How does that compare to the analysis performed**
7 **by Dr. Peterson?**

8 A. Again, it's a little hard for me to be positive
9 in terms of what he did, but based on how he expresses
10 the results in terms of the hazard to people at the Jail
11 Work Center, it appears that he's assuming that there's
12 exposed population that's basically right at the fence
13 line as opposed to where -- concentrated where the
14 actual buildings are located.

15 MR. KISIELIUS: Ms. Mastro, could you pull
16 up Exhibit 266?

17 BY MR. KISIELIUS:

18 **Q. I'd like to ask you first, did you create this**
19 **exhibit?**

20 A. We, BakerRisk, created that. I personally did
21 not create that; my team did.

22 **Q. And what does it show?**

23 A. So what we're doing is we're taking the
24 consequence endpoints that Dr. Peterson is showing. For
25 instance, for flammable gas concentrations, he shows

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1 half the LFL -- half the lower flammability limit and
2 the lower flammability limit. For thermal radiation
3 hazards, he shows a few heat flux contours that
4 expresses the maximum predicted heat flux in terms of
5 kilowatts per meter squared. And for explosion hazards,
6 he shows contours for the blast overpressure in terms of
7 pounds per square inch.

8 **Q. I'd ask you to pause.**

9 MR. KISIELIUS: Could you advance to Page 6,
10 please?

11 BY MR. KISIELIUS:

12 **Q. And while she's doing that, just to clarify, do**
13 **you agree with the contours that are depicted on these**
14 **images in this exhibit?**

15 A. No, I do not. We calculated our own contours,
16 and they do not agree with these. So all this is his
17 contours overlaid on a plot plan showing the location of
18 the three buildings at the jail, three main buildings at
19 the Jail Work Center.

20 **Q. And so if you could just describe now what this**
21 **shows, why that's important, why the locations of the**
22 **building are important.**

23 A. So this shows for a release from the pipeline
24 that runs from the rail unloading area to the tank
25 storage area. You can see the release point that he's

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1 chosen to characterize releases from that pipeline,
2 which is right on the edge of the Jail Work Center,
3 shows the predicted overpressure contours for an
4 explosion resulting from that release. And the
5 predicted overpressure contours are 1/2 pound per square
6 inch, PSI, and one and -- sorry, I'm having a little
7 trouble hearing.

8 THE WITNESS: Your Honor, can I walk over
9 there?

10 MR. KISIELIUS: If it would help --

11 JUDGE NOBLE: I think it might be easier for
12 you to walk over to the one behind you for the council
13 to see. You need to take the mic with you.

14 THE WITNESS: I was going to return to the
15 table.

16 JUDGE NOBLE: Okay.

17 THE WITNESS: I just couldn't read the upper
18 number. It's 3 PSI, so a half of 1 and 3 PSI is what's
19 being shown here.

20 BY MR. KISIELIUS:

21 **Q. So again, assuming -- and I should let you know**
22 **that this exhibit is in Tab 7 of your binder which might**
23 **make it easier for you to read.**

24 A. Yes, a half of 1 and 3 PSI is what's being
25 shown.

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1 So this is showing the maximum predicted
2 overpressure as predicted by Dr. Peterson for releases
3 from the pipeline leading from the rail unloading area
4 to the tank storage area. And again, the releases along
5 that line are being characterized by the single point.
6 And as you can see, the nearest building in this case
7 lies outside of the 1/2 PSI contour.

8 So based on the building type that Dr. Peterson
9 considered, that would indicate that you would not have
10 occupant vulnerability in any of these buildings for
11 this release scenario.

12 **Q. And to be clear, does his report reflect the**
13 **conclusion you just identified?**

14 A. No. So I can only conclude that he's
15 considering somebody outside of a building standing
16 essentially at the fence line.

17 MR. KISIELIUS: Ms. Mastro, if you could
18 return back to Exhibit 118. Thank you.

19 BY MR. KISIELIUS:

20 **Q. I'm going to go through a couple different**
21 **fundamental framework questions and ask you to compare**
22 **your report to that of Dr. Peterson.**

23 So, population. In Paragraph 6, he said he was
24 "looking at risks to human, health and safety for those
25 employed, visiting or incarcerated at the Clark County

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1 Jail Work Center."

2 Did you in your report look at risks to that
3 particular population?

4 A. Yes, we did.

5 **Q. And was your assessment limited to just that**
6 **population?**

7 A. No.

8 **Q. What other populations? I think you've already**
9 **mentioned this, but just by way of summary.**

10 A. Sure. We considered -- for offsite population,
11 we considered all buildings we thought could possibly be
12 at risk, there could possibly be a significant
13 consequence to, we included those along with the
14 populations for those buildings. And then for onsite,
15 obviously all the onsite buildings as well as some of
16 the work group areas.

17 **Q. What about weather? Does weather factor in to**
18 **your analysis, is a fundamental question?**

19 A. Yes, it does.

20 **Q. How did Dr. Peterson consider weather in his**
21 **analysis?**

22 A. He obviously also considers weather in that it
23 controls how a flammable material from a release
24 disperses the size of the flammable cloud. He
25 considered a single weather. We considered four

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1 different weathers.

2 Again, the intent is to try to get the frequency
3 associated with each consequence paired or matched
4 properly. And so since it's not always one weather,
5 using a broad array of weather is more accurate when he
6 portrays what the resulting risk is.

7 **Q. And would the weather conditions that you**
8 **evaluated include those that are worse than what**
9 **Dr. Peterson considered?**

10 A. One of the weathers we considered was worse than
11 that that Dr. Peterson considered.

12 **Q. Okay. How about hazardous scenarios? I want to**
13 **ask you about your respective consideration of different**
14 **events or scenarios.**

15 I think on Page 4 he describes six that he
16 evaluated. Did you look at the same six?

17 A. We looked at 20 some-odd. I believe it was
18 23 different release scenarios that would encompass as
19 well as the six that he considered.

20 **Q. Okay. He evaluated fewer. How does that impact**
21 **his analysis?**

22 A. Again, in terms of evaluating risk, it's
23 important to get the frequency and consequence matched
24 correctly. And by considering fewer releases, you're
25 basically lumping all the frequency for a larger group

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1 onto a single release point. By considering a wider
2 range of releases, you're more properly matching the
3 consequence that you're predicting for each of those
4 releases with the frequency with which they would occur.

5 **Q. Are there any of the six that Dr. Peterson**
6 **evaluated that you did not?**

7 A. We believe that the 20 some-odd, I think it's
8 23 that we analyzed, encompassed what he analyzed.

9 **Q. And why did you pick those 23?**

10 A. That was based on a review of the facility
11 process flow diagram, so common loops of common
12 pressure, temperature and composition, as well as
13 geographic area.

14 **Q. And did you screen any out of your assessment?**

15 A. No. Even though we might expect that some would
16 pose a low risk, we went ahead and put them in and just
17 let the consequence be what it's predicted to be. And
18 the frequency is what it's calculated to be, and that
19 goes into the risk profile. Whether we think it's going
20 to drive the risk profile or make a very small
21 contribution, we just go ahead and include it and let
22 the risk be what it is.

23 **Q. Let's talk for a little bit about some**
24 **assumptions that you used in your model.**

25 **Did you use conservative assumptions? And when**

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1 I say "conservative," I mean tends to overstate the
2 risk?

3 A. Yes. In areas where there's an opportunity to
4 do so, we tend to shade our assumptions a little bit
5 conservatively.

6 **Q. So, for example, what did you assume for**
7 **building construction?**

8 A. We assumed that all buildings were essentially
9 the weakest type of industrial building that we see,
10 which is a modular construction, so that it tends to
11 have a poorer response to blast damage than buildings
12 you'd actually expect to encounter.

13 **Q. What about occupancy of offsite buildings? What**
14 **were your assumptions there?**

15 A. So for the offsite buildings, we took the fire
16 marshal data for max occupancy, so we just assumed that
17 each of those buildings were at their maximum occupancy
18 at the time of the postulated event.

19 **Q. What difference does that make in terms of your**
20 **analysis?**

21 A. That increases the calculated risk by increasing
22 the population that's subjected to a hazard. The more
23 people that are there, the higher level of risk you will
24 calculate.

25 **Q. I'm going to ask you about what you assumed for**

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1 H2S, but if you could just first explain what that is
2 and why it's an issue for a risk assessment.

3 A. Okay. H2S is hydrogen sulfide.

4 Q. I know you've heard the term "sour crude" or
5 "sour gas." That means it's crude or gas that contains
6 hydrogen sulfide. And that's relevant in a study of
7 risk or can be relevant in a study of risk because
8 hydrogen sulfide is a toxic gas. And so when sour gas
9 or sour oil is released, then the vapor cloud that
10 results contains H2S?

11 Q. What assumptions did you make about the presence
12 of hydrogen sulfide in the oil at the facility?

13 A. We did account for that. We assumed a hydrogen
14 sulfide concentration of, I believe, 5,000 PPM. I'd
15 have to double check to be absolutely sure, but it's
16 4,000, 5,000, 6,000, and I believe that we chose 5,000.
17 And we were quite confident that that would bound any
18 actual hydrogen sulfide concentration in a crude.

19 So what we're trying to do is bound the toxic
20 hazard. We expected it to be a very small risk at that
21 level, so that's an area where you could make a
22 conservative assumption without having it, you know,
23 completely distort the risk profile of the facility
24 you're analyzing.

25 Q. And what was your conclusion about that specific

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1 risk?

2 A. The risk to both the -- for the offsite
3 population, it was negligible in terms of risk from
4 toxic exposure. And I believe that was the case for the
5 onsite risk as well.

6 **Q. Okay. Did Dr. Peterson consider that risk of**
7 **H2S?**

8 A. He did consider it, but he didn't analyze it.
9 What his conclusion was, was that the concentration of
10 the H2S and these crude strains would be too low to pose
11 a toxic hazard and, therefore, he didn't analyze it.
12 And, of course, he turned out to be correct. We assumed
13 a relatively high concentration and still calculated a
14 risk that was negligible.

15 **Q. So this is again on an assumption question.**

16 **Dr. Peterson says he used what's called an open**
17 **field approach. Can you tell us what that is -- sorry,**
18 **just what is that?**

19 A. So an open field approach means in terms of
20 analyzing the dispersion from a release, that is the
21 formation of a flammable cloud from a release, one is
22 assuming that the world is perfectly flat and there's
23 nothing on it except the release source and your target
24 of interest. So you're not considering the actual
25 topography of the site; hills, berms, things like that.

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1 Q. And did you also use an open field approach?

2 A. Yes, we did.

3 Q. I think Dr. Peterson also says that he didn't
4 consider mitigation measures. In your experience is it
5 typical to ignore all proposed mitigation measures when
6 conducting a QRA?

7 A. I'm sorry. Would you say again?

8 Q. Sure. Sorry.

9 Dr. Peterson says that he didn't consider
10 mitigation measures when he was conducting his QRA. In
11 your experience is it typical to ignore mitigation
12 measures?

13 A. It's not uncommon. It's kind of the first step
14 to ignore mitigation measures. Depending on what you
15 calculate in terms of risk when you ignore mitigation
16 measures, then you may want to go back in and start
17 crediting systems that are actually going to be in place
18 in order to get a true picture of the risk profile.

19 Q. So are there scenarios for which you did not
20 consider mitigation?

21 A. Sure. We generally didn't consider mitigation
22 either, so things like a rapid emergency shutdown system
23 or gas detector alarms that might tell people to leave
24 the area. For instance, as I said earlier, on the
25 onsite risk profile, which happens to still be up, I

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1 said there was a flash fire hazard in the loading area
2 that was causing the risk to exceed that lower criteria.
3 You could certainly think about taking credit for alarms
4 that would help people to leave very quickly, and then
5 that would decrease the population that was there when
6 the flash fire occurs, and that would certainly result
7 in a decrease in the predicted risk. But we did not
8 take credit for that sort of thing.

9 **Q. We talked a little bit about assumptions. I**
10 **want to switch now to overarching methodology.**

11 **What type of model did you use to conduct your**
12 **QRA?**

13 A. We used our own safe site code to assess
14 consequence and the QRA tool to pair that consequence
15 with event frequencies in order to calculate risk.

16 **Q. And is that a generally accepted tool to assess**
17 **risk?**

18 A. Yes, it is. We've used safe site at over a
19 thousand facilities worldwide for a pretty broad array
20 of industrial clients.

21 **Q. And what type of model did Dr. Peterson use?**

22 A. Dr. Peterson used the PHAST code, P-H-A-S-T,
23 which is also a widely accepted code used in industry.

24 **Q. Are there different versions of PHAST?**

25 A. Yes.

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1 **Q. And are all of them kind of equal to or**
2 **comparable to the tool that you used?**

3 A. There's a couple differences. Probably the most
4 relevant one is the version of safe site that we use,
5 the latest version, represents the mixtures as they
6 actually are. So it uses a multi-component model. It
7 uses the actual composition of the mixture in terms of
8 how that material will act when it's released in terms
9 of its evaporation behavior -- or vaporization behavior.

10 PHAST, the latest version of it, I believe uses
11 a similar model but that's real recent. Earlier
12 versions, at least the base model of PHAST, uses what's
13 called a pseudo-component model for mixtures, which
14 means you represent them all as one component that has
15 its own vapor pressure and other thermodynamic
16 properties. And it tends to give you a much cruder
17 approximation in terms of things like vaporization rate,
18 what happens during the release, size of the vapor cloud
19 that will be formed.

20 **Q. Using that pseudo-component model that you just**
21 **described, what's the bottom line change it would make**
22 **to conclusions?**

23 A. We believe for crude oil that it would lead to a
24 prediction of a longer distance to lower flammability
25 limit and, hence, a higher consequence and risk

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1 associated with flash fires and with vapor cloud
2 explosions and could lead to an increased thermal
3 radiation prediction for pooling jet fires.

4 **Q. So would that -- do you know whether**
5 **Dr. Peterson used the pseudo-component version of PHAST**
6 **or the more recent multi-component version?**

7 A. I do not. The information provided in his
8 report doesn't allow me to make that conclusion.

9 Looking at some of the distances to a lower
10 flammability limit, that would be one explanation for
11 why his are a bit longer, considerably longer.
12 Obviously other things, like the assuming a source
13 pressure of 120 PSI instead of the 80 PSI, assuming that
14 underground pipes are at 2 meters high also could
15 contribute.

16 So it's the -- I believe those differences are
17 due to several factors that stack up, but the use of a
18 pseudo-component model would certainly go a long way to
19 explaining those differences.

20 **Q. Were there any other differences in your**
21 **approach to using each model? And I want to focus here**
22 **on the vapor cloud explosion modeling approach that**
23 **Dr. Peterson used.**

24 A. Sure. The model within PHAST they use is the
25 TNO multi-interview method. TNO is an acronym for a

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1 research establishment in the Netherlands.

2 So the TNO multi-energy method for vapor cloud
3 explosion last load is what he used within PHAST. We
4 used the Baker-Strehlow-Tang, or BST, vapor cloud
5 explosion blast load prediction method.

6 Both methods are widely used and accepted in
7 industry. There's nothing wrong with the TNO
8 multi-energy method.

9 There are differences in how we applied those
10 two models, though, in terms of, in our case, taking
11 account of the actual congestion and confinement, that
12 is the thing that drives the vapor cloud explosion
13 that's present on the site. And he appears to have used
14 some rough approximations, and using the TNO
15 multi-energy method, again, which would be consistent
16 with a scoping or a screening site.

17 **Q. I want to ask you about Page 20 of his report.**
18 **He talks about four of his scenarios having two-phase**
19 **releases.**

20 **Are you familiar with that aspect of his report?**

21 A. Yes, I am.

22 **Q. What is a two-phase release and why does it**
23 **matter?**

24 A. So a two-phase release in this case implies that
25 the liquid that's coming out of a hole or a flange break

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1 that's being released from the pipe is rapidly flashing,
2 so the two phases are the liquid and the vapor. You can
3 think that that would occur, for instance, if you took
4 water and you took it above its boiling point but you
5 had it at pressure so it would stay a liquid, that if
6 you suddenly opened a valve to that line, then the
7 material coming out is rapidly flashing. What you'd see
8 is steam and water droplets and this. That would be a
9 two-phase release.

10 **Q. Would use of the safe site model treat that**
11 **scenario differently that you described?**

12 A. It does in fact treat that differently. The use
13 of the multi-component model that I referred to earlier
14 leads to a prediction that if you take liquid crude oil
15 at 80 PSI and release it, that what you have is liquid
16 crude oil coming out. You'll obviously get a
17 vaporization from the crude that comes out, the light
18 ends will begin to come out. But that's a
19 time-dependent process.

20 **Q. How about consequence? How did Dr. Peterson**
21 **determine the consequence of the six scenarios that he**
22 **evaluated?**

23 A. So he used relationships between blast
24 overpressure and thermal radiation exposure to occupant
25 vulnerability. So for level of X PSI, you get a level

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1 of Y vulnerability to somebody in a building. And
2 similarly, for a level of X kilowatts per meter squared
3 on that building, you get a vulnerability of Y.

4 **Q. Is that the approach that you took?**

5 A. We also used occupant vulnerability
6 relationships for both overpressure and thermal
7 radiation exposure of the flash fire. The relationships
8 themselves are different. For instance, for exposure to
9 thermal radiation from a jet fire to a person outside of
10 a building, Dr. Peterson assumed that the receptor, or
11 the person standing there, would stay in that location
12 for 90 seconds or a minute and a half, and then would be
13 removed from that hazard.

14 What we assume is that when that hazard appears,
15 that that person will begin to immediately leave the
16 area, and will do so at 3 meters a second, that's like
17 10 feet a second, so cover a football field in
18 30 seconds; that if there's a big fire that suddenly
19 appears, that a person will turn and move away from it
20 and do so relatively quickly. Again, a football field
21 in 30 seconds isn't exactly sprinting for most of us,
22 but it is moving quickly.

23 But we think that reflects what people will
24 actually do, that if a fire suddenly appeared in front
25 of you and the thermal radiation was enough that it

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1 would cause an injury, that you would immediately turn
2 and begin to move away pretty quickly. Whereas, what
3 Dr. Peterson has represented is the person would stand
4 there for a minute and a half and then would be removed
5 from the hazard. So we just believe that the way we do
6 that calculation is a little more accurate and
7 representative of what people actually do.

8 **Q. Focusing on the Jail Work Center, what about the**
9 **population within that vicinity that might not be able**
10 **to move or evacuate?**

11 A. So for the jail buildings, we evaluated
12 basically the heat-up of the building, the temperature
13 rise in the building to assess the vulnerability of
14 occupants inside those buildings. And we assumed the
15 fire could go on for an hour without decreasing its
16 magnitude, but then after an hour, the fire would be put
17 out. So we looked at what would happen to a person in
18 that type of building for an hour exposure to that
19 specified thermal radiation hazard.

20 **Q. Let's talk about probability now and focus on,**
21 **by way of example, the ignition of a vapor cloud.**

22 **How did Dr. Peterson assess the probability of**
23 **that particular event? Did he make a -- did he model**
24 **those or did he make generalized assumptions?**

25 A. So Dr. Peterson used an accepted industry model.

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1 Ours is a little more sophisticated and reflects more
2 current technical thinking. But the model he used is
3 broadly accepted for calculating the probability of
4 ignition. It's based on the basically mass flow rate of
5 material leaving the hole is what determines the
6 ignition probability.

7 However, for determining, for instance, whether
8 something would be a flash fire or a vapor cloud
9 explosion, that is, given that a flammable cloud is
10 created, is it going to simply burn away as a flash fire
11 or is it going to produce a vapor cloud explosion blast
12 loads?

13 He assumes a distribution that X percent of the
14 time it will be a flash fire and 100 minus X percent of
15 the time it will be a vapor cloud explosion. And that's
16 not actually how the world works.

17 If you create a vapor cloud and there's not
18 congestion and confinement that the vapor cloud
19 encounters, like piping and support columns and things
20 that can induce turbulence, if it's just out in the
21 open, then it's a flash fire.

22 If, instead, you take that vapor cloud and you
23 direct it to an area that has congestion and all of the
24 vapor cloud is occupying that congestion, then all you
25 get is a vapor cloud explosion.

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1 And then in the middle, part of the vapor cloud
2 in a congested area and part of the vapor cloud is in
3 the open, and the part that's in the open burns as a
4 flash fire and the part that's in the congested explodes
5 and produces vapor cloud explosion blast loads.

6 So the way we assess that is we map out where
7 the congestion and confinement is, and if the cloud is
8 encountering that congestion and confinement, it causes
9 the vapor cloud explosion. And where congestion and
10 confinement is not present, then it's a flash fire.

11 So we're not predetermining which of these it
12 will be. It will be what it is based on the conditions
13 actually present at the plant.

14 **Q. I understand how you modeled it. Can you**
15 **compare that to what Dr. Peterson did on the same topic?**
16 **And explain what that does to his conclusions.**

17 A. And that means that maybe I hurried through it,
18 and I apologize if that's the case.

19 Dr. Peterson assumes a split fraction between
20 vapor cloud explosions and flash fires. So again, the
21 X percent will be flash fires and Y percent would be
22 vapor cloud explosions. And, of course, what that can
23 lead you to do is to overpredict the risk associated
24 with one of the other applied, assuming that they're
25 occurring when they're not.

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1 Q. Let's talk about event trees. Is that a tool
2 that you used for probability purposes?

3 A. Yes.

4 Q. And did both you and Dr. Peterson use event
5 trees?

6 A. Yes, we did.

7 Q. Did you get to assess his use of an event tree?

8 A. We did look at the way his was structured.

9 Q. And how, for example, does Dr. Peterson treat a
10 potential fatality from a jet fire or pool fire? And if
11 you can explain how it's different than what you did.

12 A. It is hard for me to speak, again, with
13 certainty to Dr. Peterson's analysis because what's
14 provided in the report is --

15 (Court reporter interruption.)

16 JUDGE NOBLE: The court reporter did not
17 hear you.

18 THE WITNESS: I think that's because I
19 didn't say anything. I was searching for the right
20 word, and now I don't know what I was going to say.

21 In any case, it's hard for me to speak with
22 certainty because what's described in his report is a
23 relatively high level, without getting into enough
24 detail for me to be certain. But it appears that in
25 some of the portions of the event tree, that you could

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1 be double counting a fatality, that is, that you could
2 be crediting -- or crediting is not the right word,
3 obviously -- penalizing yourself or causing a fatality
4 by a jet fire and in the same event saying that you
5 caused a fatality by a vapor cloud explosion or a flash
6 fire.

7 And obviously, for a single release, for a
8 single receptor, you can only cause a fatality once.
9 You can't to a single receptor cause a fatality by
10 multiple loads. So we account for that in the way we
11 structure our calculation.

12 Q. I want to ask you a question about the standard
13 that he used to evaluate risk. And maybe I'll start by
14 asking these FN curves that you described and the U.K.
15 Health and Safety Executive that you described earlier.

16 Did Dr. Peterson use that general framework as
17 well?

18 A. Yes, he did.

19 Q. Okay. He suggests that what he calls the
20 "broadly acceptable" standard for risk to offsite
21 centers like the jail center is 10 to the negative 6th,
22 not 10 to the negative 5th or 10 to the negative 4th.

23 Do you agree with that?

24 A. Not in an absolute sense, no. If you could go
25 either up a page or down a page in that document. So I

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1 guess it was down a page. I'm sorry.

2 **Q. Page 6, please.**

3 A. Yes. So you can see at one fatality, the two
4 risk criteria that are shown there would correspond to
5 frequencies of 10 to the minus 4 on the red and 10 to
6 the minus 6 from the green.

7 So risk above 10 to the minus 6 for offsite
8 populations can be tolerated. It depends on the
9 importance of the facility, as well as whether there are
10 practical and cost effective measures that you can take
11 to drive the risks down further.

12 So to say in an absolute sense that a risk of
13 either the minus 6 for a single fatality for an offsite
14 population is -- anything above that is unacceptable, I
15 wouldn't agree with. I would say that you have to -- if
16 you're in that either the minus 6 to the minus 4 range,
17 you need to consider options that you have in terms of
18 prevention and mitigation and whether those are
19 practical and whether they're cost effective. And if
20 they are, it tends to drive the risk down.

21 And obviously, from a public standpoint, if
22 you're still above either the minus 6 after you've done
23 what's practical and what's cost effective to drive the
24 risk down, it's a question of the relative importance of
25 that facility, whether that's an acceptable position or

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1 not.

2 Q. In your assessment, did the risk to any offsite
3 population reach the level of anything higher than, I
4 think you called it E to the negative 6. I think he
5 calls it 10 to the negative 6.

6 A. And I apologize, those mean the same thing.
7 Just engineering vernacular or math vernacular.

8 Q. Can you put that into sort of a return rate on
9 probability?

10 A. So E to the minus 6 is one in a million years.

11 Q. Okay. And so that's the threshold that he
12 identified. I understand your opinion on that.

13 But did any of the risks to the offsite
14 populations that you evaluated approach anything close
15 to that?

16 A. No. As shown by this plot though, the offsite
17 risk profile of this facility is quite a bit below that.

18 Q. Let's turn to that. I guess I want to talk a
19 little bit about why you and Dr. Peterson reached such
20 different conclusions about the risk to the facility.
21 To get there I want to ask you a question about the tool
22 he used.

23 He talks about location-specific individual
24 risk, LSIR. What is that?

25 A. That can also be termed geographic risk. It's

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1 the risk to an individual that's standing at a specific
2 location 24 hours a day, 7 days a week, 52 weeks a year.
3 They don't leave that location. What's the risk to that
4 individual?

5 **Q. And did you look at that?**

6 A. Yes, we did.

7 MR. KISIELIUS: Ms. Mastro, could you please
8 pull up Exhibit 265?

9 BY MR. KISIELIUS:

10 **Q. Can you describe what we're looking at here?**

11 A. Yes. So this is the plot of the geographic or
12 location-specific individual risk or geographic risk for
13 the facility. As you can see, that risk tends to be
14 concentrated around the loading area and a portion of
15 the aboveground pipe leaving that area as well as back
16 in the tank storage area. I'm going to refer to my
17 notebook so I can read the numbers.

18 **Q. The specific exhibit is Tab 7 in your notebook.**

19 **Excuse me, Tab 6.**

20 A. So the risk contours shown there are 180 to the
21 minus 8th is the lowest one, which I believe is in blue.
22 That would be the outer risk contours, the E to the
23 minus 8th contours. You can see that's restricted to
24 the areas that are onsite and in the vicinity of the
25 tank operations and the loading operations.

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1 Q. And then just to be clear, did you use any other
2 metrics to assess risk beyond this geographic risk
3 contour?

4 A. Yes. As we've talked about in some detail
5 already, we used FN curves or frequency -- hazard and
6 frequency consequence curves, which is the way we
7 normally think about risk. And we also looked at
8 building, a specific risk, so the risk to a population
9 in a specific building.

10 Q. I'd asked you the question earlier about whether
11 any of -- risks to any of the offsite populations
12 approached that standard. I want to ask you to focus on
13 the population that Dr. Peterson's analysis was
14 addressing, which is the risks to the Jail Work Center.

15 Can you describe what the biggest risk or the
16 highest risk was to the Jail Work Center in your
17 assessment?

18 A. Yes, but I'm going to need to refer to the
19 report. I don't have that number in my head.

20 Q. Sure. I believe that is Tab 4 in your notebook.
21 And if you find the page number, if you'd like to call
22 that up, I'll let Ms. Mastro know. And that will be
23 Exhibit 118 again.

24 A. Page 8. So one of the county jail buildings,
25 Building 3, is the fourth row on that table. And the

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1 explosion hazard -- sorry, the major hazard or the major
2 risk, rather, to that building is due to vapor cloud
3 explosions. And the number that we assessed is 1.2E to
4 the minus 11th fatalities per year or less than one in a
5 billion.

6 **Q. So how do you explain, we talked a lot about the**
7 **differences between reports, but how do you explain why**
8 **the risk that he's identified to this specific**
9 **population is so much higher than your assessment?**

10 A. I can't answer that question with certainty
11 because we don't have all the details of his analysis,
12 but it appears to be the coupling of a number of
13 factors; the use of kind of approximate process
14 conditions in terms of pressure, again, there's a
15 50 percent difference; the assumption that the pipelines
16 that bordered the JWC are elevated instead of buried;
17 the use, apparently, of, we think, of a pseudo-component
18 model instead of a multi-component model, all contribute
19 to increasing the calculated consequence associated with
20 releases, then what appears to be taking the
21 consequences for release among that pipeline and
22 situating it at one location right on the border of the
23 jail as opposed to distributed along the pipeline causes
24 an increase. And then we also believe that the
25 underlying frequency of releases per unit pipeline,

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1 relying on offshore facility data overestimated
2 frequency.

3 So it's the combination of, we believe,
4 overestimating the frequency of events, tying those
5 events to locations right at the boundary of the jail,
6 and then representing the lines as elevated and using
7 preliminary process information; and then describing the
8 release in terms of a pseudo-component model, we think
9 all combined together to overstate the risk
10 significantly.

11 **Q. So just to be clear, which of the two reports,**
12 **we're talking about yours and Dr. Peterson's, which of**
13 **those two reports in your opinion is more thorough and**
14 **accurate?**

15 A. Well, I of course think that our report is more
16 thorough and accurate.

17 **Q. And do you still feel that your assessment is**
18 **conservative, and again I mean there tends to overstate**
19 **the risk?**

20 A. Yes, I do. We've made a number of simplified
21 assumptions where we thought it wouldn't completely
22 distort the risk picture, like the assumption of weak
23 buildings, not crediting mitigation and prevention, we
24 talked about the flash fires at the loading area, things
25 like that, are still conservatism in our study.

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1 Q. Let's change focus a little bit and talk about
2 the electric substation. Dr. Peterson talks a bit about
3 plans for an electric substation.

4 Are you familiar with the substation and
5 Dr. Peterson's testimony about that?

6 A. Yes, I am.

7 Q. And did you in your report consider the electric
8 substation?

9 A. No, we did not.

10 Q. And why is that?

11 A. We were not aware of it when we did the
12 analysis.

13 Q. Is it there currently?

14 A. We did go back and --

15 Q. I mean, excuse me. Is the actual physical
16 substation built yet?

17 A. Not that I'm aware of.

18 Q. Okay. So he says on Page 10 that the "inclusion
19 of this type of electrical equipment significantly
20 increases the probability of ignition of flammable
21 releases."

22 Do you agree?

23 A. We think it can increase the probability of
24 ignition.

25 Q. Do you think it would significantly increase?

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1 A. Well, the more relevant issue is what it does to
2 the risk. And we've gone into our study and said, okay,
3 let's assume that it sets off a cloud every time it gets
4 there. What happens to the risk? And we calculated you
5 go up by about a factor of 2. But if we look at the FN
6 curves again, I assume we don't have to bring them up,
7 but if we multiply these numbers by a factor of 2,
8 they're still orders of magnitude below what risk is
9 tolerable.

10 So it can increase the ignition probability. We
11 don't think it would be a huge increase, but we've
12 looked at it as if it was and determined that it doesn't
13 increase the risk anywhere near any of the risk
14 tolerance criteria.

15 **Q. So just to be clear, if you were to take that**
16 **into consideration with that -- the substation, that is,**
17 **and considering it as a potential ignition source, would**
18 **that change your underlying conclusions at all?**

19 A. No, they would not.

20 **Q. Are you familiar with the industry guidelines**
21 **for siting and layout to which Dr. Peterson refers in**
22 **his testimony?**

23 A. Yes, I am.

24 **Q. And what are they?**

25 A. So they're kind of a starting point on laying

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1 out a facility in terms of guidelines and separation
2 between various pieces and parts of the facility.

3 **Q. And do they speak to the substation issue?**

4 A. Not directly with regards to pipelines, no.

5 **Q. Okay. Do those guidelines replace your more**
6 **detailed QRA or your more detailed assessment of the**
7 **risk?**

8 A. No, they don't. In fact, the guidelines
9 themselves identify a starting point for facility
10 layout. A more detailed QRA obviously can give you a
11 direct answer in terms of the impact of any portion of
12 the facility, how you sited it and how you've laid it
13 out, and what the impact of a different facility layout
14 would be.

15 **Q. And you've looked at those and considered those**
16 **guidelines. Do they change any of your conclusions or**
17 **your assessment?**

18 A. No, they do not.

19 **Q. Let's turn to the prefiled testimony of Susan**
20 **Harvey. Are you familiar with that testimony?**

21 A. Yes, I am.

22 **Q. She indicates that you had not thought about**
23 **earthquakes in your QRA. Well, is that accurate?**

24 A. We did not consider earthquakes in the QRA. We
25 did not account for them.

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1 Q. And in your experience, do QRAs assess risks of
2 earthquakes?

3 A. Not in my experience.

4 Q. Did Dr. Peterson assess the risk of an
5 earthquake in his QRA?

6 A. No, he did not.

7 Q. Let's talk more generally.

8 When conducting QRAs, do you tend to take into
9 consideration things like extreme weather conditions,
10 earthquakes, hurricanes?

11 A. No. Large-scale natural phenomena hazards we
12 don't explicitly account for in QRA. A facility is
13 built to a certain design basis event that is governed
14 by national and local codes and, therefore, will survive
15 the design basis event. There can be events that are
16 beyond that design basis, but for large-scale natural
17 phenomena hazards like a hurricane or a seismic event,
18 the event that's beyond design basis for that facility
19 is going to be beyond design basis for everything, which
20 means that the entire region is going to be severely
21 impacted by that natural phenomena hazard.

22 And what happens with respect to the facility
23 that we're performing the QRA on no longer dominates the
24 risk profile for people in that region. The risk
25 profile for people in that region is going to be

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1 dominated directly by that natural phenomenon hazard,
2 whether it's an earthquake that's beyond design basis or
3 a hurricane that's beyond design basis or similar type
4 of events.

5 Q. And is the framework that you've just
6 identified, is that common industry practice when
7 completing a QRA?

8 A. Yes, it is.

9 Q. Just a few more questions for you.

10 I want to turn to a different prefiled
11 testimony, though, that of Blackburn. Have you reviewed
12 his testimony?

13 A. Yes, I have.

14 MR. KISIELIUS: And, Ms. Mastro, if you
15 could pull up Exhibit 3121. And I apologize, that was
16 not on the list that I gave you.

17 BY MR. KISIELIUS:

18 Q. While she's pulling that up, I'll read you the
19 quote.

20 The Exhibit 3121 is talking about costs of
21 damage, and the quote that I'd like to read to you
22 starts, "While one billion is more than sufficient to
23 cover losses from routine TIH-related incidents, it is
24 well short of the 5 to 6 billion that Class 1 railroads
25 estimate would be necessary in a nightmare scenario,

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1 e.g., an accidental release of TIH gas in close
2 proximity to a large number of people."

3 So I'm going to ask you a couple questions about
4 that, but let's start with the basics.

5 What is TIH? What does that stand for?

6 A. Stands for toxic inhalation hazard.

7 **Q. And what is TIH gas?**

8 A. TIH material is something that is volatile, will
9 rapidly vaporize if it's a liquid or it's already gas,
10 either way, and it has significant toxic hazard if
11 you're exposed to it, as a TIH hazard.

12 **Q. Is crude oil a TIH?**

13 A. No, it's not. Typical examples of kind of
14 worst-case TIH materials would be things like ammonia
15 and chlorine are normally the ones that are kind of the
16 poster children for very hazardous TIH materials.

17 **Q. Based on your professional expertise, are you**
18 **generally familiar with the consequences of accidental**
19 **release of TIH gas in close proximity to people?**

20 A. Yes. We specifically evaluated, for instance,
21 the examples I gave, chlorine and ammonia as part of
22 facilities siting studies and QRAs for chemical
23 facilities which handle those materials.

24 **Q. Can you generally describe what those**
25 **consequences might involve?**

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1 A. Sure. For a large scale or significant release
2 of chlorine or ammonia, the material rapidly vaporizes
3 and, as a result, you can tend to get a fairly
4 significant vapor cloud. And that can pose a toxic
5 inhalation hazard to personnel that aren't real near the
6 release point, that, you know, are a fair distance away
7 from the release point can still be impacted by those
8 types of scenarios.

9 **Q. Would the harm to humans resulting from the**
10 **accidental release of crude oil compare to an accidental**
11 **release of a TIH gas?**

12 A. No. And the report that Mr. Blackburn referred
13 to, a Department of Transportation report, it actually
14 specifically identifies that the kind of nightmare
15 scenario that is being considered, that he is referring,
16 are -- were things like chlorine and ammonia. In fact,
17 it specifically gives the example of, I believe it's
18 butadiene, as being a volatile toxic material but not of
19 the sort capable of causing that nightmare scenario.
20 And butadiene is both more volatile and more toxic than
21 light crude oil.

22 **Q. Okay. I'm going to ask you a couple of**
23 **summarizing questions.**

24 **Can you put the overall risk of this facility**
25 **into a broader context? In other words, how does the**

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1 facility risk compare, for example, to a chemical
2 processing facility or refinery?

3 A. Well, as you would intuitively expect, a
4 refinery has many, many more feet of piping, many, many
5 more valves, many, many vessels and tanks than this
6 facility does. The same for a chemical plant.

7 So without accounting for any prevention or
8 mitigation systems, the risk associated with a refinery
9 or a chemical plant is obviously going to be larger than
10 for this type of facility. Now, to be clear, refineries
11 and chemical plants spend a lot of money on process
12 safety management and mechanical integrity and
13 inspection and worker training to drive the risk down
14 into the region that is tolerable on the type of codes I
15 showed you. But that takes big investments.

16 This facility is kind of there from the get-go
17 due to the comparative simplicity; that is, compared to
18 a refinery or a large chemical plant, it's very simple
19 and, as a result, the risk is lower.

20 **Q. And in summary, did you read or hear anything in**
21 **testimony presented by the intervenors that makes you**
22 **question your conclusion that the potential risks of**
23 **this facility are within typical industry risk criteria?**

24 A. No, I did not.

25 MR. KISIELIUS: I have no further questions

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1 of this witness.

2 JUDGE NOBLE: This is a good time to take a
3 break. We will be in recess for ten minutes. Thank
4 you.

5 (Recess taken from 11:00 a.m. to 11:08 a.m.)

6 JUDGE NOBLE: We're ready to go back on the
7 record.

8 Cross-examination, Mr. Hallvik.

9 MR. HALLVIK: Thank you, Judge Noble.

10

11

CROSS-EXAMINATION

12 BY MR. HALLVIK:

13 Q. Mr. Thomas, my name is Taylor Hallvik and I
14 represent Clark County. And I just have a couple
15 questions for you. Thanks for your testimony.

16 Mr. Thomas, isn't it true that you didn't
17 evaluate the risk associated with the worst-case loss of
18 containment?

19 A. I'm not positive what you mean by that. We
20 considered releases of various sizes.

21 Q. What was the largest size?

22 A. I believe our upper end would be a 6-inch hole
23 in a pipe.

24 Q. Okay. So would that include a total loss of
25 containment from any of the storage tanks?

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1 A. Not directly, but it would allow a storage tank
2 to drain completely.

3 Q. Okay. When evaluating -- I think you testified
4 to this on direct, but when evaluating the risks
5 presented by the proposed terminal to the Jail Work
6 Center, isn't it important to take into account the
7 population, the number of the people in the Jail Work
8 Center?

9 A. We did -- yes, would be my answer.

10 Q. Okay. Do you know how many inmates and workers
11 are at the Jail Work Center?

12 A. I'd have to go back and into the analysis to
13 look at the population that we assumed. I think we had
14 it at max population, each of the buildings at max
15 population.

16 Q. But you don't know what that is?

17 A. Not offhand. No, sir.

18 Q. Okay. Is this information detailed anywhere in
19 your report?

20 A. I think it would be detailed in the appendices
21 to the report.

22 Q. Would that be critical information; correct?

23 A. It would be input information like any of the
24 other input information.

25 Q. When evaluating the risks of fire or explosion

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1 to a population, isn't it important to know whether a
2 population is located indoors or outdoors?

3 A. It's relevant to consider both.

4 Q. Okay. I'd like to go to Exhibit 118, Page 33.
5 I believe this is your report where you note indoor and
6 outdoor population areas.

7 If I can ask you preliminarily, did you consider
8 the Jail Work Center to be an indoor or an outdoor
9 population area?

10 A. We considered the indoor population of the
11 buildings, then also did the geographic risk contours
12 that were displayed earlier.

13 Q. Okay. Are you aware that Jail Work Center
14 inmate staff and visitors are frequently and routinely
15 outdoors on the Jail Work Center property?

16 A. I'm not aware of that personally, no, but it
17 makes sense that they could be.

18 Q. Okay. Would you agree that accounting for the
19 outdoor activity and routine outdoor activity on the
20 Jail Work Center property would increase the predicted
21 risks to the Jail Work Center population?

22 A. It could change it, yes.

23 Q. Thank you.

24 Isn't it true that you did not account for the
25 potential expansion of the Jail Work Center beyond the

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1 current three buildings that exist on the property?

2 A. It would certainly be true that we didn't model
3 buildings beyond that.

4 Q. And isn't it true that if buildings were modeled
5 beyond that, if there were -- expansion was taken into
6 account and the buildings were closer to the terminal
7 infrastructure, that that would increase the predicted
8 risk to those populations?

9 A. If you added additional people into additional
10 buildings and put those buildings closer to the
11 pipelines in the current buildings, then you could
12 predict a higher level of risk.

13 Q. Okay. Did you do any inquiry in your analysis
14 as to whether that was likely or possible?

15 A. I did not.

16 Q. I'd like to go to Exhibit 118, Page 51, please.
17 Excuse me, this is going to be Page 35. I'd like to
18 refer to Table 7 at this point at the bottom of this
19 page. And this I think relates to some of your direct
20 testimony about the vulnerability for flash fires.

21 Can you tell me with respect to this table what
22 "non-escape probability" means?

23 A. Yes. It's the conditional probability that
24 somebody in that condition will not escape.

25 Q. Okay. Is that the same as death, for purposes

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1 of your analysis?

2 A. No.

3 **Q. Okay. What does "LFL" mean?**

4 A. Lower flammability limit.

5 **Q. And for this range, I want to refer to Row**
6 **Number 1, 1/2 LFL to LFL. And it has 50 percent**
7 **vulnerability and 25 percent non-escape probability.**

8 **Can you tell me how those two numbers relate?**

9 A. Yes. So this is for a person that is outside
10 the flammable cloud but still within half the lower
11 flammability limit. So they're not in an area that we
12 would anticipate the flame would be propagating through
13 but they're close. And our assumption is that there's a
14 25 percent chance that they won't evacuate prior to
15 ignition, and if they're there when it ignites, that
16 they have a 50 percent chance of dying from thermal
17 radiation exposure.

18 **Q. Assuming that just in this case, for instance,**
19 **that eight people were exposed to a flash fire in this**
20 **range of the LFL to 1/2 LFL, wouldn't this mean that**
21 **there would be one expected fatality if there were just**
22 **eight people exposed?**

23 A. If they were eight people situated outside of
24 the flammable cloud but still within 1/2 of the lower
25 flammability limit, then this would say 1/8 of that

HALLVIK / THOMAS

1 population would perish as a result of that exposure.

2 **Q. That's a yes then, there would be one expected**
3 **fatality in that situation?**

4 A. I apologize. I was trying to answer your
5 question, and you're telling me that I didn't, so would
6 you ask me it again?

7 **Q. Oh, yeah. Assuming that eight people were**
8 **exposed to a flash fire at the 1/2 LFL to LFL level,**
9 **wouldn't that mean that there would be one expected**
10 **fatality?**

11 A. Yes, sir.

12 **Q. Okay. And isn't it true that a full-bore**
13 **release scenario, under your analysis, much of the Jail**
14 **Work Center property, including many of the buildings,**
15 **fall within the LFL to 1/2 LFL range?**

16 A. It depends on the release point that's
17 considered, and we considered release points all along
18 the pipeline.

19 **Q. Okay. I'd like to look at Page 42 of your**
20 **Exhibit 118. Figure 15, please.**

21 **Dr. Thomas, doesn't this Figure 15 depict the**
22 **1/2 LFL to LFL range?**

23 A. The figure specifically depicts the contours for
24 the upper flammability limit, the lower flammability
25 limit, and 1/2 the lower flammability limit for all the

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1 releases considered.

2 Q. Okay. Is that the vulnerability and non-escape
3 probability rate to which this would apply?

4 A. I'm sorry. I don't --

5 Q. Did you calculate the vulnerability and
6 non-escape probability with respect to these distances,
7 the 1/2 LFL, the LFL?

8 A. Yes. For these releases, certainly.

9 Q. Okay. And what were those?

10 A. What were what?

11 Q. What were those -- what was that non-escape
12 probability?

13 A. So we've already looked at the table, how
14 that's calculated --

15 (Court Reporter interruption.)

16 BY MR. HALLVIK:

17 Q. That's the table that would relate to this
18 figure?

19 A. Yes, coupled, again, with the frequency with
20 which those releases would occur in order to say what
21 the actual risk that results is.

22 Q. So the question I asked earlier, again, given
23 this figure, isn't it true that the full-bore release
24 scenario, much of the Jail Work Center property falls
25 within the 1/2 LFL to LFL range?

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1 A. Some of it certainly does.

2 Q. I'd like to go back to Page 35 of Exhibit 118.
3 That's back to Table 7. And the column furthest to the
4 right, first row, indicates that "People in areas
5 between LFL and 1/2 LFL are less likely to be impacted
6 and more likely to escape the area."

7 When calculating this escape probability, did
8 you take into account the limited opportunities for jail
9 inmates to escape their confinement?

10 A. For people inside buildings, we assume they stay
11 put. For people outside buildings, we assume they're
12 trying to move away.

13 Q. Okay. And I think you testified to that on your
14 direct, that you assumed, unlike Dr. Peterson, that
15 individuals or inmates at the Clark County Jail Work
16 Center would escape at a rate of 3 meters per second; is
17 that correct?

18 A. All individuals, not just those at the --

19 Q. But including those --

20 A. Including those, correct.

21 Q. And do you have any, I guess, factual basis to
22 support whether that's possible in a correctional
23 facility?

24 A. I do not have a specific report or analysis or
25 test program to point at, no.

HALLVIK / THOMAS

1 Q. Okay. Thank you.

2 I'll get to some of the remarks, your testimony
3 earlier regarding Dr. Peterson's analysis.

4 Isn't it possible that Dr. Peterson, when he
5 referenced his analysis as preliminary or concept level,
6 that he was referring to his reliance upon the
7 applicant's first application and anticipated that it
8 might change as it did?

9 A. I do not know the answer to that question.

10 Q. So would you be speculating in determining what
11 Dr. Peterson meant by preliminary or concept level?

12 A. I would say that what he's implying is that the
13 data is conceptual or preliminary. Which data set he
14 used and why, I can't answer that question.

15 Q. Did you rely upon the initial application or
16 some later information?

17 A. As stated earlier, we relied on the facility and
18 unit level plot plans and process flow diagrams and
19 material balances that we were told were representative
20 of how the actual facility will be built and operated.

21 Q. Do you know when you received that information?

22 A. I would have to go back into our records and
23 look. I certainly can't answer that question as I sit
24 here.

25 Q. Was it after the publication of the applicant's

HALLVIK / THOMAS

1 application?

2 A. I would have to go back into our records to
3 answer that question. I can't give you that information
4 as I sit here.

5 Q. What document did you review that showed that
6 pipelines along the Jail Work Center property would be
7 buried?

8 A. I believe that was shown on the unit level plot
9 plans as well as the piping layout diagrams.

10 Q. And what document was that? In what
11 application, the DEIS or anything you can direct me to?
12 Were these provided to you by Tesoro Savage?

13 A. Yes, sir.

14 Q. And with respect to those buried pipelines, I
15 think you addressed it on your direct testimony, you
16 didn't evaluate any environmental risks that might be
17 associated with that, did you?

18 A. No, sir. The limit of our analysis was risk to
19 people.

20 Q. I'd like to refer to Page 6, Exhibit 118. I
21 think I'm looking for the FN curves. Maybe it's Page 7;
22 let's go with that one right there. Actually, the one
23 right before that.

24 JUDGE NOBLE: Mr. Hallvik, just for the
25 record, if you would just say what you're looking at.

HALLVIK / THOMAS

1 MR. HALLVIK: Yes, I will. This is
2 Exhibit 118, and I believe it's Page 5 of Exhibit 118.
3 And we're looking at the FN curves for onsite fixed --
4 onsite.

5 BY MR. HALLVIK:

6 **Q. Dr. Peterson {sic}, can you explain to me why on**
7 **the onsite does the graph not reach a single fatality at**
8 **any point when offsite there are more than one fatality?**

9 A. So it has to do with the populations considered,
10 number of people.

11 **Q. Okay. The next question, I think this should be**
12 **close to -- these questions relate to the electrical**
13 **substation.**

14 I think you testified on direct that you didn't
15 consider the substation, is that correct, in your
16 analysis?

17 A. That's correct. In our report it's not
18 reflected.

19 **Q. Okay. Wasn't it depicted on maps of the site**
20 **plan?**

21 A. I apologize. I don't know the answer to that
22 question.

23 **Q. Do you know where it's located?**

24 A. I've seen a drawing with it now, yes.

25 **Q. And your testimony was that that would increase**

KISIELIUS / THOMAS

1 the probability of ignition, assuming that there was a
2 release in that area; is that correct?

3 A. It contacted that area, yes, sir.

4 Q. Okay. And would you agree with Dr. Peterson's
5 testimony that increasing the distance between the
6 proposed electrical substation and the proposed oil
7 terminal infrastructure that surrounds it or is proposed
8 to surround it would decrease the risk to offsite
9 populations?

10 A. Yes, it could reduce the ignition probability.
11 That would decrease the risk. But whether that risk
12 needs to be decreased relative to accepted risk
13 tolerance criteria is a separate question.

14 MR. HALLVIK: I don't have any other
15 questions. Thank you.

16 JUDGE NOBLE: I didn't even notice you had
17 sat down, Mr. Hallvik.

18 Is there other cross-examination? Redirect?
19

REDIRECT EXAMINATION

20 BY MR. KISIELIUS:

21 Q. I have just a couple of quick questions for you,
22 Dr. Thomas.
23

24 Mr. Hallvik asked you about an image figure, I
25 believe it was 15, the image that depicted the contours

KISIELIUS / THOMAS

1 of the composite flammability contours.

2 MR. KISIELIUS: Ms. Mastro, that's on
3 Page 44.

4 BY MR. KISIELIUS:

5 Q. While Ms. Mastro is pulling that up, 44, please,
6 can you tell us just generally how -- you had earlier
7 described sort of two components of your analysis,
8 probability and consequence.

9 Can you tell us whether this Figure 15 depicts
10 how that fits into your calculation of those two images?

11 A. Sure. So this is part of the consequence
12 answer. Given that releases occur up until -- full-bore
13 releases occur up to 6 inches, what would be the extent
14 of the flammable clouds, which is a step in the
15 consequence assessment. You also obviously have to
16 assess what happens if those clouds are ignited.

17 It doesn't go to risk, which is the probability
18 that those releases occur and the probability that
19 they're ignited and the probability that they're given a
20 consequence in terms of vulnerability to humans is
21 manifest. So it's a component of the consequence. It
22 doesn't touch upon frequency and, hence, isn't a risk
23 measurement.

24 Q. Mr. Hallvik asked you to clarify whether you
25 looked at environmental risk, and I think earlier you

KISIELIUS / THOMAS

1 had indicated not.

2 Just to be clear, does Dr. Peterson look at that
3 issue, if you can recall?

4 A. I do not recall seeing a mention of
5 environmental risk in his report. He may have written
6 separate documents that I haven't seen, but the report
7 that I read, I do not believe looks at environmental
8 risk. I believe it looks at the -- at a high level the
9 same thing we were, which was the impact to humans.

10 **Q. Is that the typical scope of a QRA for a**
11 **facility?**

12 A. The ones that we've been involved with for the
13 last 15 or 20 years, yes, that's what we've been looking
14 at.

15 **Q. Two more quick questions.**

16 **You didn't look at the substation in your**
17 **initial analysis. Have you considered those since then?**

18 A. Yes. We went back and assumed that it would be
19 there and could be an ignition source and assigned it a
20 very high ignition -- conditional probability of
21 ignition, and found that if we were very conservative in
22 how we represented it on probability of ignition, we
23 could increase the associated risk by a factor of two.
24 But again, we're much more than a factor of two below
25 the tolerance criteria.

THOMAS

1 Q. So tying that together with a separate question,
2 Mr. Hallvik asked you about mitigation of moving it
3 further from the substation.

4 Based on your assessment of that risk, is that
5 mitigation warranted or needed?

6 A. It's not required, based on the risk tolerance
7 criteria.

8 MR. KISIELIUS: Thank you. I have no
9 further questions.

10 JUDGE NOBLE: Ready for council questions.
11 Mr. Shafer, you go first.

12 MR. SHAFER: Dr. Thomas, thank you very much
13 for your testimony today. Two questions.

14 The first, if you could help clarify for us,
15 in terms of a containment versus the likelihood of
16 possibility of movement of a fire, as I know, you're
17 aware of the layout of this site where there's unloading
18 area, then there's piping from that to a tank storage
19 area, then there's piping from that to a ship loading
20 area.

21 Is there any -- what is the likelihood that
22 in the event of a fire that that fire could move or
23 travel, say, along that pipe or through the pipe or even
24 if, if that's not highly likely, even traveling in some
25 other way due to vapors or, say, hop from tank to tank?

THOMAS

1 Could you help us with that?

2 THE WITNESS: I can try. So a release from
3 one of the tanks can certainly fill the berm around that
4 tank. A multiple one could fill a larger tank berm
5 area. So that spreads from a localized fire associated
6 with that release to a pool, a larger pool fire.

7 As far as a fire traveling inside a pipe,
8 that would be difficult. It's not something I've ever
9 seen happen. So fires and explosion investigations that
10 I've done, I haven't seen, for crude oil piping, a fire
11 go down a pipeline, interior of a pipeline. Certainly
12 I've seen that happen for gas piping, you know, or
13 piping that transmits a flammable air mixture down the
14 pipe, that can happen, but I haven't seen it for crude
15 oil transport piping.

16 MR. SHAFER: Thank you. Last question.

17 Could you give us your opinion on the layout
18 of the facility in terms of minimizing the fire risk?
19 Do you think that the design on the layout as it is
20 represents the optimum design or would you recommend
21 improvements in terms of minimizing fire risk to the
22 design team?

23 THE WITNESS: I would say that, you know,
24 firefighting activities and things like that aren't
25 something that I have experience in, and that certainly

THOMAS

1 would be a way to look at it, how a facility is laid out
2 with respect to supporting emergency response. But
3 besides that, it looks like it's pretty reasonable to me
4 based on looking at other facilities.

5 MR. SHAFER: Thank you.

6 JUDGE NOBLE: Mr. Snodgrass?

7 MR. SNODGRASS: Thank you for your
8 testimony. Just a couple of quick questions to make
9 sure I fully understand the FN curve tables.

10 You had mentioned that the tolerance,
11 acceptable tolerance levels were established, and you
12 mentioned I think three sources. I heard British,
13 Dutch, and U.S. government sources. Is that --

14 THE WITNESS: No, sir. The U.S. government
15 hasn't really taken a strong position on this with
16 respect to this type of industry. So there's a number
17 of publications that have been made by industry that we
18 consulted, but like OSHA or the Department of Labor, I
19 guess, would be the right way to say that, hasn't
20 promulgated a risk tolerance curve.

21 MR. SNODGRASS: So of the sources you did
22 look at and informed by others, perhaps, is what was
23 shown on those tables a kind of a composite or is there
24 truly convergence in the sources at the levels?

25 THE WITNESS: No. I'd represent it as a

THOMAS

1 composite, and specifically the existence of the upper
2 and lower band. There are people that might move that
3 lower band a little bit higher up, there's people that
4 might move the upper band a little bit lower down. But
5 that spread represents a pretty good consensus.

6 MR. SNODGRASS: To your knowledge, do those
7 sources also have or are there other sources we might
8 look to to inform tolerable levels of risk of injury or
9 property damage?

10 THE WITNESS: I am not personally aware of
11 them, but it's likely they exist. There's likely to be
12 publications and other countries' governments that have
13 looked at this question and published information that
14 I'm unaware of.

15 MR. SNODGRASS: Thank you.

16 JUDGE NOBLE: Any other questions off to my
17 right? My left, any other questions? Mr. Rossman?

18 MR. ROSSMAN: Yes. Thank you for your
19 testimony. I also have a question about the FN curves
20 and particularly this diagram relative to the one before
21 it.

22 And I guess I'm struggling to understand how
23 this relates to the risk tables that are presented below
24 it. So could you say a few more words about why the --
25 in the FN curve for onsite, which is on the page just

THOMAS

1 previous to this, the black line there, which is total
2 risk, doesn't seem to cross one. What's confusing to me
3 is when I then look at Table ES1 just a couple pages
4 down, it looks like the onsite risk is 7 times 10 to the
5 negative 4th, so I was expecting a black line to cross
6 somewhere around there at one threshold.

7 THE WITNESS: So the FN curve is cumulative
8 for all the onsite work areas and buildings that were
9 considered. And the table that you're referring to is a
10 line-by-line accounting of the risk at each of those
11 buildings or locations broken out by what's driving the
12 risk, whether it's explosion, flash fire, toxic or jet
13 or pool fire.

14 MR. ROSSMAN: Right, but the bottom of that
15 is total risk, is it not?

16 THE WITNESS: Yeah, 70 to the minus 4. So
17 that's the probability of a fatality onsite is 7 times
18 10 to the minus 4th per year.

19 MR. ROSSMAN: So it's a little under one in
20 a thousand?

21 THE WITNESS: Yes.

22 MR. ROSSMAN: So again, looking at the risk
23 curve diagram, the total risk of fatality there seems to
24 sort of plummet well below one fatality. And if I'm
25 reading correctly, the lowest level there would be one

THOMAS

1 fatality at $1E$ minus 7, which is much less often than
2 $7E$ minus 4. So --

3 THE WITNESS: Sure. You can think of the
4 .1 is, if you will, the far side, as being a one in ten
5 chance of a fatality. You can't actually have a tenth
6 of a fatality, right? So if you assume for that
7 purpose, say it's a one in ten, then you see you're
8 lining up there at about E to the minus 3, which gives
9 you the E to the minus 4th number.

10 MR. ROSSMAN: So, and I'm sorry, but so I
11 would assume that multiplying that by ten gives you one
12 fatality and that you can similarly divide the frequency
13 by ten to proceed, and that's why the red and green
14 lines are sort of in parallel there, that as you
15 increase the consequences, the frequency is decreased?
16 There's a relationship between those two; right?

17 THE WITNESS: Yes.

18 MR. ROSSMAN: So if a tenth of a fatality
19 every -- a little less than $1E-3$, that's the same as the
20 risk of one fatality at $1E-4$?

21 THE WITNESS: In terms of risk tolerance it
22 is. You can see that that line has an order of
23 magnitude slope, right? As it goes from .1 fatalities
24 to one fatalities, your risk tolerance is likely also
25 correspondingly dropped by an order of magnitude.

THOMAS

1 JUDGE NOBLE: Anything else, Mr. Rossman?

2 MR. ROSSMAN: Well, I guess I'm still not
3 understanding.

4 I would assume that I would see the point
5 that is represented by 1E to the minus 4 on the left
6 axis and one fatality on the X axis. That seems to be
7 the overall risk component from the table below, and
8 that doesn't seem to fall on the black line plotted here
9 of overall risk, and I'm confused by why it doesn't.

10 So the black line is the risk of this
11 facility; is that right?

12 THE WITNESS: It's the risk profile for the
13 facility for onsite personnel, yes, sir.

14 MR. ROSSMAN: And so if I follow that black
15 line to get to the point where that black line crosses
16 the point where there will be one fatality a year, does
17 that black line ever cross that point?

18 THE WITNESS: It doesn't, but that doesn't
19 mean you're not saying that you could have a fatality.
20 What it says is the events that we're looking at, we're
21 getting relatively low vulnerabilities.

22 MR. ROSSMAN: Right. But so it says we
23 won't have a fatality in ten million years. Does this
24 black line not say that?

25 THE WITNESS: No. I would refer you to

THOMAS

1 again where essentially we're crossing that risk
2 tolerance criteria where we've got .1 fatalities in E to
3 the minus 3 years. That's roughly the same as 1 in E to
4 the minus 4. And I'm using 1 loosely because this is a
5 log plot. But this result does not imply that it's
6 impossible to have a fatality onsite due to the
7 operation of this facility. It's obviously possible to
8 cause a fatality by this -- operation of this facility.
9 It's crude, it can burn, it can produce a vapor cloud.

10 MR. ROSSMAN: And that next table shows that
11 overall risk of the 7 in 10,000 years?

12 THE WITNESS: Yes, sir.

13 MR. ROSSMAN: Okay. And I just want to
14 clarify.

15 So I think I heard in your testimony that
16 you're assuming that the longest a fire would burn is
17 one hour?

18 THE WITNESS: For the purpose of evaluating
19 the response of building occupants, we assumed that they
20 could be exposed in that building for one hour, which
21 assumes either that you can get the fire out or you can
22 get the people out.

23 MR. ROSSMAN: And is there a longer period
24 assumed for anybody else, the outside workers? First
25 responders?

THOMAS

1 THE WITNESS: For outside workers, we assume
2 that they will move away from a fire at ten feet a
3 second.

4 MR. ROSSMAN: Are first responders
5 considered in your model?

6 THE WITNESS: No, not to the best of my
7 knowledge.

8 MR. ROSSMAN: Okay.

9 THE WITNESS: With the sole exception if
10 they're already there in a building onsite doing a
11 normal job onsite, that component of the risk would be
12 captured, obviously. But the fact that they're not
13 running away from the fire, they may be running towards
14 it, we don't capture that in the facility risk profile,
15 no, sir.

16 MR. ROSSMAN: Okay. And further
17 understanding what this does and doesn't capture, so
18 this doesn't look at all what would happen in the event
19 of a natural disaster? That's outside of the scope of
20 the analysis; is that right?

21 THE WITNESS: Yes, sir. So for something
22 like a seismic event, it assumes that the seismic event,
23 A, is within the design basis of the facility, or B, if
24 it exceeds it, it's a regional -- large regional impact
25 much beyond this facility.

THOMAS

1 MR. ROSSMAN: So I'm not quite -- so we
2 heard testimony last week that there was somewhere in
3 the order of a 1 percent chance of an earthquake
4 exceeding the design capacity of this facility in
5 50 years, 1 or 2 percent chance of that. And I guess
6 I'm struggling to understand, when I'm thinking of risks
7 that are expressed in sort of one in 10,000 or 100,000
8 on one in a million, but those are all assuming a
9 scenario where this event has a chance of occurring
10 doesn't occur, how do I then think about what the
11 overall risk of the facility is in a case where
12 recognizing that there would be extensive damage to the
13 area in an earthquake, whether or not the facility is
14 built there, presumably the risk increases for the
15 facility being built there in that event?

16 THE WITNESS: I really apologize, sir, but I
17 wasn't sure what question you just asked me.

18 MR. ROSSMAN: How should we evaluate the
19 risk of incidents that aren't included in your model
20 that seem to have a frequency that's much higher than
21 the types of events that are included in your model?

22 THE WITNESS: I guess I can't strictly
23 advise you on that. I would say that the seismic event
24 that they're considering here is the design basis seems
25 pretty severe. It's a magnitude 9 with a peak ground

THOMAS

1 acceleration on the order of .35 to .4 Gs.

2 Can an event worse than that happen? I'm
3 sure the answer is yes. What frequency it occurs at, I
4 don't know. But from what I've read from your local
5 papers that if an event like that happens, it's expected
6 to cause pretty widespread damage or if not destruction.

7 So I guess the question you'd need to
8 consider is how relevant is what happens to this
9 facility given that scope of damage. But I can't really
10 advise you how to think about that.

11 MR. ROSSMAN: Okay. Thank you. No more
12 questions. Thank you.

13 JUDGE NOBLE: Mr. Siemann?

14 MR. SIEMANN: Thank you for your testimony.
15 Your analysis focuses just on fatalities.
16 How should we think about injuries?

17 THE WITNESS: That's a fair question. I'm
18 afraid my answer is going to be unsatisfying, that we
19 don't specifically analyze injuries.

20 Obviously for a fatality you would expect
21 more people to be injured, and the severity of those
22 injuries would range from significant, needing medical
23 attention, to first aid. But I don't know how to factor
24 that into your decision-making.

25 MR. SIEMANN: That is not anywhere contained

THOMAS

1 in your analysis; is that correct?

2 THE WITNESS: No, sir.

3 MR. SIEMANN: One of the questions, which
4 may reflect my ignorance of this topic, so this is
5 frequency per year in these graphs; correct?

6 THE WITNESS: Yes, sir. It's the number of
7 those events per year.

8 MR. SIEMANN: So is it additive in terms of
9 the life of the project, 20 years, or is there some
10 other way to think about the risk across the life of the
11 project, which I understand to be 20 years?

12 THE WITNESS: So this is expressed on a per
13 year of operations basis, mainly because that's how risk
14 tolerance criteria are expressed as well. But if you
15 said what would be the cumulative risk from 20 years of
16 operation, you could take the risk that's been expressed
17 per year and multiply it by 20 and that would be a fair
18 estimate of the risk for 20 years.

19 JUDGE NOBLE: Are there any further
20 questions from any of the council members? There being
21 no further questions, Dr. Thomas, you are excused.

22 Sorry. Follow-up question?

23 MR. HALLVIK: I've reappeared.

24 MR. KISIELIUS: Your Honor, I believe it's
25 intervenors' opportunity to ask questions.

HALLVIK / THOMAS

1 MR. HALLVIK: I just have one question on
2 recross.

3 JUDGE NOBLE: Is your mic on?

4 MR. HALLVIK: One question following up on
5 Mr. Rossman's question regarding seismic event.

6 RECROSS-EXAMINATION

7 BY MR. HALLVIK:

8 Q. I think it's your testimony that a seismic event
9 would be large -- a regional event beyond this facility;
10 is that correct?

11 A. The impact of a seismic event that's beyond the
12 design basis for the facility, I would expect it to have
13 a regional impact.

14 Q. But isn't it true that people onsite at this
15 facility and just offsite at this facility face
16 particular risks that are associated with the commodity
17 that we're talking about?

18 JUDGE NOBLE: Mr. Hallvik, it is hard to
19 hear you. Maybe if you stood up.

20 BY MR. HALLVIK:

21 Q. Isn't it true that people onsite at this
22 facility and just offsite of this facility, including
23 the Jail Work Center, face particular risks associated
24 with the commodity that we're talking about here, Bakken
25 crude oil, in the event of a seismic event, but it's

HALLVIK / THOMAS

1 distinct from the regional seismic risks?

2 A. It would certainly be additive to the regional
3 seismic risk.

4 **Q. And distinct, wouldn't you say, given the**
5 **commodity?**

6 A. I suppose. I'm not exactly sure how you mean
7 that. But yeah, it's another thing that can be failing
8 among lots of things that can be failing, and beyond the
9 design basis event.

10 MR. HALLVIK: Thank you.

11 JUDGE NOBLE: Do you have any other
12 questions, Mr. Hallvik?

13 MR. HALLVIK: That's all the questions I
14 have.

15 JUDGE NOBLE: Mr. Kisielius?

16 MR. KISIELIUS: I have just one question for
17 you.

18 REDIRECT EXAMINATION

19 BY MR. KISIELIUS:

20 **Q. The metric that you use, the measurement of**
21 **fatalities, where does that come from? Is that the**
22 **standard that you've identified here?**

23 A. So that's the typical industry practice is to
24 compare to fatalities, and that's how most of the risk
25 tolerance criteria guidance I'm familiar with expresses

MARTIN/SAWICKI

1 it. Not in terms of injuries or environmental damage,
2 but in terms of fatalities to humans.

3 MR. KISIELIUS: Thank you. No further
4 questions.

5 JUDGE NOBLE: Now, Dr. Thomas, you are
6 excused as a witness. Thank you very much for your
7 testimony here today.

8 THE WITNESS: Thank you, ma'am.

9 JUDGE NOBLE: What we have right now for
10 time is 11:51. I think this would be a good time to
11 break for the noon hour. And we'd ask that attorneys
12 for the parties come back just a few minutes before 1:00
13 so that we can see if there's anything that needs to be
14 taken care of off the record before we resume at 1:00.

15 (Lunch break.)

16 JUDGE NOBLE: Back on the record.

17 MS. MARTIN: Connie Sue Martin for the Port
18 of Vancouver, and the Port calls David Sawicki.

19
20 DAVID SAWICKI,
21 having been first duly sworn, testified as follows:

22 JUDGE NOBLE: You may proceed.

23 MS. MARTIN: Thank you, Your Honor.
24
25

MARTIN/SAWICKI

DIRECT EXAMINATION

1
2 BY MS. MARTIN:

3 Q. Mr. Sawicki, would you please state your full
4 name and spell it for the court reporter?

5 A. It's David Sawicki, spelled S, as in Sam,
6 a-w-i-c-k-i, Sawicki.

7 Q. In the notebook in front of you, Mr. Sawicki, is
8 the prefilled written testimony that the Port filed with
9 the council on May 13, 2016. Do you see that?

10 A. Yes, ma'am.

11 Q. Did you participate in the drafting of that
12 document?

13 A. Yes.

14 Q. Do you adopt this testimony under oath today?

15 A. Yes, ma'am.

16 Q. Your qualifications and those of your team are
17 described in what has previously been admitted as
18 Exhibit 1001, but could you please summarize briefly for
19 the council your experience and your qualifications.

20 A. Sure. I have both a bachelor of science and
21 master of science degree in geology. I've been trained
22 in the incident command system, which is part of
23 National Institute of Management System for emergency
24 response. In fact, I provide that training to most of
25 my clients as well.

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1 When I started in the oil and gas business in
2 1978, I've worked in 14 states and 18 countries, and
3 during that time period, my work has been basically
4 broken out into two different venues, if you will, one
5 as a geologist exploration and production, and I started
6 as a field geologist, if you will, and ended up as a
7 resident manager/exploration manager in a foreign
8 country for the company I was with at the time.

9 As far as the emergency response side of my
10 life, I started as an emergency response coordinator as
11 a single contributor, if you will, for both
12 international and domestic operations with an oil
13 company I was with, and ended up with doing two things;
14 one, I was a Director for Crisis Management in emergency
15 response for the Western U.S. for the company, and then
16 the last eight years I was -- I took the position as a
17 plant protection superintendent at a refinery in
18 Washington state.

19 **Q. What do you do now?**

20 A. I've formed the company, the Sawicki Group, LLC,
21 in 2013 as a sole proprietor LLC. And that's what I do
22 now, consulting for various clients, both industry and
23 agency, in emergency and crisis management programs.

24 **Q. What is your experience in particular in the**
25 **areas of emergency response and crisis management?**

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1 A. I have 22 years of that. In the company I've
2 been with, I had the opportunity to do work in
3 exploration and production in marine terminals and
4 offshore terminals, in pipelines and refineries.

5 Part of the emergency response job is responding
6 to emergencies, and I had the opportunity to have direct
7 hands-on involvement in emergencies ranging from
8 earthquakes to civil unrest to fire to oil spill.

9 **Q. Do you have any experience with incident command**
10 **or on-scene coordination?**

11 A. Yes. That's really part and parcel of my last
12 22 years. Not only was I a trainer for the company I
13 was with for years, I was a member of their
14 international and U.S. response team, what's called a
15 planning section chief and a deputy incident commander.
16 Presently one of my clients has hired me to be what's
17 called an incident commander that's on call for one of
18 the umbrella plant holders for vessels coming in and out
19 of Washington state. And I have had the opportunity to
20 actually respond, as I said earlier, to earthquakes,
21 fires, spills, pipeline releases, et cetera.

22 **Q. Do you have any experience with oil spill**
23 **cooperatives?**

24 A. Oil spill cooperatives, let me back up a little
25 bit. An oil spill cooperative, or the technical term,

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1 if you will, is called an OSRO, Oil Spill Removal
2 Organization, OSRO, and that's the federal term. In
3 Washington state, they're called PRCs or primary
4 response contractors.

5 When I came to the West Coast for the company I
6 was with in 2000, I was director of crisis management
7 and emergency response for the Western U.S. I was on
8 the board of the three major cooperatives, oil spill
9 cooperatives, or the OSROs on the West Coast, which was
10 L.A., San Francisco Bay, and the one here in Washington
11 state. And for a two-year stint in time I was the
12 chairman of the board of Clean Sound Cooperative that
13 was here in Washington state.

14 Part of the -- or during that time period, those
15 three cooperatives that I just mentioned, two in
16 California and the one in Washington state, those
17 resources and staff and capabilities have merged into
18 what's called the Marine Spill Response Corporation, and
19 so all those resources came under MSRC. So I worked
20 very closely with industry and agencies to get that
21 transition completed.

22 I have also worked very closely in training and
23 drills with the local cooperatives, contractors, PRCs,
24 OSROs like Clean Rivers Cooperative and NRC
25 Environmental Services and Global Diving --

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1 (Court reporter interruption.)

2 Clean Rivers Cooperative --

3 JUDGE NOBLE: Mr. Sawicki, I think the
4 essential problem is you're talking a little fast for
5 the court reporter, so if you could slow down.

6 THE WITNESS: I can do that. Thank you very
7 much for that advice. You did tell me that twice,
8 didn't you?

9 Clean Rivers Cooperative, NRC Environmental
10 Services, and Global Diving and Salvage. Those are
11 three of the albeit smaller but still highly capable
12 OSROs, primary response contractors here in the
13 Washington and Oregon area.

14 BY MS. MARTIN:

15 **Q. Thank you for that background.**

16 **Did you review any materials, besides those that**
17 **are specified in your prefiled testimony, to enable you**
18 **to prepare for today's testimony?**

19 A. Yes, I did. I was able to review the May 2016
20 application or addendum, if you will, that the applicant
21 put in as part of their site certification. I also
22 re-reviewed the MFSA, Marine Fire and Safety
23 Association's, spill plan. And I had a chance to review
24 some of the direct prefiled testimony, if that's what
25 that term is, and then some of the testimony the last

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1 couple of days. Thank you.

2 **Q. And were you here this morning --**

3 A. Yes, ma'am.

4 **Q. -- during testimony?**

5 A. Yes, ma'am.

6 **Q. Did you visit the Port's property and the site**
7 **at the proposed Tesoro Savage facility?**

8 A. Yes. Me and my team, and you have their
9 resumes, had the opportunity to visit the site and meet
10 the staff.

11 **Q. Did you meet with Port staff in particular?**

12 A. We did. We met with the director of operations,
13 the rail manager, the HSSE or Health Safety Security
14 Environment -- or I'll call it environmental manager,
15 and the security manager and the marine manager.

16 **Q. And what was the purpose of your meetings with**
17 **Port staff?**

18 A. Before we started the work to evaluate the plans
19 that had been submitted by the applicant, my team and I
20 really felt we needed to get a sense of the culture in
21 the Port and the individuals we were dealing with and
22 their roles and responsibilities. So that was the
23 culture, individuals and roles and responsibilities.

24 **Q. Did you review any plans with the Port?**

25 A. We had the opportunity to review the Port's

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1 emergency response plan, the Port's facilities security
2 plan, and the safety plan at the Port that they have in
3 place now.

4 **Q. Did you meet with any Port tenants?**

5 A. Yes, we did.

6 MS. MARTIN: Ms. Mastro, if you could put up
7 Exhibit 1013, please.

8 BY MS. MARTIN:

9 **Q. Mr. Sawicki, if you could please identify**
10 **geographically, without blinding anybody with your**
11 **laser, the Port tenants with whom you met.**

12 A. Hopefully you can all see this. Great Western
13 Malting, United Grain in this area, NuStar, Kinder
14 Morgan, and then out here the NGL. Those were the five
15 tenants we were able to meet with.

16 **Q. And what sorts of things did you discuss with**
17 **the tenants?**

18 A. Our purpose was to really get a look at and get
19 a feel for the strategy and the approach they took to
20 both crisis and emergency management and security.

21 **Q. What did you conclude about the safety and**
22 **suitability of siting this proposed project at the Port**
23 **of Vancouver facilities?**

24 A. It's my opinion and that of our team, my team,
25 that given the plans we reviewed that are in place with

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1 the Port of Vancouver, our discussions with those
2 specific tenants and then the numerous plans and
3 appendices that we reviewed submitted by the applicant
4 that once those plans are finalized, because we reviewed
5 them, the applicant's plans and their draft present
6 status and once they're finalized to 100 percent status
7 and gone through the gauntlet of all federal and state
8 regulations to make sure that they're in place and
9 proper prior to operating that this site is safe and
10 suitable for this proposed operation.

11 **Q. What do you mean when you say "safe"?**

12 A. Given this contract and my general approach to
13 emergency and crisis management, I break out safety, if
14 you will, into operations facility safety and facility
15 security.

16 **Q. And what do you mean by "operations facility
17 safety"?**

18 A. Operations facility safety is really, the key to
19 that is to sit back and look at the processes that are
20 in place to manage the risks, manage the hazards, if you
21 will, look at the quality of the plans, look at the
22 quality of the training and the drills, look at how
23 lessons learned are captured after training and drills
24 or after incidents, see how they're put back into the
25 plan process to make sure they're really addressing the

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1 site hazards, and then looking in the total picture to
2 close it out, how are those changes, if any were made,
3 communicated beyond just internal and external
4 compliance, but how were they communicated back to staff
5 and contractors on the site so they absolutely knew what
6 the plan was. Not having a good knowledge of the plan
7 is not a good idea.

8 **Q. Can you contrast that with what you mean by**
9 **"site security"?**

10 A. Site security is really driven by the MTSA
11 regulation, Marine Transportation Security
12 Administration, and they have a series of requirements
13 that are all designed to limit to the extent that one
14 can the possibility of a transportation security
15 incident, TSI in the trade, if you will. And so what,
16 again, you're looking at the plan in light of the
17 internal and external compliance, what's required, but
18 you're also looking at the details of gate access, gate
19 security, who gets that access, how they secure their
20 written plans.

21 And these written security plans are called SSI,
22 or sensitive site information -- or sensitive security
23 information, I'm sorry. And not everybody can see those
24 because of the security sensitivity of that.

25 So we look at that whole process and see do they

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1 really manage their -- are they in a position to manage
2 not only the internal and external compliance, but do
3 they communicate it with their staff who needs to know
4 and contractors who come onsite.

5 **Q. And would one of those aspects of site security**
6 **include measures taken to prevent, say, sabotage to oil**
7 **trains on the Port's property?**

8 A. Yes, to the extent that it's on the property,
9 because we -- our project, my team did not look what
10 I'll call outside the fence line. We were just
11 looking -- our focus was inside the fence line, if you
12 will.

13 **Q. What did you conclude about the site security**
14 **for the proposed project?**

15 A. The Port of Vancouver security plans are
16 complete and robust. We actually or I actually
17 performed the federally required facilities security
18 audit, which is an annual requirement of the site's
19 facilities, the site security and the facilities
20 security plan. So that is very strong and in place,
21 good to go.

22 We had the opportunity to review the security
23 plans, albeit -- all be they in draft form, that were
24 submitted by the applicant, and again, once those are
25 brought to fruition and made in 100 percent compliance

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1 mode, they will certainly I have no doubt that they
2 would meet the requirement.

3 The challenge for the site, and I'll call the
4 site the family, if you will, is for the Port of
5 Vancouver security group and the applicant security
6 group to understand who's got what responsibility at
7 what time and make sure there's no misunderstanding or
8 nothing drops through the grate on that one. But
9 together it would be a very, very secure, from the
10 compliant, internal and external compliance and secure
11 and suitable for the site operation.

12 **Q. What did you conclude about the safety and the**
13 **suitability of the site with regard to the other Port**
14 **tenants?**

15 A. The content of all the plans we reviewed and --
16 at the Port and then the content and the eventual
17 100 percent completion of the Applicant's documents
18 should they be allowed to go there, I think are
19 absolutely in line with the overall industrial nature of
20 the site and the Port tenants who are there. I think
21 that will all work just fine.

22 MS. MARTIN: Thank you very much,
23 Mr. Sawicki. I don't have any further questions.

24 JUDGE NOBLE: Cross-examination of
25 Mr. Sawicki?

LOTHROP / SAWICKI

1 Ms. Martin, may I just ask you, I note that
2 there's a CV of Mr. Sawicki, but I don't know if it has
3 an exhibit number.

4 MS. MARTIN: Yes. That's 1001.

5 JUDGE NOBLE: Thank you.

6 MR. LOTHROP: Good afternoon, Your Honor,
7 and members of the council. My name is Rob Lothrop.
8 I'm with the Columbia River Inter-Tribal Fish
9 Commission.

10 CROSS-EXAMINATION

11 BY MR. LOTHROP:

12 **Q. Thank you for your testimony, Mr. Sawicki.**

13 A. My pleasure.

14 **Q. I have a question or two for you.**

15 So at Paragraph 30 of your prefiled direct
16 testimony, you talk about how the facility has been
17 designed and engineered to be as safe as possible.
18 That's in your testimony there.

19 And I understand from the testimony of Mr. Russ
20 Gibbs that the oil storage tanks have been designed to
21 the American Society of Civil Engineers, ASCE 7-10 Risk
22 Category 2.

23 Isn't it true that if they had been designed to
24 Risk Category 4 they would be safer?

25 A. I'm not a civil engineer, so I'm not going to

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1 get into the design of parameters based on assurance, if
2 you will, against one regulation or requirement or the
3 other. So --

4 Q. I think that answers the question.

5 A. Okay.

6 Q. Thank you.

7 And, similarly, I understand that the tanks have
8 been designed to seismic user group standard I of the
9 American Petroleum Institute standards for welded steel
10 tanks.

11 Isn't seismic group III a more protective
12 standard?

13 A. Same response to your last question.

14 MR. LOTHROP: Thank you. No further
15 questions.

16 JUDGE NOBLE: Any other cross of
17 Mr. Sawicki? Any redirect?

18 MS. MARTIN: Just one question, Your Honor.

19
20 REDIRECT EXAMINATION

21 BY MS. MARTIN:

22 Q. Mr. Sawicki, with respect to your testimony in
23 Paragraph 30, can you explain what you meant when you
24 said that the facility has been designed and engineered
25 to be as safe as possible from your expert opinion?

SAWICKI

1 A. Sure. The answer to that goes back to my
2 earlier comments about what I'll call a holistic
3 approach to safety and security.

4 All the plans have to be in place, they all have
5 to line up. You can't have siloed operations. By
6 "siloed" I mean this group doesn't know what this
7 group's doing.

8 So the plans that we've seen both at the Port,
9 existing plans, and the draft plans of the Applicant's,
10 are so industry standard that the contents of these
11 plans leave nothing, little to nothing to be desired as
12 far as significant improvements. They've either met or
13 exceeded standards, based on our experience, our team of
14 over 200 years. We're all getting old.

15 MS. MARTIN: Thank you. No further
16 questions.

17 JUDGE NOBLE: Thank you, Ms. Martin.

18 Mr. Sawicki, now we will have questions for
19 the council.

20 Were there any council questions?

21 Mr. Stone, are you about to ask a question?

22 MR. STONE: Yes, I am. Thank you.

23 In regard to Paragraph 40 of your prefiled
24 testimony, and I quote, if I can get the microphone
25 lined up, "I note that VEDT's plan does not contain

SAWICKI

1 sensitive security information."

2 First of all, which VEDT plan are you
3 talking about there?

4 THE WITNESS: The applicant's plan for
5 security was embedded in the facility safety plan. And
6 it's a separate chapter, appendix, whatever it was. In
7 time that will have to come out once the Port and the
8 applicant decide whose security plan is going to what
9 I'll call trump the other one or how they're linking
10 together the details of how they manage site access and
11 what levels of access checking, if you will, of
12 personnel, they increase as each MARSOC level or as each
13 security level increases.

14 But those kind of details are not in the
15 VEDT's plans that we reviewed right now. And, but all
16 the contents are in there as far as what I'll say all
17 the correct elements are in there. They just need to
18 add in the correct appropriate or how they merge the two
19 plans between -- by two I mean between the Port and
20 Vancouver Energy.

21 MR. STONE: So should we read Paragraph 40
22 to be a flaw in their plan?

23 THE WITNESS: Absolutely not. I think it's
24 an indication or an outgrowth of where they are in the
25 draft of their plan because -- draft of their process,

SAWICKI

1 because all the contents are there. The details would
2 be a phone number here, a timeframe here or there. But
3 as far as the contents or components of the plan, they
4 absolutely meet the federal standards.

5 MR. STONE: Well, with lack of coordination,
6 I would imagine there could be a problem with
7 implementing the plan. Until such coordination takes
8 place and until it does and laid out in a plan, it's
9 hard to evaluate the facility's security preparedness.

10 Would you agree with that?

11 THE WITNESS: Yes. And I think the answer
12 to that, if I might, before the facility gets a license
13 to operate, it's going to have to put all that together
14 because the U.S. Coast Guard is going to look at that in
15 very much detail and they may actually do site visits
16 unannounced.

17 So before it actually goes, I think it
18 will -- I know it will have to be done in its totality.
19 But what I'm saying now is that the contents, the
20 organization, the characterization of the issues are all
21 absolutely aligned with federal regulations at this
22 time.

23 MR. STONE: Okay. Thank you.

24 THE WITNESS: My pleasure.

25 JUDGE NOBLE: Mr. Shafer?

SAWICKI

1 MR. SHAFER: Mr. Sawicki, thank you very
2 much for your testimony. I'm going to admit upfront I'm
3 a little reluctant to ask this question, but I think I
4 need to.

5 In terms of the property security, with the
6 project being such a sizeable storage facility of oil as
7 it is, are you of the opinion that this increases the
8 risk of any type of a terrorist act or a target?

9 THE WITNESS: I don't think this increases
10 the risk, because this site is not that big compared to
11 other refineries like exploration or production fields
12 that I've done similar things on. So I think as
13 Mr. Thomas said in a previous testimony, this is a very
14 straightforward and simple process. So adding this into
15 the overall activity of the Port from a security
16 perspective I don't think is going to be a challenge.

17 MR. SHAFER: Okay. Thank you.

18 JUDGE NOBLE: Mr. Stephenson?

19 MR. STEPHENSON: Thank you. Thank you,
20 Mr. Sawicki.

21 THE WITNESS: Pleasure.

22 MR. STEPHENSON: Three questions, I think.
23 One is it looks to me like your report is
24 for onsite spills; is that correct? Or did you look
25 offsite as well?

SAWICKI

1 THE WITNESS: We worked within the fence
2 line. And I'll characterize the fence line as the -- or
3 the southern end of the fence line would be what I'll
4 call the flange between where the crude oil goes from
5 the dock outboard. And we did not look at security from
6 the dock outboard. That's vessel and Coast Guard, and
7 totally different, separate from our contract.

8 MR. STEPHENSON: Thank you. We heard in our
9 public hearings significant concerns from outside, and I
10 just wanted to make sure I had the scope of what you're
11 testifying on. Thank you.

12 Second thing, last week we heard in
13 testimony that at the dock for a transfer spill there
14 was three barrels capacity for taking care of a spill at
15 the dock. Does that seem right to you?

16 THE WITNESS: One has to define what the
17 purpose of that drip pan is right there. Those are for
18 drips, that kind of thing.

19 As far as the vessel side, you heard a lot
20 about that from Marc Bayer, Captain Bayer, last week
21 about the higher volume capability that the vessel has
22 and all that. I think the three barrel is a good
23 operational number for those drips.

24 If there was something more significant, I
25 would just say that the design that we've seen in the

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1 plans as far as the 30-second shutoffs automatic with
2 pressure losses, shut that down very quickly. Does that
3 mean it might -- could it be more than three barrels?
4 It could be more than three barrels.

5 I think the standard industry, and I'll just
6 stay on the dock side, the terminal person in charge, or
7 the TPIC, communicating with the vessel person in
8 charge, communicating with the controllers back in the
9 control rooms in the E house, they have a 24/7
10 observation on that entire operation. And those dock
11 techs and TPICs, that's their life. So they are on top
12 of things immediately.

13 So could it be bigger than three barrels?
14 Yes, sir, it could be. But does the whole system, the
15 overall assurance program, come together to provide the
16 best available protection for that? Yes.

17 MR. STEPHENSON: Thank you.

18 And then last question, and I think this is
19 a follow-on to Council Member Stone, as -- if this
20 facility goes forward, do you or your folks or your
21 company have a plan on how to train up? There's going
22 to be a lot of new people if this goes forward.

23 How do we get them trained up so that they
24 do the safety and security measures? Because it seems
25 to be pretty clearly contingent on the quality and the

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1 care of the new staff.

2 THE WITNESS: It'll be a Port decision and
3 an applicant decision, and I have plenty of competition
4 out there. So whether they hire me or my team to do it,
5 I have no idea, that's their decision, but there's lots
6 of good people out there to do that for them.
7 World-class, first-rate people.

8 JUDGE NOBLE: Any other council questions?
9 Are there questions based upon the council's
10 questions?

11 MS. MARTIN: I have just one with regard to
12 Council Member Stone's question about Paragraph 40.

13

14 REDIRECT EXAMINATION

15 BY MS. MARTIN:

16 **Q. At this stage of development, would you have**
17 **expected the Tesoro Savage folks to have a fully**
18 **built-out sensitive security information chock full**
19 **plan?**

20 A. Absolutely not. One of the basic elements of
21 that is if I was going in and doing the annual audit or
22 the every-other-year assessment, I would want to know in
23 advance where are your gates, where are your fences, how
24 high are they, where are your light packages. And
25 that's simply not ready for prime time yet. I mean,

1 that may change in details here and there, but that
2 would be what the U.S. government is looking at a very,
3 very detailed, and we're not at that stage of the
4 project yet. So no.

5 MS. MARTIN: Thank you.

6 No further questions.

7 JUDGE NOBLE: Thank you.

8 Mr. Sawicki, thank you very much for your
9 testimony. You're excused as a witness.

10 Mr. Kisielius, are you taking the next
11 witness?

12 MR. KISIELIUS: We are, Your Honor. The
13 applicant would like to call Dennis O'Mara.

14

15 DENNIS O'MARA,

16 having been first duly sworn, testified as follows:

17 JUDGE NOBLE: You may proceed,

18 Mr. Kisielius.

19 DIRECT EXAMINATION

20 BY MR. KISIELIUS:

21 **Q. Mr. O'Mara, could you please state and spell**
22 **your name for the record?**

23 A. I am Dennis O'Mara. D-e-n-n-i-s, O, apostrophe,
24 m-a-r-a.

25 **Q. And, Mr. O'Mara, did you prepare a sworn written**

1 **statement?**

2 A. I did.

3 **Q. Can you briefly state your area of expertise?**

4 A. My area of expertise is in marine navigation
5 risk, currently with the DNV-GL.

6 (Court reporter interruption.)

7 That's the company for whom I work. And that
8 entails just some practical navigation experience that I
9 gave when I was in the Coast Guard, also some -- some
10 risk assessment experience I gained also in the Coast
11 Guard dating back to about 1996 --

12 (Court reporter interruption.)

13 BY MR. KISIELIUS:

14 **Q. If you could, Mr. O'Mara, just keep it a little**
15 **slower for the court reporter's benefit.**

16 A. I will. All right. I beg your pardon.

17 Where were we? Yeah, I started my risk work
18 sometime in the mid '90s with the Coast Guard. I
19 assessed marine casualty data really for the purpose of
20 focusing Coast Guard prevention activity.

21 After that, I had a consulting company where I
22 performed security risk assessments of marine terminals
23 for about eight years I did that in total probably
24 conducting about a hundred such assessments.

25 I also have a pollution response and a

1 contingency plan and crisis management background, and
2 I've served in various capacities in those roles while
3 in the Coast Guard and with my private consulting
4 company. And I taught crisis management and contingency
5 planning courses.

6 MR. KISIELIUS: For the council's benefit,
7 Mr. O'Mara's CV has been entered as Exhibit 311.

8 JUDGE NOBLE: Thank you for that.

9 BY MR. KISIELIUS:

10 Q. So could you please describe what you did for
11 the Vancouver Energy Terminal. What were you asked to
12 do?

13 A. We were asked to perform a transit risk
14 assessment, a striking of the dock assessment, and a
15 terminal loading risk assessment.

16 MR. KISIELIUS: And I'm going to ask you
17 some more questions about that, but again, for the
18 council's benefit that's Exhibit 120.

19 BY MR. KISIELIUS:

20 Q. Before we get to the details of that specific
21 study, I want to ask you to summarize your approach to
22 risk assessment at kind of the higher level.

23 When you're assessing risk, do you consider both
24 probability as well as consequence?

25 A. Well, risk is a factor of those two things, so

1 yes, we look at probability. In this case, we refer to
2 it as a frequency. And consequence. In this particular
3 study, consequences are defined simply as the volume of
4 oil that might be spilled under a given scenario. And
5 it's limited to that.

6 Q. I'm going to have some more detailed questions
7 for you as we continue here, but I want to start with
8 just a very high level summary of your conclusions on
9 the three areas you just identified. So let's maybe
10 start with the risk of a strike of a vessel while at
11 berth.

12 And maybe stepping back even from there, what
13 types of vessels were you assuming would be at the
14 facility?

15 A. We considered three different vessel sizes:
16 Tankers of a 47,000 deadweight ton, 105,000 deadweight
17 ton, and 160,000 deadweight ton.

18 Q. And when you were assessing the risk of a strike
19 while at berth, what methodology did you use?

20 A. For that case, we used a method from AASHTO, and
21 that is American Association of State Highway
22 Transportation Officials, I think I got that right, who
23 developed a methodology for bridge striking of vessels.
24 And so we were able to adapt that to this particular
25 study.

1 **Q. And I'm about to ask you to summarize your**
2 **conclusion on that particular risk, but I ought to just**
3 **let you know, you've got in front of you a binder that's**
4 **got your prefiled testimony and your report should you**
5 **need to refer to it as you go through your testimony.**

6 A. Thanks.

7 **Q. So do you recall, what were your conclusions**
8 **about the risk of a strike of a vessel while at berth?**

9 A. Yeah. A strike on the dock, the frequency was
10 very low. I want to say like one in -- well, the risk
11 of oil spill from that -- of a strike is very low, one
12 in 25,000 -- or 115 years I think is what the collision
13 frequency was. And if we need precise numbers, I may
14 need to take a minute to find it. I will do that.

15 MR. KISIELIUS: Ms. Mastro, while he's
16 looking, could you please -- it's Exhibit 120, Page 116.
17 BY MR. KISIELIUS:

18 **Q. Mr. O'Mara, when I'm referring to the page**
19 **numbers, just so there's no confusion, there's the Bates**
20 **stamp number at the bottom of the page, the page that**
21 **you're looking at.**

22 A. I wasn't even looking for your page numbers,
23 counsel, but I can. To be pre -- we will find this.

24 **Q. If you look on, there's a page on the screen you**
25 **might recognize.**

1 A. I do, yeah. Right.

2 So our finding was such that the frequency of an
3 oil spill from the collision at dock, and I'm looking at
4 7.3, right? Okay. Let me find that. If I'm -- there
5 we are, one in every 25,000 years. It was on the tip of
6 my tongue.

7 **Q. And are the other two bullet points remaining in**
8 **that summary, to what numbers do those refer?**

9 A. The larger vessel types, one in every
10 100,000 years for the 105,000 ton vessel, and one in
11 every 1.6 million years for the 165,000 ton vessel.

12 **Q. So that's the collision at dock. Let's maybe**
13 **summarize your assessment of the transit risk.**

14 **And when we talk about transit risk, what were**
15 **the scenarios that you were considering?**

16 A. Well, we considered incident -- we considered
17 different incident types and the risk of those types, so
18 we considered collision, powered grounding, and drift
19 grounding. We considered fire and explosion and
20 foundering, were the five main types of vessel incidents
21 that we considered.

22 **Q. And were there some that -- did you assess all**
23 **of them?**

24 A. We did. We assessed the frequency of all of
25 them.

1 **Q. Okay. Were there some that you considered to be**
2 **sort of -- were there some in your study that warranted**
3 **more review?**

4 A. Clearly. The fire and explosion and the
5 foundering, the frequency of those were somewhere along
6 the line of, I want to say 8 times 10 to the negative 3.
7 So we didn't look further at fire and explosion or
8 foundering because the frequencies were so low. So we
9 focused primarily on collision and drift grounding and
10 power grounding.

11 **Q. Now, for those, the collision and grounding**
12 **scenarios, what methodology did you use?**

13 A. We incorporated our, the DNV-GL, proprietary
14 model that's referred to as the Marine Accident Risk
15 Calculation System, referred to as MARCS. Shall I
16 describe MARCS now or will you ask --

17 **Q. Sure. Briefly. Go ahead.**

18 A. MARCS uses AIS data for typically one year, the
19 previous year to the study, for the study area. So we
20 were able to use -- acquire AIS data for the Columbia
21 River for one year worth of vessel transit. And it's
22 built on fault trees where we have base numbers derived
23 from multiple different studies performed globally over
24 an extended period of time that incorporate causal
25 factors for marine incidents. And so the model is

1 developed so that in looking at the causal factors of
2 incidents and the frequency of their occurrence, when we
3 apply the actual traffic to that model, we can then
4 derive an estimated frequency of similar occurrence on
5 existing traffic.

6 **Q. And just to back up, you had used the phrase**
7 **"AIS data."**

8 **Can you explain what that is?**

9 A. Sure. The Automatic Information System. Every
10 vessel is equipped with a transponder on board that
11 sends a unique signal identifying the characteristics of
12 that particular ship. The signals are sent on
13 predetermined intervals, sometimes as low as every six
14 seconds, and every signal is time stamped.

15 So the station that receives those signals
16 maintains the data. And so we then are able to acquire
17 that data.

18 So if you could imagine every vessel that
19 transits the Columbia River that's required to have an
20 AIS transponder sending a signal every six seconds, one
21 year worth of that information. It's a considerable
22 amount of data.

23 **Q. Right. And what did you conclude about the**
24 **probability or the frequency of groundings or**
25 **collisions? Could we turn to Page 8, please, of the**

1 **same exhibit?**

2 A. Well, that's probably easier to interpret,
3 right, instead of the exponential one?

4 **Q. You can choose whichever one --**

5 A. Okay. Well, that's fine. Whatever is the
6 easiest way to interpret it.

7 The highest -- the vessel with the highest
8 frequency would be the 47,000 ton vessel with an
9 anticipated or estimated grounding every 43 years.
10 Similarly, with the collision, I think it was 40 years
11 is what we estimated with our model.

12 **Q. And did you also look, in addition to frequency,**
13 **did you also look at the potential volume of a release**
14 **in this instance?**

15 A. We did. We did, but we used a different
16 methodology for that.

17 **Q. Could you describe that?**

18 A. Sure. We used a commercial naval architectural
19 model referred to as NAPA, and NAPA takes -- we had the
20 general arrangement drawings for each of the study
21 vessels, and it looks at estimated damage to the vessel
22 based on Monte Carlo simulations. And a Monte Carlo
23 simulation basically is -- it's a random query of
24 different damage scenarios that may have occurred --
25 it's an enormous database of damage scenarios --

1 (Court reporter interruption.)

2 The Monte Carlo database is a -- consists of
3 random scenarios of vessel damage, of actual incident
4 damage. And we apply that -- in this case, we used
5 50,000 different scenarios that are run -- it's a
6 probabilistic model, so we are able to estimate what the
7 probability would be of damage to a vessel or these
8 particular vessels significant enough to cause a
9 particular volume of oil spill. And we settle on that
10 particular volume in the case of collision, we wanted
11 the 90 percent probability. In the case of grounding,
12 we wanted a 50 percent probability. And this is based
13 on International Maritime Organization standards that
14 call for probabilistic modeling to anticipate or
15 estimate oil spill releases.

16 **Q. We'll have some more detail on that, but I want**
17 **to kind of keep it at this high level for now. And**
18 **let's go to the third category of potential risks that**
19 **you studied.**

20 **Can you tell us about the vessel loading risk?**
21 **And maybe we'll do the same thing. Start with what**
22 **methodology did you use to assess vessel loading risk?**

23 **A. Yeah. We actually used two different**
24 **assessments of vessel loading risk. We did one that I**
25 **think we refer to it as Method 1, which is used the**

1 standard quantitative risk assessment methodologies, and
2 then in Method 2, we applied U.S.-specific data as well
3 as Tesoro-specific operational data.

4 **Q. Okay. And did you consider factors like the**
5 **likelihood that the spilled oil in this scenario would**
6 **actually reach the river?**

7 A. In Method 2 we did. We did not in Method 1.

8 **Q. And did you consider things like containment?**

9 A. Not in Method 2 -- I beg your pardon. Not in
10 Method 1. We did not consider containment. So the
11 volumes in our -- the results of Method 1 are strictly a
12 spill volume. They don't speak to those which may or
13 may not reach the water.

14 **Q. Okay. And in both of those methods, what did**
15 **you conclude would be the most likely type of spill?**

16 A. Well, as with most of these, the small spills
17 are more likely. I want to say less than 50 barrels
18 made up about 60 percent of the release frequency.

19 **Q. And what about large scale releases?**

20 A. I don't have the frequency locked down either.
21 It might be helpful if you can refer me to that too.

22 **Q. Sure.**

23 A. But --

24 **Q. Can we turn to Page 10, please? It's up on the**
25 **screen now.**

1 A. You're in the summary. Okay.

2 Yeah. They vary slightly. The -- in the
3 smaller spills in Method 1, the interval obviously is
4 higher. I think it's a spill of zero to 50 barrels
5 might occur every 1,300 years, whereas in Method 2 we
6 estimated be more like seven years.

7 One of the big differences for that might, a lot
8 of these things do have explanation. If you care for
9 it, I can give it, but it's just the nature and type of
10 data that we used.

11 Q. Okay. And there will be some more detail we'll
12 get into here in just a minute.

13 A. All right.

14 Q. With that summary, though, I wanted to now focus
15 on the prefiled testimony of Susan Harvey. Have you
16 read that testimony?

17 A. I have.

18 Q. Okay. And I want to start with her assessment
19 of navigation risks in the river, vessels transiting the
20 river. Are you familiar with her testimony?

21 A. I am, yes.

22 Q. So let me start by asking, did you assess that
23 same risk, navigation risk, to be very clear?

24 A. We assessed navigation risk on, I'll stop short
25 of saying what we assessed was the same as what

1 Ms. Harvey assessed.

2 Q. Well, so I want to drill down on that.

3 A. Okay.

4 Q. So can you compare the methodology you used to
5 assess that risk compared to hers? So what's your
6 understanding of her approach?

7 A. Well, I think that she took an approach that
8 considered oil spill incidents, her approach specific to
9 navigation was -- she identified a couple of areas on
10 the river that she had determined to be of narrower than
11 others. And she used Google Earth to identify a couple
12 of spots on the river, she referred to some practices as
13 high risk practices I think related to the size of the
14 vessels that might be used.

15 Q. Let me break that down.

16 In your experience and opinion, is it usual or
17 customary to rely solely on Google Earth to reach a
18 conclusion about navigation risks?

19 A. No. Google Earth is not a navigational tool.

20 Q. Does your analysis take into consideration the
21 width of the river and the width of the shipping
22 channel?

23 A. It does, yes.

24 Q. Does your model and analysis take into
25 consideration the issues that are of concern to hers,

1 **specifically, the narrowness of the channel?**

2 A. Our model takes into account the width of the
3 channel.

4 Q. Let me ask you about the conclusion that you
5 just summarized about that. I think you said high risk
6 or...

7 A. Oh, that was her term.

8 Q. So -- well, do you agree with that?

9 A. Not necessarily, because -- well, it's not
10 really defined. What high risk is, is not really
11 defined in her assessment.

12 Q. You had identified two locations she talks about
13 in some more detail just a second ago. Are you familiar
14 with those specific locations?

15 A. Yes, I am.

16 Q. And do -- well, does your analysis look at those
17 locations as well?

18 A. It includes those, yes.

19 Q. Okay. And do those two locations in your
20 opinion present any specific risk, navigational risk?

21 A. No.

22 Q. I want to talk about her assessment of your
23 report and talk about a couple topics.

24 Are you familiar with her critique of your
25 assessment of navigational aids in your report?

1 A. I am somewhat, yes.

2 Q. Okay. Paragraph 29 she says you didn't look at
3 all possible risk reduction mitigation measures that
4 could be implemented but did examine the risk reduction
5 benefit of a tethered tug escort. So let's step back.

6 Did you consider a wider range of risk reduction
7 measures more than just a tethered tug escort?

8 A. Oh, yes.

9 Q. So how did you take those into consideration in
10 your model?

11 A. We look at various aspects, operational aspects
12 of shipping, of navigation, as well as environmental
13 aspects. And we have underlying data that supports the,
14 what we call performance shaping factors, and
15 essentially what that is is a risk -- it's a
16 quantification of risk reduction.

17 So we've done a number of studies globally over
18 the past several years to quantify the risk reduction
19 elements of various measures that are in place on a
20 typical navigation transit. So we've looked at -- gosh,
21 I don't know, there's probably eight or ten -- I don't
22 remember offhand, I could if you press me on it -- but
23 things like pilotage, things like certain navigation
24 systems that are on board that we have been able to
25 quantify over time and things like that.

1 And we also -- another component of our risk
2 assessment also was acquiring sufficient local
3 knowledge, local operational knowledge. And we did that
4 through another proven and accepted risk tool or hazard
5 identification workshop, and in doing that we were able
6 to identify specific areas on the river where
7 operational practices help manage this, and we're able
8 to incorporate those into the model as well.

9 **Q. And let's go back to that list that you looked**
10 **at. There were some that, for example, the vetting**
11 **policy for which you didn't incorporate that into your**
12 **model.**

13 A. No, we did not.

14 **Q. So can you explain your thinking on that? Why**
15 **didn't you incorporate that into your model?**

16 A. We discussed it in the report because we do
17 think it has value, and we don't dismiss it entirely.
18 But what you're talking about is a Tesoro-specific
19 vetting tool.

20 Simply because it's not quantified, we didn't
21 include it in the model, because all of the other inputs
22 have a quantification factor. And so that's the reason
23 we didn't include it.

24 **Q. Okay. So let's now talk about the one that**
25 **Ms. Harvey acknowledged, the amount of work that you did**

1 to model the benefit of the tug escort.

2 A. Uh-huh.

3 Q. Why did you do that more detailed assessment of
4 that specific measurement?

5 A. Well, we were asked to do that. It was a
6 consideration from Vancouver Energy that wanted us to
7 look at that.

8 Q. And what did you find with respect to that
9 specific mitigation measure?

10 A. We found that the overall risk reduction between
11 collision and grounding, there's a range, somewhere
12 between 21 and 47 percent. But the factor that we apply
13 based on -- again, based on previous studies that we've
14 done in our Norway office was that we estimate about 90
15 percent of the time a tethered tug would be able to save
16 a vessel from drift grounding.

17 Q. I'm going to now switch to the discussion of
18 spill volumes, and Ms. Harvey's critique of your
19 assessment of spill volumes. You had previously
20 testified to P-90 and P-50.

21 A. Right.

22 Q. Can you get into just a little bit more detail
23 about why you chose one number for one risk collision
24 and a different number for the grounding?

25 A. Oh, sure. We are able to within the NAPA model

1 account for static pressure both of the oil in the tank
2 and then for a grounding, for example, when the hull is
3 breached below the water line, the entrainment and an
4 outflow of water during a tidal change.

5 So in a collision tide change wouldn't affect
6 the outflow, right, because it's assumed that the vessel
7 was floating. When a vessel is aground, tide change
8 would affect outflow, and that's another reason why the
9 numbers are different. But we refer back to IMO
10 standards when we look at some of the probability
11 factors, sometimes we look at that.

12 Q. I'm going to interrupt. Can you specify what is
13 IMO?

14 A. International Maritime Organization.

15 Q. Thank you.

16 A. Okay.

17 Q. So are those spill volumes meant to represent
18 the exact spill size you assume would occur in all
19 instances?

20 A. Oh, no. Not exact spill sizes, no.

21 Q. In Ms. Harvey's testimony -- well, let me ask.
22 Are you familiar with her testimony, her
23 reliance on specific spill incidents to critique your
24 consideration spill volumes?

25 A. I'm aware that she cited specific incidents,

1 yes.

2 Q. Do you think it's appropriate to base risk
3 assessment on the basis of just those incidents?

4 A. No, no. That in and of itself isn't a risk
5 assessment.

6 Q. Okay. And let's turn specifically to the
7 worst-case discharge.

8 Are you familiar with her thoughts about the
9 need to study a regulatory worst-case discharge?

10 A. Yes, I recall she mentioned that, yes.

11 Q. And I think she says "a Worst Case Discharge
12 analysis cannot be ignored," in Paragraph 90.

13 So first and foremost, was it your intent to
14 prove that the applicant need not conduct the regulatory
15 worst-case scenario for planning purposes?

16 A. No, that was not the intent of our study at all.

17 Q. Were you directed to take that approach?

18 A. We were asked to evaluate potential spill sizes.

19 Q. So when you chose the spill volume for purposes
20 of your model, why is that different than the regulatory
21 worst-case discharge?

22 A. Well, because the spill volumes that we arrived
23 at are in fact risk based, and the worst-case discharge
24 volumes that you find that are codified in regulation
25 are not, simply.

1 **Q. Let's talk about one incident in particular that**
2 **she points to in her assessment, the Mobil Oil incident**
3 **in the Columbia River.**

4 **Are you familiar with her testimony on that**
5 **topic?**

6 A. I am, yes.

7 **Q. Are you familiar with that incident?**

8 A. I became familiar with it after I read her
9 testimony. I wasn't prior to that.

10 **Q. Does your model address the causal factors**
11 **identified in that specific incident?**

12 A. It would, yes. It's important to note that
13 periodically our model is updated, so one of the causal
14 factors of that incident actually had to do with the
15 steering mechanism, and I think this incident was in --
16 that vessel was built in 1960s, I believe. And design
17 and construction standards have changed so that the type
18 of steering mechanism that was on that vessel no longer
19 are permitted. I think there's redundant steering now.
20 So our model would reflect that as well.

21 **Q. What do you think generally about her comparison**
22 **to that incident as being uniquely representative as an**
23 **example of the risk of a spill in the Columbia River?**

24 A. I don't think that that -- I don't think you can
25 say that. It's very rare to find any incident that is

1 uniquely representative of a particular waterway. It's
2 more complex than that.

3 **Q. Let's switch subjects and talk about the transit**
4 **spills again.**

5 **In Paragraph 43, Ms. Harvey says the proposal**
6 **"adds at least two overwater transfers (terminal to**
7 **tanker) and (tanker to refinery) that are not required**
8 **for overland transportation of oil (pipeline, rail, or**
9 **truck). Transfer steps increase the potential for**
10 **spills associated with human error and mechanical**
11 **failure at the transfer point. Eliminating transfer**
12 **steps reduces spill risk."**

13 **Do you agree with that statement in the**
14 **abstract?**

15 **A. No, I can't agree with that.**

16 **Q. And why is that?**

17 **A. Well, because our assessment of transfer risk**
18 **includes several variables, and we base a lot of our**
19 **risk assessment work on established process safety**
20 **standards. Eliminating transfers is typically not a**
21 **step to reduce risk. It's -- they don't equate**
22 **directly. It isn't reasonable to say that eliminating**
23 **transfer steps reduces risk. There's just far more**
24 **components and mitigations that are in place to reduce**
25 **risk than simply not performing the activity.**

1 Q. In order to make a statement like that, do you
2 need to typically consider alternatives to the -- to
3 what --

4 A. Clearly. Sure.

5 Q. I want to maybe end with you where she begins.
6 In one of her opening statements in Paragraph 15, she
7 says, "The Proposed Action poses a significant risk of
8 spilling oil to water that could be avoided by not
9 building the project."

10 So while the project risk would most certainly
11 be avoided if it wasn't built, in your opinion is that
12 the only way to adequately mitigate the risks that you
13 studied?

14 A. Well, clearly no. No, it's not.

15 Q. And in your opinion, does the project use
16 available and reasonable methods to ensure minimal
17 adverse effects on the environment?

18 A. With respect to the marine navigation and marine
19 transfer piece, I could say that those things that we
20 have talked about, those mitigations that have been
21 incorporated into our study, yes.

22 Q. And in summary, did you read or hear anything in
23 the testimony presented by intervenors that makes you
24 want to change your conclusions or your analysis?

25 A. No, I have not.

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1 MR. KISIELIUS: I have no further questions.

2 JUDGE NOBLE: Thank you, Mr. Kisielius.

3 Cross-examination of Mr. O'Mara?

4 CROSS-EXAMINATION

5 BY MS. BOYLES:

6 Q. Good afternoon, Mr. O'Mara.

7 A. Hi.

8 Q. My name is Kristen Boyles and I represent some
9 of the intervenors in this case, and I have a few
10 questions for you.

11 MS. BOYLES: Ms. Mastro, I may refer to
12 Exhibit 120 and Mr. O'Mara's prefiled testimony.

13 BY MS. BOYLES:

14 Q. Let me begin where you just ended talking about
15 the Mobil Oil accident. And you were asked if that was
16 representative of a spill on the Columbia River; is that
17 correct?

18 A. I think the way I understood the question is, is
19 that uniquely representative of risks on the Columbia
20 River. That's the way I understood the question.

21 Q. Okay. And would you agree that the accident
22 spill of the Mobil Oil, I mean it is a spill on the
23 Columbia River?

24 A. Oh, sure. Yeah, yeah.

25 Q. And would you agree that looking at previous oil

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1 spills in the river could be useful to learn how oil
2 spills in this river behave and what their consequences
3 are?

4 A. Are you speaking to the fate and transport of
5 spilled oil?

6 Q. What happened to the oil in that accident after
7 it --

8 A. Oh, I guess. I suppose it could be, sure.

9 Q. The way I understand your testimony is you break
10 out different modeled estimates of risk from a marine
11 incident, grounding, collision at the dock, and cargo
12 loading; is that correct?

13 A. That's correct.

14 Q. Do you ever present an overall estimate of risk
15 and the oil spill amount that accounts for all of those
16 spills, for want of a better word, adds them up?

17 A. Not in this study, no, we didn't do that. I
18 don't believe we did.

19 Q. But all those things could happen? All those
20 incidents can occur at this project? Yes?

21 A. You mean spill from transit --

22 Q. Spill from transfer --

23 A. -- spill from collision at the dock, spill from
24 the terminal?

25 Q. Yes, sir.

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1 A. Well, sure.

2 Q. You also talked a little bit about the Automatic
3 Identification System, the AIS. Is that -- isn't it
4 correct that that is only required for vessels of
5 300 gross tons or larger?

6 A. That is correct. It recently changed. It
7 expanded the AIS coverage, but no, I don't think it
8 affected this study.

9 Q. For the period you looked at, for the year
10 period that you used for historical data, was 300 or
11 larger. So that doesn't account for the smaller vessels
12 in this system?

13 A. It doesn't account for all of them. We found
14 that many smaller vessels still carry AIS anyway.

15 Q. On Paragraph 26 of your prefiled testimony, you
16 are discussing the oil spill risk from cargo loading, I
17 believe. And I think you have it there if you want to
18 check.

19 A. Okay.

20 Q. And Paragraph 27 sets forth a summary table of
21 the results from the two different methodologies that
22 you used.

23 MS. BOYLES: Ms. Mastro, if we could pull
24 that, that's Paragraph 27 of his -- the next page
25 because it's the chart.

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1 BY MS. BOYLES:

2 Q. In your report, which I believe is Exhibit 120,
3 you explained that your two methodologies gave similar
4 results with a predicted frequency of a spill every
5 seven or eight years; is that correct?

6 A. I think that's what we said, yeah.

7 Q. I'm having difficulty with this chart because
8 this chart shows spills in the zero to 50 barrel range,
9 a recurrence interval of 1,300 years for Method 1, and
10 seven years for Method 2; is that correct?

11 A. Right.

12 Q. And then for your later spill recurrence
13 intervals there's also a wide gap in the results
14 depending on the method there.

15 A. Okay. Right, for the large spills, yes.

16 Q. And you think that these two methods are showing
17 similar results to verify each other?

18 A. From a risk perspective, they are, yeah.

19 Q. You also state in your report at Page 112 that
20 for spill volumes between 100 and 5,000 barrels, the
21 recurrence interval is one in eight years; is that
22 correct?

23 A. I'm sorry. Say that again?

24 Q. We can go to that. It's Exhibit 120 at
25 Page 112. Spill volumes between 100 and 5,000 barrels,

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1 the interval is one in eight years.

2 A. Okay. This is the striking at berth piece,
3 right?

4 **Q. This is --**

5 MS. BOYLES: Ms. Mastro, I'm sorry. It's
6 actually Page 112 of the report. I don't know what the
7 Bates number page is.

8 BY MS. BOYLES:

9 **Q. The first sentence in that second paragraph,**
10 **which is this method predicts that spill volumes between**
11 **100 and 5,000 barrels are the most likely.**

12 A. Right.

13 **Q. So you classify a 5,000 barrel spill as a small**
14 **spill?**

15 A. Is that the word I used? I try not to classify
16 them at all, to tell you the truth. I'd rather just
17 quantify the number. But if that's what we used. Then
18 relative to the 30,000 barrel spill, I suppose it is.

19 **Q. Okay. You also state on Page 114 of this**
20 **report, so I think Ms. Mastro, it will be two pages up,**
21 **that the most frequent oil spill risk from cargo**
22 **loading, which is an everyday operation, is 150 barrels**
23 **or less, or an average of 1.2 spills every ten years**
24 **under Method 1.**

25 **Your summary chart doesn't present this**

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1 information, does it?

2 A. Well, it's different information, right? Yeah,
3 it's actually different information. It's not to say
4 that it's contrary, but it's presented differently, yes.

5 **Q. Was I correct in understanding that in your**
6 **report and in your testimony you were just looking at**
7 **volume as the consequence here?**

8 A. Right.

9 **Q. Even though in your report you do describe**
10 **consequences as risk measures of human injury,**
11 **environmental damage, and economic loss?**

12 A. The way we report it in this study is -- well,
13 that would -- that's what makes up consequences, right,
14 those DNR consequences. We reported consequences as a
15 volume of oil spill.

16 **Q. So this really isn't a risk assessment then?**

17 A. Clearly it is; no question about it. It's just
18 a matter of how we define -- how we define the reporting
19 of consequences. That's all.

20 **Q. So, and in this report and in your testimony,**
21 **consequences don't include any impacts to the system or**
22 **to the environment or to people?**

23 A. For the purpose of this report, consequences
24 were evaluated and defined as volume of oil spilled. We
25 didn't look further than that.

BOYLES / O'MARA

1 **Q. And is it correct that you didn't evaluate**
2 **whether these spill volumes were acceptable from a risk**
3 **perspective because no criteria has been adopted in the**
4 **United States for that issue?**

5 A. That's true. And risk acceptance is something
6 that varies. So no, we don't.

7 **Q. And risk acceptance for a layperson is?**

8 A. Well, simply what frequency and consequence are
9 you willing to tolerate, is what is acceptable to you.
10 You know, we all face risks every day, right? Where we
11 get in our car and drive here, we have a risk. But we
12 have mitigations in place that we have learned to adapt,
13 so we decided that driving in traffic is acceptable
14 risk.

15 But for the purpose of this type of study, what
16 that risk criteria acceptance is, and this really is for
17 you guys, right, is something that we don't -- DNV-GL
18 does not establish what that risk criteria is.

19 **Q. And my final question, sir, is you actually**
20 **estimate some frequencies of incidents which are**
21 **accidents, and those are different than -- or groundings**
22 **or what have you, those are different than your**
23 **incidents of oil spills stemming from those accidents?**

24 A. That's correct.

25 MS. BOYLES: Thank you.

1 JUDGE NOBLE: Any other cross? Redirect?

2 REDIRECT EXAMINATION

3 BY MR. KISIELIUS:

4 Q. Mr. O'Mara, I have a couple of quick questions
5 for you.

6 Ms. Boyles asked you about fate and transport of
7 oil. Did you look at that at all?

8 A. We did not, no. We were not asked to do that.

9 Q. And there was a question about use of AIS data.

10 In your opinion, is the use of AIS data an
11 accurate and accepted mechanism for assessing
12 navigational risk?

13 A. Sure. Yeah, it is. It's probably one of the
14 only ways.

15 Q. Let me go back to the chart that was just up. I
16 think I cut you off earlier in my direct testimony;
17 Ms. Boyles asked you about it.

18 Just a little more detail about the chart on
19 Page 10, I believe. So can you explain some more the
20 difference between Method 1 and Method 2? You talked
21 about some differences about the data sets and how that
22 potentially informs some of the numbers that we're
23 seeing here and I think we'd benefit from a discussion
24 on that.

25 A. Okay. In Method 1, when I said we used standard

1 QRA methodologies, what we used there were failure rates
2 for pipeline and for components, valves, et cetera. And
3 those are established through other studies, and I can't
4 say if those studies are unique to DNV-GL, I don't know
5 the answer, but I know that we use things like those
6 failure rates, we use some assumptions that we apply. I
7 know we applied the 30-second shutoff for the ESD
8 valves, but we took the drawings that we were provided,
9 that were provided to us and identified isolatable
10 sections of pipeline, and assuming that leak were to
11 occur, that ESD valves would close thereby segregating
12 each isolatable section and the volume of oil within
13 those sections.

14 And then we assumed -- I want to say a one-hour
15 response time, delay to response, to account for the
16 volume of oil, which is a very conservative assumption.
17 We did not account for any containment, we didn't
18 account for any topography. So that's why are not -- we
19 weren't able to say in Method 1 whether the oil reached
20 the water, which is the reason we did Method 2. We
21 wanted to try to get to that question of how much oil
22 might reach the water.

23 Now, the challenge with that is the availability
24 of data. So we used two primary sources of data for
25 that. One was a study done by Washington State

1 Department of Ecology, and the other was Tesoro-specific
2 data. And in the Tesoro-specific data we used their
3 number of transfers over a given period of time, I just
4 don't remember what it was. There's a lot of numbers
5 here. And then we used their spills that they had.

6 Now, it was very limited, but we used it anyway.
7 It's conceivable that our assessment could be questioned
8 only because of the insufficiency of that data, because
9 there's so few spills to apply. But considering, again,
10 availability of data for this, we opted to go forth with
11 that. And this is the result we got.

12 **Q. Okay. And the statements you made about the**
13 **nature of the number of spills on the data set, is that**
14 **specific to Method 2?**

15 A. Method 2, yeah.

16 **Q. And do you recall whether that was the overall**
17 **number of transfers that you investigated in Method 2,**
18 **was that a small number or was that --**

19 A. The number of transfers if I recall was
20 adequate.

21 **Q. Okay. Comparable to what you saw in Method 1 or**
22 **the number of transfers you considered in Method 1?**

23 A. Method 1 didn't consider transfers.

24 **Q. Sorry.**

25 A. We applied assumptions in Method 1.

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1 Q. Okay. So in terms of the overall number of -- I
2 think of it as numerator and denominator, so forgive my
3 oversimplification, but when you're looking at the
4 number of spills and you said that number was low, the
5 pool of transfers that you took in your opinion was a
6 robust number?

7 A. I believe it was adequate.

8 Q. Okay.

9 MR. KISIELIUS: I have no more questions.

10 JUDGE NOBLE: Council questions for
11 Mr. O'Mara?

12 Mr. Shafer?

13 MR. SHAFER: Mr. O'Mara, thank you for your
14 testimony. And I know that this subject has been
15 approached several times.

16 I'm still trying to reconcile in my mind on
17 your spill volume range, and so Method 1, zero to 50
18 barrels I'm seeing a Method 1, 1,300, and a Method 2 of
19 7 years.

20 Do I understand you correctly that those are
21 close?

22 THE WITNESS: When we typically look at
23 things, when we're talking about risk numbers, we
24 typically look at things by orders of magnitude of ten.
25 So we are, what, three orders of magnitude off here or

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1 less. So typically that's in this type of assessment
2 when we're comparing two very, very different
3 methodologies, we recognize the difference. And yes,
4 within the study of risk and risk practitioners, this is
5 acceptable. The methodologies we used in both
6 assessments were acceptable. The results clearly are
7 different.

8 But -- and as Ms. Boyles sort of brought up,
9 that standard in what's acceptable, all we can do at
10 this point, especially as a neutral third party in all
11 of this, is we present our findings and try to explain
12 them as best we can, but ultimately, that's the best we
13 can leave you with.

14 MR. SHAFER: I appreciate that. If I'm a
15 layperson, and I probably more than qualify in this
16 category, if I'm as a layperson trying to arrive at a
17 singular number within that range of 1,300 to 7, what
18 number do you think I would arrive at?

19 THE WITNESS: That's a tough one. My
20 opinion is that it would tend more towards the 1,300.
21 But again, when you think about what we're trying to do
22 here, I guess we're trying to do the same thing that
23 this panel is trying to do. We're trying to predict the
24 future, right, and it's challenging.

25 And so we -- my thinking is, is that the

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1 frequency would be greater than 7 years and tend more
2 towards the 1,300, but --

3 MR. SHAFER: Do you go to the 1,300 because,
4 and that's of course the far end of the range, is that
5 because it's Method 1? What pushes you that direction?

6 THE WITNESS: Only because as I mentioned in
7 Method 2, there was a lack of sample spill incident data
8 that made me wonder -- question whether or not that was
9 as useful as the other, the Method 1.

10 MR. SHAFER: So if I follow your pathway
11 there, now I go to the 100 to 500 category. Do I now
12 trend towards eight years in that interval category?

13 THE WITNESS: It's possible to conclude
14 that, yeah.

15 MR. SHAFER: Okay. Thank you.

16 JUDGE NOBLE: Are there any other council
17 questions?

18 Mr. Moss?

19 MR. MOSS: I just want to follow up a little
20 bit on that last series too, because I find this table
21 somewhat confusing.

22 What criteria or criterion do you use in
23 defining "similar"? And let me explain that when I see
24 differences of, say, 75,000 to 78 billion, I have a hard
25 time thinking of that as being similar in any way, shape

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1 or form.

2 Do you think it's similar in some fashion?
3 Tell me on what basis you make that judgment.

4 THE WITNESS: No, that's -- yeah, that's
5 very different. We're talking about 10,000 barrel
6 spills, right?

7 MR. MOSS: 10,000 to 30,000. But what about
8 590 to 1.5 million? Is that similar?

9 THE WITNESS: Nope.

10 MR. MOSS: Okay. So where do we get to
11 similar? Eight to 160, that would be similar?

12 THE WITNESS: That is.

13 MR. MOSS: And what is the criterion or
14 criteria that you use to reach that determination?

15 THE WITNESS: The criteria that those
16 numbers are similar?

17 MR. MOSS: Yes.

18 THE WITNESS: Simply, as I described before,
19 when you get to a range of order of magnitude of ten, we
20 typically look at things that way. So if you're two
21 orders of magnitude away, you're pretty close.

22 I admit that the differences between these
23 two assessments are -- there are some differences. And
24 again, what we tried to accomplish was to give a picture
25 of if there's a spill at the facility, what would reach

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1 the water, because that question is not answered in our
2 first assessment. So given the availability of data,
3 this is what we came up with.

4 We could also organize the results slightly
5 differently as well. In other words, in this case we
6 look at a range of zero to 50 and then we look at a
7 range of 50 to 100, but if we were to define those and
8 say they're zero to 100, well, then we'd be very
9 similar, right? And we could do that similarly
10 throughout.

11 But given that -- we've estimated the
12 smaller spills would be more frequent, we specifically
13 broke out that zero to 50 really just for you to look
14 at. I mean, it was important that we report this as
15 clearly as we could.

16 MR. MOSS: Thank you.

17 JUDGE NOBLE: Any other council questions?

18 Mr. Rossman?

19 MR. ROSSMAN: Yeah, just a couple quick
20 questions.

21 So one is I believe all of this analysis
22 assumes that 80 percent of the vessel transit are the
23 smallest class of vessels; is that right?

24 THE WITNESS: Yeah, we used 79 percent.

25 MR. ROSSMAN: And I'll need to double check

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1 on this, but I think I recall hearing earlier testimony
2 that at least the very largest size class isn't
3 currently in existence for this -- or it wasn't in
4 service. And I'm not sure if that extended to the
5 second class. But if we were to assume that we were
6 just working with that smallest class, would the
7 appropriate thing to do to your risk estimates be to
8 increase them from 80 percent frequency to 100 percent?

9 So in other words, if you assumed an
10 incident that would happen once every four years because
11 you were assuming 80 percent of the transits where that
12 smaller vessel, but we think 100 percent of the transits
13 are that smaller vessel, would the frequency of that
14 increase from four years to three years or three and a
15 half years?

16 THE WITNESS: Do you mean if we changed the
17 ratio of the vessel transits between the sizes of
18 vessels, right?

19 MR. ROSSMAN: Correct. Because it seems
20 like the smallest has the highest risk.

21 THE WITNESS: The smallest has the highest
22 frequency primarily because it has the highest number of
23 transits, right? So we assessed the 47,000 deadweight
24 ton vessel, the smallest one, comprised 79 percent of
25 the transits, the 105,000 ton vessel we did at

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1 20 percent, and that 160,000 ton vessel at 1 percent.
2 And so the frequencies would reflect that.

3 So if you were to change the transit ratio,
4 it could affect the frequency. And we did look at this,
5 but within a very specific ratio. I think we went
6 80/15/5. And so, but this was done out -- it was in
7 response to a data request, and I don't know if I'm
8 supposed to talk about that here.

9 MR. ROSSMAN: That's fine.

10 THE WITNESS: We can provide that.

11 MR. ROSSMAN: And then shifting gears, on
12 the escort tug risk reduction of grounding, is that
13 assuming the escort tugs are there for the entire
14 duration down the river or is that just at some key
15 points?

16 THE WITNESS: That would be from the
17 terminal of Vancouver to -- well, basically Astoria
18 where the bar pilots board the vessel. There's two
19 pilot organizations.

20 MR. ROSSMAN: And then my last question is I
21 believe I recall reading in the report and in the
22 testimony that many of the possible incidents wouldn't
23 involve oil releases.

24 THE WITNESS: Right.

25 MR. ROSSMAN: Do we have any assessment at

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1 all of consequences of those other incidents or the
2 frequency of those other incidents that don't involve
3 oil releases?

4 THE WITNESS: Yeah. We talked about
5 frequency here. Remember, consequence in our study was
6 defined simply as volume of oil spill, right? So for
7 those incidents, no, we don't have consequence data but
8 we do have frequency data. We could say -- and I think
9 we summarized that.

10 MR. ROSSMAN: So if I'm trying to understand
11 the overall risk of the things that you've looked at and
12 most of the incidents don't involve an oil release --

13 THE WITNESS: Right.

14 MR. ROSSMAN: -- how do I assess risk coming
15 from most of the incidents?

16 THE WITNESS: Well, there are a number of
17 ways we could decide how we want to assess risk. If you
18 want to look at -- if you don't want to -- if you want
19 to look at risk independent of oil spills, so I think
20 what you're asking me is how do we assess risk of the
21 consequences of a grounding or how do we assess risk of
22 the frequency of grounding?

23 MR. ROSSMAN: Your report doesn't in any way
24 characterize those other possible types of risk; is that
25 right? So we don't know what other negative things

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1 could happen from a grounding or a collision other than
2 an oil spill.

3 THE WITNESS: Right. We look at the
4 frequency of those events, right. But if you remember,
5 when I said risk is both frequency and consequence. So,
6 yeah, I guess it's fair to say we do look at risk of
7 grounding.

8 MR. ROSSMAN: So we're only looking at the
9 portion of risk associated with the consequence of oil
10 spill, and there's some other portion of risk that we're
11 not looking at because the consequence is outside of the
12 scope of this study?

13 THE WITNESS: Yeah, that's fair to say.

14 MR. ROSSMAN: Okay. Thank you.

15 JUDGE NOBLE: Any other council questions?
16 Mr. Lynch?

17 MR. LYNCH: Good afternoon. Did you assign
18 any sort of confidence ratio or measure to a study?

19 THE WITNESS: We did, in fact. I believe we
20 did.

21 MR. LYNCH: I'm particularly interested in
22 the second, your Method 2 where you said you didn't have
23 a lot of data. I'm just curious what that turned out to
24 be.

25 THE WITNESS: Oh, yeah. I think I may have

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1 answered too soon. I think we did apply a -- we
2 compared incident rates, actual incident rates on the
3 Columbia River from marine casualty data to the rates
4 that we arrived at with our MARCS model. But we did not
5 compare or do an evaluation of the terminal loading
6 assessment. Right, we looked at the difference between
7 the results we obtained through MARCS modeling and
8 actual incident rates on the river. But we didn't do
9 the other for the loading. We didn't have a source to
10 do that.

11 MR. LYNCH: So you didn't develop any
12 confidence ratio then?

13 THE WITNESS: I don't believe we did. I
14 know that's possible to do. We've done it before, but I
15 don't think we did in this case.

16 MR. LYNCH: Okay. Thank you.

17 THE WITNESS: I don't recall.

18 JUDGE NOBLE: Mr. Stone has a question.

19 MR. STONE: Good afternoon, Mr. O'Mara. I'm
20 still trying to wrap my head around the validity of
21 using Method 2, and your report, which is Exhibit 120,
22 states that Method 2 used Tesoro-specific historical
23 spill experience, which in your oral testimony you
24 admitted was kind of a small data set, plus an oil spill
25 study prepared for Washington Department of Ecology.

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1 Did the DOE study have a data set that it
2 used that added to the historical spill event data that
3 is Tesoro specific?

4 THE WITNESS: I believe it did. They may
5 have.

6 MR. STONE: So what I'm getting at is the
7 data sets used for Method 1 and Method 2, are they
8 equivalent in terms of number of oil spill events
9 utilized?

10 THE WITNESS: Well, again, in Method 1, we
11 didn't look at oil spill events, right?

12 MR. STONE: Okay. Well, it says global
13 failure frequencies, so I'm not exactly sure what that
14 means.

15 THE WITNESS: That would relate to pipe
16 failure, hose failure from equipment and process safety
17 failure.

18 MR. STONE: Okay. So that's not tanker ship
19 spills per se?

20 THE WITNESS: Right.

21 MR. STONE: Thank you.

22 JUDGE NOBLE: Any other council questions?

23 Sorry. Mr. Snodgrass?

24 MR. SNODGRASS: Good afternoon. I just have
25 a couple of brief questions.

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1 The issue of the Columbia Bar was raised I
2 think in response to a prior question so I just wanted
3 to clarify.

4 Is it the case that -- does any of the data
5 in your analysis look at crossing the bar or shipment
6 beyond the bar agency?

7 THE WITNESS: Bar study area extended I
8 think 12 miles beyond the bar.

9 MR. SNODGRASS: In terms of the locations
10 within the river channel, I think you had some concerns
11 about Ms. Harvey's Google Earth-derived testimony. So I
12 just want to get a better sense of your thinking on the
13 likely hot spots, locations in which either a collision
14 or a grounding would occur. I assume it's not uniform
15 within the channel, but if you could give us a sense of
16 where those would likely occur. And let me back up.

17 Collisions or groundings with oil discharge,
18 where are those likely to occur?

19 THE WITNESS: It's not possible to identify
20 locations where an oil spill might occur. It is
21 possible to identify locations where someone who's
22 familiar with navigating a river could tell you where
23 they may take actions to avoid collision.

24 And so I as a modeler, I'm not necessarily
25 that person who is an expert on navigating the river. I

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1 will tell you that, as I mentioned before, where we did
2 the workshop with stakeholders, experts who are familiar
3 with navigating the river, relayed to us specific areas
4 on the river where they, as a practice, take additional
5 measures to avoid collision. And those areas on the
6 river are accounted for in our model.

7 MR. SNODGRASS: Thank you.

8 JUDGE NOBLE: Any other council questions?
9 Could I just ask for a clarification?

10 When you said 12 miles down the bar, I
11 wasn't sure what you meant by that. I'll just speak a
12 little louder and then we'll fix the microphone problem.

13 When you said 12 miles down the bar, where
14 are you talking about? I didn't understand that. I
15 would think of the bar as 12 miles. Would that be this
16 side of the bar or 12 miles on the other side?

17 THE WITNESS: Twelve miles seaward of the
18 bar. And that defined our study area.

19 JUDGE NOBLE: Seaward. Thank you.

20 Any other council questions? All right.
21 Questions based upon council questions?

22 RECROSS-EXAMINATION

23 BY MS. BOYLES:

24 Q. Mr. O'Mara, I believe it was in your answers to
25 Mr. Rossman you talked about that more transits would

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1 equal more risk; is that correct?

2 A. No, that's not correct. I don't think I said
3 that.

4 What I think we were talking about was in the
5 ratio of transits between the three vessel types that
6 the proponent has indicated they would use, if we
7 changed that ratio, it could possibly affect the overall
8 risk numbers. But the reason, the biggest reason why, I
9 think the question is related to the 47,000 deadweight
10 ton vessel having the higher frequency of potential
11 incidents and the reason that is, is because it's made
12 up of 79 percent of the overall transits. I think
13 that's what we were talking about. Does that get to --

14 **Q. So if the 47,000 deadweight ton boats cannot be**
15 **filled to capacity and there would have to be more**
16 **transit of those boats, would that equate to a different**
17 **risk calculation?**

18 A. Well, now we're talking about changing the
19 volume, right, which then changes the potential spill
20 volume, which again it affects your consequence. So
21 because risk is a factor of frequency and consequence,
22 that would be something that would have to be evaluated
23 to give you a correct answer.

24 **Q. Despite the questions that have been raised**
25 **about your Method 1 and Method 2 in the chart, you do on**

1 Page 117 of your report sum all those oil spill
2 scenarios, I believe, and I'm just confirming that for
3 Method 1 you say there's an oil spill once in every
4 eight years and for Method 2 once in every seven years;
5 is that correct?

6 A. I believe it is, yes.

7 MS. BOYLES: Thank you.

8 JUDGE NOBLE: Any other questions based upon
9 council questions? Mr. Kisielius?

10 MR. KISIELIUS: Just a couple.

11 REDIRECT EXAMINATION

12 BY MR. KISIELIUS:

13 Q. In response to Chair Lynch's question about
14 comparing incident rates, I heard your explanation about
15 the transloading, kind of quickly went over your
16 comparison of that to the vessel risk where you did that
17 analysis.

18 Can you summarize what that conclusion was?

19 A. I'm sorry. I don't understand what you're
20 asking me.

21 Q. Chair Lynch was asking you to compare your
22 modeling with actual historic incidents.

23 A. Okay.

24 Q. You said that you had not done that for the
25 transloading, but you talked about having done that for

1 **the vessel transit risk.**

2 **Can you summarize what the results of that**
3 **assessment were?**

4 A. We found that our MARCS model produced results
5 that were within a factor of 6 to actual incident data.

6 MR. KISIELIUS: That's it. Thank you.

7 JUDGE NOBLE: Mr. O'Mara, thank you very
8 much for your testimony. You're excused as a witness.

9 It's 2:40 and this is a good time to take a
10 break. Although the list of witnesses that I have for
11 today was short, and we've now completed the third
12 witness, do you have an additional witness for today?

13 MR. KISIELIUS: We do. I can call Eric
14 Haugstad who had been on the list you may recall last
15 week.

16 JUDGE NOBLE: Yes.

17 MR. KISIELIUS: And I think we were not sure
18 whether we were going to get through all three witnesses
19 in one day. But we'd be able to call Mr. Haugstad at
20 the conclusion of the break.

21 JUDGE NOBLE: All right, then. We will be
22 off the record until 2:55. Thank you.

23 (Recess taken from 2:40 p.m. to 3:02 p.m.)

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

25 Would you call your next witness,

KISIELIUS / HAUGSTAD

1 Mr. Kisielius.

2 MR. KISIELIUS: The applicant would like to
3 call Eric Haugstad.

4
5 ERIC HAUGSTAD,
6 having been first duly sworn, testified as follows:

7 JUDGE NOBLE: You may proceed, Mr. Kisielius.

8 MR. KISIELIUS: Thank you.

9 DIRECT EXAMINATION

10 BY MR. KISIELIUS:

11 Q. Mr. Haugstad, could you please state and spell
12 your name for the record.

13 A. Eric Haugstad, E-r-i-c, H-a-u-g-s-t-a-d.

14 Q. And, Mr. Haugstad, did you prepare a sworn
15 statement?

16 A. That's correct.

17 Q. And just for your reference I've placed it in a
18 binder at your table with -- along with some exhibits
19 that we may be referring to should you need to look at
20 those, more than what we have on the screen.

21 Mr. Haugstad, could you please briefly state
22 your area of expertise?

23 A. Yes. I'm the director of contingency planning
24 and emergency response for Tesoro Companies.

25 Q. And what is your role specifically with respect

KISIELIUS / HAUGSTAD

1 to spill planning and prevention for this facility
2 specifically?

3 A. For this facility specifically, as we move
4 along, we've put together a preliminary contingency
5 plan. There's still some vacancies because we don't
6 have approval to build yet. But we've been drafting up
7 the contingency plan, and also we've identified some
8 spill response equipment.

9 Q. Okay. We'll get into some of those details in
10 just a second.

11 But keeping in your area of experience, prior to
12 your role with Tesoro and prior to your role with
13 respect to this specific facility, can you talk just in
14 general about your experience with spill response and
15 spill response planning?

16 A. Yes. I go back a long -- I've done this for
17 approximately 34 years. I started on the North Slope of
18 Alaska for an oil spill co-op made up by the oil
19 companies operating up there, Alaska Clean Seas. During
20 that time, one of the first big spills I responded to
21 was a tank vessel, Glacier Bay, I think it was in 1987
22 in Cook Inlet. There was approximately a 12,400 barrel
23 crude spill in the Cook Inlet.

24 After that, I worked at British Petroleum's
25 Endicott Island, its first offshore Arctic oil

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1 production in the U.S. And about that time, Exxon
2 Valdez occurred, and they loaned me out to work on the
3 Exxon Valdez for about a month and then recalled me back
4 to resupply and order up the equipment that we donated
5 to Exxon for the response.

6 And then the most recent fairly large spill I've
7 been on was the Deep Water Horizon. Again, I was loaned
8 out to BP and helped Bill Allen put together the in situ
9 burning for the offshore crude oil.

10 **Q. Does your written statement include a more**
11 **detailed summary of your past experience?**

12 A. That's correct.

13 **Q. We don't have a CV. It's all included in the**
14 **statement for -- so there's no other exhibits to refer**
15 **to.**

16 Okay. Mr. Haugstad, I want to ask you a few
17 questions about some of the spill planning documents
18 that you had referenced earlier, the preliminary spill
19 plans. And I want to ask you these questions in
20 response to Susan Harvey's testimony about those plans.

21 Are you familiar with Susan Harvey's testimony?

22 A. Yes, I am.

23 **Q. Okay. She testifies to the adequacy of the Oil**
24 **Spill Contingency Plan that you've just referenced, and**
25 **I want to ask you a few questions about her critique of**

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1 those documents, but before we do that I guess I wanted
2 to get a little background about those plans.

3 First, let's talk about that spill contingency
4 plan that you identified. Can you describe at a really
5 high level what that document includes?

6 A. Yes. Right now, again, it's in a very draft
7 form, but we have the typical stuff that's in every
8 contingency plan, everything from notifications to
9 state, federal, local agencies. Our incident management
10 team structure identifies, we follow NIMS, which is the
11 National Incident Management Systems, and it has
12 identified the key roles within the NIMS system.

13 We talk about equipment that will be at the
14 facility that's owned by Vancouver Energy, and really
15 some of the voids are we don't have employees hired
16 working, so that's kind of a gap.

17 **Q. There was some testimony earlier today about**
18 **OSROs.**

19 A. That's correct.

20 **Q. Can you first tell us again what an OSRO is?**

21 A. OSRO is an Oil Spill Response Organization that
22 is both state and federally approved by the Coast Guard
23 and Washington Department of Ecology.

24 **Q. And does the document in its current form**
25 **describe the relationship with OSROs?**

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1 A. Yes, I believe it does.

2 **Q. Generally, the spill contingency plan, is that**
3 **designed to meet federal or state requirements?**

4 A. It's designed to meet both. We do kind of like
5 an umbrella plan where the oil spill response plan will
6 meet both the Coast Guard, the EPA and the DOE
7 requirements in one plan.

8 MR. KISIELIUS: And for council's reference,
9 this document that Mr. Haugstad is describing is part of
10 Exhibit 1. It's an attachment to the application that
11 begins on Page 2561.

12 BY MR. KISIELIUS:

13 **Q. And again, keeping at kind of a high level for**
14 **now, does the Oil Spill Contingency Plan, does it**
15 **incorporate regional planning for spill response?**

16 A. Yes, it does. We reference the Northwest area
17 contingency plan, specifically, the Geographic Response
18 Plans that identify very key, sensitive areas in and
19 around the facility and down river that have very
20 specific response strategies for each of those sites.

21 MR. KISIELIUS: And I'm going to ask
22 Ms. Mastro to open Exhibit 53.

23 BY MR. KISIELIUS:

24 **Q. And while she's doing that, let's -- so this**
25 **Geographic Response Plan, you said it identifies**

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1 strategies for specifically identified priorities. So
2 can you describe that in a little bit more detail, how
3 that works?

4 A. Yeah. So the Northwest Area Committee, through
5 a network of agencies, local land owners, tribal
6 community identified typically, it's like water intakes,
7 anadromous streams, salmon, and typically it's sites
8 that have environmental sensitive importance to the
9 community, and then they will draft up what I call an
10 ICS 204 strategy. Basically it's a plan that tells you
11 how much equipment you need, what type and where you set
12 it up at. And they're very detailed.

13 **Q. So how does this Geographic Response Plan work**
14 **in practice if there's a spill somewhere along the**
15 **river? Is that document used?**

16 A. Yes, very much so.

17 **Q. And by whom?**

18 A. If it was very close to the facility, the people
19 we'd have doing the prebooming would deploy it. Our
20 OSROs are very familiar with the GRPs, Clean Rivers and
21 MSRC both routinely go out and practice those.

22 **Q. So let's go back to the spill contingency plan,**
23 **then.**

24 **Does the spill contingency plan itself**
25 **incorporate the Geographic Response Plans?**

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1 A. Yes. They incorporate the ones that are close
2 to the facility, and then we print out the GRPs and have
3 it with the facility plan as an attachment.

4 **Q. Okay. So let's talk a little bit about the**
5 **genesis of this document and a couple of iterations.**

6 **Have you revised the spill contingency plan?**

7 A. Yes, a couple of times.

8 **Q. And why is that?**

9 A. I think the first revision is around the time we
10 purchased the equipment, the initial phase of the
11 equipment for the facility. We updated some more, I
12 think we included some of the GRPs in the revision. And
13 then in January of this year, we did a tabletop
14 exercise, actually two tabletops, and we incorporated
15 the outcomes of those in an update.

16 **Q. Okay. And we'll talk more about those drills in**
17 **a second.**

18 **But in keeping with the revisions, if we could**
19 **advance to Page 2927 of Exhibit 1.**

20 **So is this the most -- does this, what we're**
21 **looking at here, include the most current revisions to**
22 **the spill contingency plan?**

23 A. Yes, that's correct.

24 **Q. And is this version that's attached to the**
25 **application for site certification, is it a stand-alone**

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1 document or is it just the corrections to the earlier
2 version we were just looking at?

3 A. It's a correction, amendment to the earlier
4 version.

5 Q. Okay. So let's switch plans now and talk at a,
6 again, big picture level for now about the spill
7 prevention control and countermeasures plan. Have you
8 prepared one of those?

9 A. Yes.

10 Q. And can you describe that document at a really
11 high level?

12 A. That document is geared more towards the
13 prevention and countermeasures of a spill within the
14 facility for tank overfill or a valve or a minor spill.
15 And that's governed, again, by DOE, but EPA also.

16 Q. So just to clarify, the distinction you're
17 making here, you said this is about a spill at the
18 facility. The contingency plan is also a facility
19 document?

20 A. That's correct.

21 Q. What kind of spill is it looking at there?

22 A. It's more global, because it also addresses the
23 dock, the marine area, loading area.

24 Q. So the spill prevention control and
25 countermeasures plan, is that designed to meet federal

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1 or state requirements?

2 A. Both.

3 Q. Okay.

4 MR. KISIELIUS: And again for the council's
5 reference, the draft plan is at Page 2475.

6 BY MR. KISIELIUS:

7 Q. Okay. With that background, I want to talk
8 about Ms. Harvey's critique of the Oil Spill Contingency
9 Plan. She mentions in Paragraphs 121 through 133 that
10 it's incomplete and that there are gaps. So let's talk
11 bigger picture, because I think you also said it's
12 preliminary.

13 In your experience, is it normal to develop a
14 spill contingency plan at this stage in the review and
15 approval in a facility like this at Vancouver Energy?

16 A. Not typically.

17 MR. KISIELIUS: Ms. Mastro, if you could
18 turn to Page 2573.

19 BY MR. KISIELIUS:

20 Q. So focus there on the introduction in the second
21 paragraph. Is that why you identified it as a
22 preliminary plan?

23 A. That's correct.

24 Q. So what information is still -- you mentioned a
25 couple, but what information is still forthcoming that

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1 you'd expect to add to this plan?

2 A. We'd add the actual final design, approved
3 engineering designs for the piping, the entire facility,
4 the tanks. We would be hiring people that currently are
5 not employed by Vancouver Energy because they would play
6 a key role in the safe operations of the facility. And
7 then we would also go out and procure the remaining
8 facility oil spill response equipment that's left to be
9 purchased.

10 **Q. Okay. And are there place holders for these**
11 **employees and for this equipment?**

12 A. Yes.

13 **Q. Let's talk about what information it does**
14 **include at this point. I think you had mentioned**
15 **incident command. Does it describe that?**

16 A. Yeah. So the NIMS incident command system, it's
17 a management system for emergency response, and quite
18 frankly a lot of other things. We use that throughout
19 the corporation, and we have an incident commander just
20 like the State of Washington has an incident commander,
21 the U.S. Coast Guard, and we follow the unified command
22 process within NIMS to where if an incident occurs,
23 everyone comes together at a command post such as this
24 room, something similar to it, and the process takes
25 over to mitigate the incident.

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1 Q. Does it include response team organization?

2 A. Yes, it does.

3 Q. How about specific response actions?

4 A. Yes, it does.

5 Q. And I think we talked about this at the
6 sensitive areas and response tactics?

7 A. Yep.

8 Q. So going back to Ms. Harvey's critique, and
9 we'll go through specific things she thinks are missing,
10 but just by way of reference, she testifies about the
11 2014 version.

12 Is that the current version of the plan?

13 A. No.

14 Q. So let's go to one of the gaps she identifies in
15 Paragraphs 122 and 124. And she says there's a lack of
16 oil spill response strategies to address the need to
17 collect submerged bitumen.

18 Do you agree?

19 A. No.

20 Q. Let's talk about that a little more. She says
21 you don't use the word "dilbit" but that you talk about
22 the range of API gravity.

23 So in your opinion, is it a flaw that the plan
24 doesn't use the word "dilbit"?

25 A. No.

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1 **Q. Does the API gravity cover that sufficiently?**

2 A. Yes, it does. Because based on the API gravity,
3 that determines whether it's a, what I call a floater or
4 a sinker, and that's very much how pretty much an
5 industry practices is to follow API gravity of a
6 product.

7 **Q. And does the range that's identified in that**
8 **document, the 15 to 45 number we've heard testimony**
9 **about, does that include dilbit?**

10 A. Yes, it does.

11 **Q. You mentioned earlier in your testimony about**
12 **that drill that you ran, the tabletop drill.**

13 **Can you describe more generally what that was**
14 **and what you were seeking to do?**

15 A. Yes. So I had our two OSROs, Clean Rivers,
16 MSRC, Polaris, a contractor, some of the Tesoro incident
17 management team that I worked with routinely, we did two
18 drills in Vancouver, Washington. One focused on Bakken
19 crude oil and one focused on dilbit 15 API gravity crude
20 oil. We utilized the trajectories that we had done by
21 another vendor on the spread of the oil, and we
22 actually, with the way the regulations are, you don't
23 really get credit for secondary containment, or tertiary
24 or that, so our worst-case --

25 (Court reporter interruption.)

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1 A tertiary, like secondary. And then worst-case
2 is actual capacity of the tank, not the safe fill
3 heights. So I believe it's 380,000 barrels gets into
4 the Columbia River unobstructed, and that was the basis
5 for the drills.

6 **Q. So going back now to our topic here on the**
7 **strategies to address dilbit, your study, you looked at**
8 **dilbit?**

9 A. Yes.

10 **Q. And what was the conclusion of that study for**
11 **the drill?**

12 A. For this drill, both of our OSROs have contracts
13 with additional environmental contractors like Global
14 and NRC Environmental that do submerged oil recovery.
15 Throughout the drill, the 48-hour drill, based on the
16 weather criteria time of year, it would still be
17 floating. But we wanted to address that if it did
18 become neutral blend or something, that we had looked at
19 how to address submerged oil. And we followed at the
20 time it was drafted, API submerged oil booklet.

21 **Q. So let's talk a little bit about that**
22 **terminology, because I think we're using a lot of terms**
23 **here. There's "dilbit" and then there's "submerged,"**
24 **and then there's also "sinking oil."**

25 So going back to that API gravity range that you

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1 were describing earlier, what's the API gravity of what
2 you would call a sinking oil?

3 A. It would be at an API of 10 or lower, API 9.
4 API 10 would be fairly neutral blend.

5 **Q. But your drill, you looked at response**
6 **strategies to those as well?**

7 A. No. We actually worked on, I think it was an
8 API 17 for the drill.

9 **Q. So when she says -- let me ask you.**

10 **Do you equate dilbit with sinking oil?**

11 A. Not immediately. Again, our facility in the
12 permit is an API 15 to I believe 45, and that's not
13 sinking oil.

14 **Q. Okay. So another gap that she identifies is, in**
15 **122, is that there's "an incomplete list of on-site oil**
16 **spill response equipment, including high current boom**
17 **systems."**

18 **So let's talk about response equipment. First,**
19 **has Vancouver Energy already purchased any response**
20 **equipment?**

21 A. Yes, we have.

22 **Q. And what is that?**

23 A. We bought two NOFI Current Busters Number 2.
24 They're made in Norway. They've been tested effectively
25 in currents up to 5 knots. They use them in the North

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1 Sea. We've used them up in Alaska with our operations
2 there. They were used in the Gulf of Mexico. We bought
3 two of those, and then we also bought two oleophilic
4 skimmers manufactured by Crucial. And they're
5 oleophilic because they've been tested to the ASTM 2709
6 standard and have their Coast Guard effective daily
7 recovery rate. They're very efficient high oil recovery
8 skimmers.

9 **Q. And those are available now at the site?**

10 A. Yeah. They're in Vancouver.

11 **Q. Is it, in your experience, usual to have already**
12 **purchased equipment for a facility at this stage in the**
13 **permitting process?**

14 A. Not normally.

15 **Q. So is that the total list of the equipment?**

16 A. No. No, not at all. If this facility gets
17 approved, there's additional containment boom, vessel,
18 some aluminum mini-barges that are 100-barrel capacities
19 for on water storage. And a few other things.

20 **Q. So when would that be purchased?**

21 A. About the time we would start construction.

22 **Q. Okay. And would you add that inventory of --**

23 A. Yes.

24 **Q. -- equipment to the plan?**

25 A. Yes. Once it was onsite and we did the training

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1 and everything, we'd add it to the plan.

2 MR. KISIELIUS: I'm going to ask Ms. Mastro
3 to please advance it to Page 2969. Sorry, if you could
4 go to Page 2973, that's the beginning of the attachment.
5 My apologies.

6 BY MR. KISIELIUS:

7 Q. Mr. Haugstad, I'm going to ask you to look at
8 that table that is kind of half hidden right now. And I
9 think we might be able to rotate it for you.

10 But it's also in the -- does that reflect the
11 list of the equipment that you were just describing?

12 A. Yes, it is.

13 Q. So I think the issue here was she was talking
14 about the onsite equipment.

15 Again, for background, is there off site
16 equipment that could be available in the event of a
17 spill from the facility?

18 A. Oh, absolutely. That's why we contract with
19 Clean Rivers and MSRC. MSRC is a national OSRO. It's
20 one of the largest in the United States, and they have a
21 very large amount of equipment in the State of
22 Washington alone, but have equipment also in California.
23 If needed, that could be rapidly cascaded in. Clean
24 Rivers has a fairly large assortment of equipment in the
25 Willamette and Portland area that, in fact, they would

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1 meet our AMPD requirements for the dock.

2 **Q. Let's turn to a different gap that Ms. Harvey**
3 **talked about in Paragraphs 122, 125 and 126. She said**
4 **in general there's a lack of detail on tactics and**
5 **strategies to be used in crude oil spill recovery**
6 **efficiency in a fast-moving river.**

7 **Do you agree with that?**

8 A. No.

9 **Q. Why not?**

10 A. Well, the purpose of us purchasing the NOFI
11 Current Busters is so we could better contain the oil in
12 speeds of greater than a knot to 5 knots, because that's
13 what the equipment's designed for. Not only do we have
14 two, but MFSA has I believe either got it or are
15 purchasing one. And MSRC I believe has three, one in
16 Astoria and two in Puget Sound.

17 **Q. Now, in her testimony she said it's effective in**
18 **currents up to 3 knots.**

19 **Is that accurate?**

20 A. No.

21 **Q. So just to be clear, what's the range at which**
22 **it was tested?**

23 A. The Current Buster has successfully been tested
24 up to 5 knots and some fairly significant wave heights.
25 And the reason why it's successful is, unlike contractor

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1 boom that's built by closed cell foam logs, very rigid,
2 this is an air-inflated boom and it has a very nice wave
3 conformity.

4 **Q. Let's go to another issue that Ms. Harvey raised**
5 **in her testimony. In Paragraph 122, she said that**
6 **equipment lists do not include equipment identified by**
7 **the response team during the 2016 drill as necessary.**

8 **So here I think she's referring to your drill.**
9 **Do you agree with that statement?**

10 A. No, because we actually document from the very
11 beginning of the incident all the way out through
12 48 hours. And the equipment in the Northwest area, we
13 use what's called "the whirl," and all the equipment in
14 the Northwest is inputted into a basically an Excel
15 spreadsheet, and that's how you can identify the
16 equipment and where it's coming from. And it also will
17 tell you approximately how long it would take to get it.

18 **Q. So to be clear, in the drill, did you rely on**
19 **equipment that's not specifically listed in the plan?**

20 A. Oh, absolutely.

21 **Q. And is that okay?**

22 A. Yeah. That's why we contract with the two
23 OSROs.

24 **Q. So is the obligation -- is there an obligation**
25 **to list off-site equipment in your plan?**

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1 A. No. There is an obligation to demonstrate you
2 contract with someone who can provide the equipment.

3 **Q. Okay. And have you done that?**

4 A. Yes.

5 **Q. Now let's focus on worst-case discharge**
6 **planning. First, just for context, I think she**
7 **characterizes in Paragraph 58 that the tanks are, she**
8 **uses the phrase, "on the banks of the Columbia River."**

9 **To be clear, how far are the storage tanks from**
10 **the river?**

11 A. Like approximately about a third of a mile
12 inland.

13 **Q. And she also says that the topography is such**
14 **that a spill would reach the river if a tank and**
15 **secondary containment failure occurred.**

16 **Is that true?**

17 A. I don't necessarily agree with that, because
18 there is between -- along the waterfront, there's a road
19 that would go to the marine terminal, and on the inland
20 side of it, there's a fairly significant depression that
21 follows that road which would be a great recovery point
22 if it got that far.

23 **Q. And in that scenario, would you have a**
24 **contractor that could come and remove the oil from that**
25 **location?**

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1 A. Absolutely.

2 Q. Okay. So let's go to the worst-case discharge.
3 I think you said earlier that you nevertheless assume
4 that the tank -- can you tell us again, what's the
5 contents of the tank that you had to assume would reach
6 the river?

7 A. That's correct.

8 Q. Can you tell us what the number is?

9 A. I think it was the tank capacity is
10 380,000 barrels.

11 Q. To be clear, did your drill look at that
12 complete tank requirement?

13 A. Yes. Yes, it did.

14 Q. Is that consistent in your understanding with
15 the regulatory worst-case discharge amount for which you
16 need to plan?

17 A. Yes, it is.

18 Q. And so you talked about some -- the likelihood
19 of it reaching the water. Did that enter into your
20 planning for the worst-case discharge in the drill?

21 A. No.

22 Q. Okay. So again, she says in Paragraph 90 that
23 "a Worst Case Discharge analysis cannot be ignored."

24 Was it your intent to ignore that worst-case
25 discharge analysis?

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1 A. No, it wasn't.

2 Q. Okay. And do you feel like you've assessed a
3 potential worst-case discharge in the drills that you've
4 completed?

5 A. Yes. We worked them to the finest detail for
6 people, equipment, arrival times. We looked at all the
7 GRPs downstream from the facility and where the
8 equipment and the people would come from to protect
9 them.

10 Q. Okay. Let's talk a little bit about prebooming.
11 And Captain Bayer I think mentioned this in general.

12 Can you describe the prebooming protocol?

13 A. Yeah. First we evaluate -- safety is very
14 important, so we would look at the wind speed and wave
15 height, meaning that it meets the criterion. Like we
16 use a knot and a half --

17 Q. Before we get there, I just want to -- just the
18 mechanics of how it actually works before you get to the
19 thresholds.

20 A. Okay.

21 MR. KISIELIUS: Maybe to help illustrate
22 that, Ms. Mastro, could you turn to Page 317 of
23 Exhibit 1?

24 BY MR. KISIELIUS:

25 Q. So just mechanically how does this work and what

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1 are we looking at here?

2 A. We're looking at the terminal where the ships
3 would pull in going upriver, and they're totally
4 encapsulated. The green that runs, it looks like
5 parallel to the berth, would be fence boom that's
6 permanently installed, because you've got to work it
7 through all the pilings. Once you get it there, you
8 want it to stay there. And then orange is the boom that
9 would be deployed after the ship was made all fast to
10 the dock, but prior to any cargo hoses being hooked up
11 or anything else.

12 **Q. So I interrupted you there. You were starting**
13 **to move on to the prebooming protocol and how that**
14 **works.**

15 A. So there's a criteria that's used today in the
16 Columbia River by the operators, and we basically would
17 use the same criteria, and I forget the wind speeds. I
18 think the sea heights was 2 1/2 feet and I think the
19 winds were -- I'd have to look at the document, but --

20 MR. KISIELIUS: Why don't we -- Ms. Mastro,
21 could you turn to Page 3199? Thank you.

22 BY MR. KISIELIUS:

23 **Q. And it is there in front of you if that helps**
24 **too. We're going towards the bottom of the page. Thank**
25 **you.**

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1 A. So basically we'd go to, I think in the
2 paragraph above that it said a knot and a half would
3 be -- and quite frankly, that's when you're normal, what
4 I refer to the contractor boom begins to fail, oil will
5 begin to retain some, but it will get sucked under by
6 the current and pop up downstream a ways rendering the
7 boom not very effective.

8 But we'd use -- look at the current speed and
9 the wind speed and wave height to determine if it's safe
10 to put the equipment out. And if not, with the Current
11 Buster being there, well, we're going to have a boom
12 boat crewed up and in the water whenever there's a
13 vessel alongside, that they would then get the Current
14 Buster prepared to deploy as a mitigation if it was too
15 high of current or too windy to put the contractor boom
16 out.

17 **Q. So that threshold, again, in terms of the**
18 **current at which you would no longer put out the**
19 **contractor boom, could you say that again?**

20 A. I believe it's a knot and a half.

21 **Q. And what's the likelihood of being able to**
22 **effectively preboom given that limit? In other words,**
23 **how often do you anticipate having currents at the dock**
24 **of over a knot and a half?**

25 A. It would be kind of seasonally driven by the

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1 winter runoff; how much water the dams are releasing
2 upstream is the biggest driver of that. If they have a
3 period of heavy rain in the wintertime. But where the
4 dock is, where this facility is sited, most of the time
5 talking with the locals that the current stays right at
6 one knot or a little below it.

7 **Q. Tell me again, then once you've exceeded that,**
8 **your backup plan?**

9 A. We would have the boom boat and the personnel on
10 that ready, one of the Current Busters for deployment as
11 a mitigation measure, because they would still be well
12 within their operational tolerance.

13 **Q. And have you set a threshold -- I'm actually**
14 **going to ask for the page number first.**

15 MR. KISIELIUS: Could you turn to Page 3201?

16 BY MR. KISIELIUS:

17 **Q. Does your document identify a threshold beyond**
18 **which you will not conduct transfer operations?**

19 A. Yes, it does. In the, what I call the oil
20 handling manual, I believe that will hook up and do
21 operations to, up to 35 miles per hour. At 35 and
22 above, we shut down -- let me back up.

23 At 35 to 40, we shut down. At 40 knots, we
24 drain the hoses, disconnect and ask the vessel to get
25 his plan up and ready to make way if needed.

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1 Q. Okay.

2 MR. KISIELIUS: And I'm going to ask
3 Ms. Mastro to advance it two pages. I'm sorry, I keep
4 giving you the first page of the document.

5 BY MR. KISIELIUS:

6 Q. Is this what you were referring to?

7 A. Yep.

8 Q. Okay.

9 A. So at 35 to 40, we shut down and drain the
10 hoses. At 40, we disconnect the cargo hoses, and then
11 at 45, we ask the vessel to get ready to make way.

12 Q. Okay. So we talked a little bit about the Oil
13 Spill Contingency Plan for the facility. I want to
14 switch topics now and talk about spill planning for the
15 vessels.

16 And I know Captain Bayer talked about this to
17 some degree last week. Ms. Harvey notes in
18 Paragraph 137 that "The MFSA Vessel Response Plan is
19 limited to 300,000 barrels and she talks about a
20 shortfall.

21 I want to step way back and just have you first
22 describe vessel planning. At the most basic level, is
23 there a spill contingency plan responsibility for
24 vessels as there is for facilities that you've just
25 described?

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1 A. Yes. Yes, there is.

2 **Q. Who is responsible for that planning obligation?**

3 A. The vessel operator, the owner of the vessel or
4 operator.

5 **Q. And how do they typically comply with that**
6 **requirement?**

7 A. It varies. Typically they will have a
8 contractor that writes vessel response plans. There's
9 two plans that the vessel operator needs to come up the
10 Columbia River.

11 There's a federal plan, because before they get
12 to the Columbia, they're in U.S. waters. They have to
13 have a Captain of the Port zone approval to operate in
14 any coastal U.S. waters. And then once they enter the
15 river, they also have to have a plan, in this case
16 that's approved by Department of Ecology, the State of
17 Oregon and the U.S. Coast Guard. And that most vessel
18 operators use the MFSA plan because it's an umbrella
19 plan that they can cite to meet their compliance.

20 MR. KISIELIUS: So I'm going to ask
21 Ms. Mastro to pull up Exhibit 206.

22 BY MR. KISIELIUS:

23 **Q. And while we're waiting for that, is the MFSA**
24 **Vessel Response Plan updated, to your knowledge?**

25 A. Yes. Any plan in the U.S. Coast Guard, federal

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1 plan and state plan requires annual updates. And then
2 every five years you're required to resubmit your plan
3 for approval; plans are approved on a five-year basis in
4 Washington here, and in most states now. And I believe
5 that plan was just approved here recently again.

6 **Q. Okay. And what changes occurred between the**
7 **older version and the newer one?**

8 A. Most of it was to deal -- I think two years ago,
9 maybe a little longer, Department of Ecology pushed
10 through some regulation known as House Bill 1186, and it
11 addresses booming and higher current capability, and
12 then also aerial surveillance and a couple other things.
13 And it was really those two points that I know off the
14 top of my head that MFSA plan addresses.

15 **Q. Okay. We've got the document up here again;**
16 **it's a rather large one. And we've kind of moved on,**
17 **quite frankly, in the questioning to the revisions and**
18 **that's probably more relevant, so I apologize.**

19 MR. KISIELIUS: But, Ms. Mastro, could you
20 please call it?

21 THE WITNESS: Actually, if you were to
22 scroll up, in the front of every oil spill plan after
23 you get through the preface and that, there should be a
24 section that shows where the plan has been updated and
25 what it is, and that will tell you what has been

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1 inserted in the plan from the prior plan. It's a
2 Records of Change page.

3 BY MR. KISIELIUS:

4 Q. If you go to Page 9 of the document. Is this
5 the table you're referring to?

6 A. Yep.

7 Q. Now, I think this is the -- let me refer you to
8 the upper right-hand corner. Can you tell us the dates
9 of the changes?

10 MR. KISIELIUS: It's actually out of view
11 right now. Ms. Mastro, would you mind scrolling down a
12 little bit? Thank you.

13 THE WITNESS: So that's Page 1 of 2,
14 Revisions, and as you can see, under Description of
15 Revision, they have a new section, and then there's a
16 couple in there I saw --

17 BY MR. KISIELIUS:

18 Q. So let's pause, though. Can you give me a date,
19 because I think we need to go to a different document
20 here.

21 A. Say it again?

22 Q. Can you read the date of the revisions, please?

23 A. That's October 10th of 2013.

24 Q. Okay.

25 MR. KISIELIUS: So let's pull up

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1 Exhibit 292, please. And again, if you could go to
2 Page 10.

3 BY MR. KISIELIUS:

4 **Q. So can you tell us which version we're looking**
5 **at now?**

6 A. Yeah. That's the March 18, 2016, version.

7 **Q. And does this describe the changes that you were**
8 **testifying to earlier?**

9 A. Yes. If you look down, about the seventh line
10 down it says update to include WAC -- to include
11 phase-in of House Bill 1186 requirements.

12 **Q. Okay. And do you know whether this MFSA**
13 **response plan for vessels, does it include a worst-case**
14 **discharge for a vessel spill?**

15 A. Yes.

16 MR. KISIELIUS: Ms. Mastro, could you
17 advance it to Page 61, please? Can you scroll down just
18 a little bit? Thank you.

19 BY MR. KISIELIUS:

20 **Q. So what's the quantity of this spill that we're**
21 **talking about here?**

22 A. Approximately 300,000 barrels.

23 **Q. Okay. So just connecting the dots, then, is**
24 **that your understanding of what is referred to when we**
25 **talk about the planning standard?**

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1 A. Yes, it is.

2 **Q. Okay. And so we heard some testimony from**
3 **Captain Bayer about the changes to the planning standard**
4 **potentially, to go past that 300,000 barrel amount.**

5 **What's your understanding of what needs to be**
6 **demonstrated in order to increase that amount that's --**

7 A. Well, I would have to get with the MFSA and
8 Clean Rivers, but they would do a gap analysis and
9 identify the equipment shortages, if there are any, and
10 obtain that. They would have to go through a formal
11 process and amend their plan and work with both the
12 State of Washington, Oregon, U.S. Coast Guard.

13 It would be -- going out for, being that that
14 would be a fairly large amendment, they would go out to
15 public comment, like everyone's plan does, for a period
16 of time. And then the agencies would do a review, and
17 if they noted any discrepancies, they would bring it up
18 to MFSA and they would have to make corrections. And
19 then you would get an approval.

20 **Q. So Ms. Harvey says that this is deficient**
21 **because it doesn't cover waters outside the mouth of the**
22 **river.**

23 **So can you -- well, do you agree with that? Let**
24 **me ask, does this cover outside the river?**

25 A. MFSA goes to, I believe it's 3 miles outside the

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1 bar. And then the vessel's plan, the actual federal BRP
2 also covers out to the 200-mile limit. So they would
3 have -- the vessel would have identified other response
4 organizations that cover the amount to the 200-mile
5 limit.

6 Q. Are they required to do that?

7 A. Yes, they are.

8 Q. Okay. In Paragraph 52 she says that the
9 applicant hasn't provided a consequence analysis for a
10 600,000-barrel worst-case vessel spill.

11 Is that true?

12 A. Oh, yeah.

13 Q. Why? Who is responsible for that planning?

14 A. It's really MFSA's responsibility because we're
15 not the contingency plan holder for vessels on the
16 river.

17 Q. Okay. And is that true also of a trajectory
18 analysis showing an estimated impact of a worst-case
19 tanker spill?

20 A. That's correct.

21 Q. So in your experience, is it usual for the
22 facility to prepare these analyses of vessel traffic --
23 spills from vessel traffic?

24 A. No.

25 Q. Okay. We've been focused on the facility first

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1 and then the vessel. I want to change gears and talk a
2 little bit about spills from rail transportation.

3 Are you familiar with spill planning along the
4 river for incidents along the rail line?

5 A. Yes.

6 **Q. Are you personally familiar with it?**

7 A. Yes, I am.

8 **Q. And how so?**

9 A. I work with BNSF, their director of -- I guess
10 general manager of HAZMAT and their local manager --
11 HAZMAT, and we've done joint exercises on the Columbia
12 River. I believe it was in August of 2014, we did a
13 couple of GRP deployments up at Wishram siting. It's up
14 probably above I think what they call the Dells area of
15 the river. And then the next day, after we did the
16 training up there, we were down in the Port of Vancouver
17 where we deployed our Current Buster and worked with our
18 contractors in Vancouver.

19 **Q. Okay. And does the railroad plan, do they do**
20 **contingency planning for spills?**

21 A. They're starting to. They have emergency
22 response plans. They do have a number of -- they've
23 done Geographic Response Plans on their own along the
24 rail system that are very similar to those that are in
25 the Northwest area contingency plan. And then they have

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1 equipment stashes throughout their rail network system.
2 They have booms, skimmers, recovery storage devices like
3 fast tanks in these metal boxes, and a lot of them can
4 either be flown by helicopter or they're on high rail
5 flat-bed railcar that they can hook a locomotive to, to
6 run them to where they're needed. And it also includes
7 firefighting capability.

8 **Q. I want to come back to the Geographic Response**
9 **Plans.**

10 **Are you familiar with any mapping that**
11 **identifies the location of those caches that you just**
12 **described?**

13 A. Yes, I do.

14 MR. KISIELIUS: Your Honor, we were going to
15 ask Mr. Haugstad to testify to an exhibit, but I
16 understand it's not yet ready to be admitted so we'll
17 refrain and have that tomorrow.

18 BY MR. KISIELIUS:

19 **Q. Let's go back to the Geographic Response**
20 **Planning, though.**

21 **Exhibits 224, 225, and 226 are railroad GRPs. I**
22 **don't want to -- just for council's benefit just to**
23 **identify them, but just by way of example, why don't we**
24 **go to 224, please.**

25 BY MR. KISIELIUS:

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1 **Q. Let me ask you, while we're waiting, did the**
2 **Geographic Response Plans -- there we go.**

3 MR. KISIELIUS: Could you drag down just a
4 little bit, Ms. Mastro?

5 BY MR. KISIELIUS:

6 **Q. So can you tell us what is the Fall Bridge**
7 **subdivision?**

8 A. It's a section of the rail line that they pass
9 through.

10 **Q. Okay. And to your knowledge, does the BNSF have**
11 **GRPs for the various subdivisions of this rail route?**

12 A. Yes.

13 **Q. So let's talk about how this works.**

14 MR. KISIELIUS: If you could move it to
15 Page 5, Ms. Mastro.

16 BY MR. KISIELIUS:

17 **Q. So just walk us through, what are we looking at**
18 **here?**

19 A. Very similar to what's in the Northwest area
20 contingency plans. They have rail lines and then they
21 have site numbering nomenclature to identify what it is
22 and then how you'd go about protecting it.

23 MR. KISIELIUS: Could you move it to the
24 next page, please? Could you advance it one more page
25 to Page 6?

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1 BY MR. KISIELIUS:

2 Q. Go ahead.

3 A. So that's very similar to what's in the
4 Northwest area contingency plan. You have a very -- a
5 site identification number, location, your response
6 strategy, how much boom you would need for that specific
7 site. And really what the purpose of the strategy is
8 for that top one, that's an exclusion booming strategy
9 across the mouth of some little bay or inlet.

10 Q. So earlier you said that with the Lower Columbia
11 River Geographic Response Plan, that spill response --
12 responders to a spill rely on those. Would you
13 similarly rely on these?

14 A. Oh, absolutely.

15 Q. Okay. I want to pursue that just a little bit
16 further. We'll hear more from other witnesses about
17 rail response, but given your experience I just want to
18 ask you, when a rail event occurs, is industry, for
19 example Tesoro where you work, are you brought in to an
20 incident response even if it's not your incident?

21 A. Yes. Incidents are very unfortunate. We
22 offered up support to the Union Pacific Mosier incident
23 just to see whatever we could offer up to help them out.
24 And we have a mutual aid agreement signed with BNSF to
25 support them if they were to have a problem.

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1 Q. And you said you offered your resources for that
2 incident. Did they take you up on it?

3 A. No.

4 Q. Do you know why?

5 A. No. I have no idea.

6 Q. Okay. There have been -- switching topics here,
7 there have been some questions about custody and care of
8 oil at various points in the distribution chain. I
9 understand Mr. Hack's going to talk about the rail side,
10 but let's stay on the vessel side.

11 Can you describe the transfer of the care and
12 custody of the oil at the facility?

13 Let me start by asking what that mean to you?
14 What does it mean to have care and custody of the oil?

15 A. Well, there's two parts. There's custody
16 transfer is at the flange where the oil passes from the
17 hose connection into the ship's manifold. That's where
18 the chain of custody transfers.

19 If there was, say, a ship at the dock and they
20 overfilled a tank or had a manifold valve open and
21 sprayed some out, that is their responsibility. But we
22 would, as a facility operator, still respond to it
23 because it's, you know, front door and it's the right
24 thing to do.

25 There's a second part that you kind of alluded

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1 to, and that's there's also cargo owner liability, and
2 if that was, say, a Tesoro chartered ship that had a
3 problem, that would be practically our oil, we'd
4 probably be cargo owner of the oil that the ship had
5 just spilled, we would still move the -- clean up the
6 spill as quickly as possible and mitigate any damages.

7 **Q. So the owner liability you just described speaks**
8 **to -- what determines that?**

9 A. That's Washington state cargo owner liability.

10 **Q. Okay, so it's the cargo owner. In your**
11 **understanding, does that ownership change from the time**
12 **it's in the tanks to the vessel?**

13 A. No.

14 **Q. That stays the same. The care and custody piece**
15 **that you were just describing, the transfer point, can**
16 **you describe again where that changes hands from the**
17 **facility to the vessel?**

18 A. Yes. It's right at where the cargo hoses bolt
19 up to the ship's manifold. Once the oil passes from the
20 flange of the cargo hose into the ship's manifold,
21 custody transfers.

22 **Q. So to be clear, though, while you talked about**
23 **who's responsible for it, would the facility respond to**
24 **a spill at the berth?**

25 A. Absolutely.

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1 Q. Even if it's not in its current -- even if it's
2 not the one responsible for the care and custody at the
3 time?

4 A. It doesn't matter. If there's a vessel at the
5 facility that causes a spill, the facility is going to
6 respond to it.

7 Q. Okay. You testified to financial assurances in
8 your written statement. I just want to clarify
9 something that -- are you familiar with the approach
10 that is sort of the current proposal for determining
11 financial assurances for this facility?

12 A. Yes.

13 Q. Can you describe that for us?

14 A. Well, there's I believe a study, I think there's
15 a study to be done to set the financial assurance. And
16 I believe it's up to the council to decide the study, or
17 DOE.

18 Q. And is the applicant willing to complete the
19 required study to determine that amount?

20 A. Yes.

21 Q. I have just one last set of questions for you
22 here on a different topic.

23 Ms. Harvey talks about Paragraph 135 and several
24 other witnesses testified to the training of fire
25 departments, both the training and the resources

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1 available to fire departments. I just want you to talk
2 about those aspects of those -- that testimony better
3 within your area of expertise. So let's talk about the
4 facility incident response training that you described
5 in your written testimony.

6 Can you describe the components of your employee
7 training for the facility response?

8 A. Yes. They would be trained in HAZWOPER trained
9 because they would be expected to clean up minor spills
10 and be part of the initial response to a spill at the
11 facility.

12 For the fire protection side of it, they would
13 be trained to the incipient level. So basically if they
14 can't put it out with a fire extinguisher like a garbage
15 can with an oily rag or something, they isolate the
16 system, make emergency notifications. If there's
17 automated fire suppression systems, they would be
18 trained on how to set them up and get them -- but then
19 they would evacuate.

20 **Q. I think there was questioning of other witnesses**
21 **about beyond that incipient training that you've**
22 **described, the need for fire brigades. Where are those**
23 **typically provided?**

24 A. The only place we have fire brigades and pretty
25 much the rest of industry is at refineries.

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1 Q. Is one going to be provided here?

2 A. No.

3 Q. In your experience, are you aware of any
4 terminals, again, distinguishing from refineries, that
5 have fire brigades?

6 A. Not that I'm aware of.

7 Q. I think you just described the employee
8 training. What about training for first responders;
9 does Tesoro do any of that?

10 A. Oh, yes. We've had two corporate fire schools
11 every year. We hold four fire schools at Texas A&M that
12 requalify for the 1081 NFPA, 1081 industrial fire
13 brigade qualification, and we routinely reach out to the
14 fire stations around our facilities and offer them up
15 training. There's a number of benefits for doing that,
16 because in a lot of cases at the refineries they very
17 well are the backup to our fire brigades. But we've had
18 volunteer firemen and municipality firefighters that are
19 along our pipeline and terminals attend also.

20 Q. And to your knowledge, has Tesoro offered that
21 training to first responders that would be called to a
22 facility incident, for example, the City?

23 A. Yes, I have.

24 Q. In Clark County, the fire districts in there?

25 A. I had discussions with them.

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1 Q. Okay.

2 MR. KISIELIUS: Ms. Mastro, could you please
3 pull up Exhibit 368. And while she's pulling that up --
4 I believe it's 368. It is 368.

5 BY MR. KISIELIUS:

6 Q. We'll keep talking while it comes up.

7 So you said you had invited the City. What has
8 been their response to your invitation?

9 A. They haven't been able to attend.

10 Q. And have you asked more than once?

11 A. Yes, I have.

12 Q. Okay. Do you recall roughly when the last time
13 you invited them, what it might have been?

14 A. It was earlier this year. I couldn't tell you
15 which month. I think probably in the March or February
16 timeframe.

17 Q. And once we get that exhibit up, I'm just going
18 to ask you to identify, confirm if that was your most
19 recent inquiry.

20 Is that e-mail correspondence your
21 correspondence on this topic with the City?

22 A. Yes, it is.

23 Q. And is that the most recent feedback you've
24 gotten from them?

25 A. Yes, it is.

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1 MR. KISIELIUS: I have no further questions.

2 JUDGE NOBLE: Cross-examination of
3 Mr. Haugstad?

4 Ms. Brimmer?

5 CROSS-EXAMINATION

6 BY MS. BRIMMER:

7 Q. Hello, Mr. Haugstad. I represent some of the
8 intervenors with Ms. Boyles.

9 Have the Umatilla Tribe or Yakama Nation
10 approved the Mid-Columbia River Geographic Response
11 Plans that call for booming the river to collect oil at
12 treaty fishing access sites, to your knowledge?

13 A. I'm not aware of that.

14 Q. I'd like to talk about some of the oil spill
15 response documents that we've been talking about during
16 your testimony today, but let's first talk about one of
17 the variables of some of those things, and that's the
18 current.

19 You mentioned the current speed in the Columbia
20 River. Do you recall that?

21 A. Yep.

22 Q. Current affects what happens in an oil spill
23 scenario; right?

24 A. Yep.

25 Q. It affects how fast the oil will travel

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1 downstream?

2 A. For the most part, yes.

3 Q. It affects how much of the river and the
4 shoreline gets oil?

5 A. That's correct.

6 Q. It affects how far down river your response
7 equipment or any responder equipment and personnel will
8 have to be ready to deploy?

9 A. That's correct.

10 Q. And it affects the timing of the deployment, how
11 fast you to have to work to get ahead of that spill?

12 A. That's correct.

13 Q. And it can -- I think you talked about with
14 booming in particular, affect the effectiveness of the
15 equipment itself, such as whether the -- a particular
16 kind of boom will work?

17 A. That's correct.

18 Q. So I would like to turn to Appendix H to your
19 Oil Spill Contingency Plan.

20 MS. BRIMMER: Ms. Mastro, I think that's
21 Page 2899 in Exhibit 1.

22 BY MS. BRIMMER:

23 Q. While we're waiting for that, I do have a
24 question or two.

25 If you recall, Appendix H, two-year Oil Spill

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1 Contingency Plan, is a trajectory analysis from Tesoro.

2 Does that sound right?

3 A. Yep.

4 **Q. And that's required by the Department of**
5 **Ecology; right?**

6 A. That's correct.

7 **Q. And by trajectory analysis, it's really looking**
8 **at what happens to the oil in the spill, right? How far**
9 **it goes, where it ends up?**

10 A. Yeah. And it's done totally unabated with no
11 booming or recovery efforts made.

12 **Q. Okay.**

13 MS. MASTRO: I'm sorry, Ms. Brimmer. I'm
14 having trouble finding it.

15 MS. BRIMMER: I think you're in the right
16 neighborhood. Wait, wait, wait. I think that's where
17 we want to be. Perfect. Thank you.

18 BY MS. BRIMMER:

19 **Q. So do you recognize this as a page from that**
20 **trajectory analysis?**

21 A. That's correct.

22 **Q. And you'll see on that page that in the**
23 **analysis, Tesoro assumed the current was at 1.2 knots**
24 **based upon 2013 U.S. Geological Survey data. Do you see**
25 **that?**

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1 A. Yep.

2 Q. And I think the conclusion of the trajectory
3 analysis, not necessarily on that page, but I believe
4 the conclusion was that the spill of the oil would reach
5 river mile 47. Does that sound right? It's not
6 necessarily on that page.

7 A. That sounds about right.

8 Q. Okay. And I think that the time period for it
9 to go 47 miles was about 48 hours. Does that sound
10 right?

11 A. That's correct.

12 Q. Okay. Then I'm going to turn to another
13 document, Appendix D, like dog, to your Oil Spill
14 Contingency Plan.

15 MS. BRIMMER: And Ms. Mastro, I think that's
16 Page 2811.

17 BY MS. BRIMMER:

18 Q. And I think this is the January 2014 version of
19 the Oil Spill Contingency Plan. Does that sound right?

20 A. What year?

21 Q. I was going to say January 2014, but I
22 apologize, I think it's 2015.

23 A. Okay.

24 Q. All right.

25 MS. BRIMMER: Let me make sure that's the

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1 right place. Is that Page 2811? I think we need to be
2 a little later in that document, other direction. If we
3 look at the bottom of the pages, there's a "D" and a
4 hyphen, and a number D-15 is what we're looking for.
5 One more. Thank you.

6 BY MS. BRIMMER:

7 Q. Mr. Haugstad, do you recognize what's up on the
8 screen as Appendix D to the Oil Spill Contingency Plan?

9 A. Yes, I do.

10 Q. Now, referring to the top paragraph in that
11 page, as part of your analysis you note there that
12 average current speeds in the Columbia are 1 to 6 knots
13 varying seasonally.

14 Correct?

15 A. Yes.

16 Q. And, in fact, that's consistent with
17 Ms. Harvey's testimony; right? She said it's a range of
18 1 to 6 knots and varies seasonally?

19 A. I'd have to look back, but yes.

20 Q. And then I think further in that paragraph you
21 note that you used 2 knots as the average for planning
22 purposes. And I think that's restated further down in
23 that same document; is that right?

24 A. That's correct.

25 Q. The next document I would like to reference is

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1 the tabletop exercise that you did earlier this year,
2 and you talked about in your written testimony. That
3 document is Exhibit 5509. And I'm going to go to Page 3
4 of 4, Part 2.1, and this is where you set out the two
5 scenarios. You talked about a Bakken spill and a dilbit
6 spill. There we go.

7 Mr. Haugstad, now referring to the exercise
8 that -- well, let me back up for a minute.

9 Tabletop exercise is an on-paper exercise for
10 the most part; right?

11 A. That's correct.

12 Q. You just kind of figure out that you got all the
13 names for who to going to call and who's going to come
14 from where and what might happen; right?

15 A. For the most part, yes.

16 Q. In the tabletop exercise that you said went
17 well, I note on this particular page of Exhibit 5509
18 that we've got river current at .8 knots and .9 knots
19 for those two scenarios; right?

20 A. That's correct.

21 Q. And that's below the range of 1 to 6; right?

22 A. Yes, it is.

23 Q. Now, I'd like to turn to -- there's some
24 discussion of Maritime Fire and Safety Association and
25 Clean Rivers, I want to refer to it as the umbrella

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1 plan. Does that make sense?

2 A. Yep. Well, Clean Rivers is an oil spill
3 response organization that supports MFSA.

4 Q. Okay. Thank you. Thank you.

5 So when I say the "umbrella plan," we're talking
6 about that MFSA plan that's kind of a cooperative for
7 doing cleanups on the lower river; right?

8 A. For vessels.

9 Q. And you talked I think just before the end of
10 your direct that there is coverage under that 3 miles
11 out into the ocean after the Columbia Bar; right?

12 A. Yes.

13 Q. And then there's a handoff to ocean-based
14 organizations that has to be arranged; is that right?

15 A. That would be like a MSRC or an NRC, correct.

16 Q. So if there's a spill that gets across the bar,
17 now we've got multiple organizations working it?

18 A. Potentially.

19 Q. So it's my understanding that Tesoro Savage and
20 Vancouver Energy is trying to increase the cap that
21 currently exists for coverage under that umbrella plan
22 from 300,000 to 600,000 barrels; right?

23 A. That's correct.

24 Q. That increase is going to need Department of
25 Ecology approval; correct?

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1 A. That's correct.

2 Q. And that's a pretty lengthy process because
3 they've got to really examine whether that could be
4 covered; right?

5 A. That's correct.

6 Q. I want to talk a little bit about what that
7 increase might mean.

8 Increasing the volume of the spill response
9 capability means that the OSRO, or the contractors and
10 responders, will have to increase their capabilities;
11 right?

12 A. That's correct.

13 Q. Like they're going to need more equipment?

14 A. Equipment is one part of it.

15 Q. Personnel might be another part of it?

16 A. Yep.

17 Q. Might need more facilities or access points to
18 the river? Might have to set up those kinds of things?

19 A. Probably not. That's fairly well established
20 now. But it's more around the equipment and people.

21 Q. Okay. Presumably that will then increase the
22 cost of funding the umbrella organization in the plan;
23 right?

24 A. That's correct.

25 Q. Is Tesoro going to pick up the incremental cost

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1 increase that's going to be necessary, or are they
2 expecting to spread that additional cost among all the
3 plan participants?

4 A. We would pick up the bulk of that, because
5 memberships amongst organizations in MFSA being one,
6 it's based on a per barrel in an annual year, and if you
7 transfer more barrels your costs go up.

8 **Q. So does that mean there's no cost increase to**
9 **the other participants?**

10 A. I'd have to talk to MFSA. I don't have that
11 information.

12 **Q. I want to turn to the financial assurance part**
13 **of your testimony, your written testimony. That's on**
14 **Page 18 of your testimony if you do need to refer to it.**

15 **You talk about Certificates of Financial**
16 **Responsibility. What are those?**

17 A. Those are your COFRs. They're financial
18 responsibility documents that we have to secure in like
19 California and Alaska.

20 **Q. Let's use California for an example. What's the**
21 **instrument? Is it a surety bond?**

22 A. There's a number of instruments. You can
23 self-insure but you have to do a financial test, and
24 it's a two-part test to show that you have the liquidity
25 to meet your worst-case discharge. And then you can

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1 acquire insurance for some of that.

2 **Q. Is that what Tesoro does, the self-monitoring or**
3 **the self-insured?**

4 A. We do both. Under Tesoro Companies we
5 self-insure, and under Tesoro Logistics Operations we
6 get insurance.

7 **Q. So that self-insured, is that kind of like what**
8 **the coal companies have been doing with their**
9 **self-insurance, the coal companies that have recently**
10 **filed bankruptcy?**

11 A. No, I'm not familiar with that.

12 **Q. Is that any kind of security that a state**
13 **regulator or people who are damaged can draw on when**
14 **they self-insure like that?**

15 A. So for the State of California, when you seek
16 insurance, part of the requirement is that the
17 department of oil spill response and prevention is
18 actually a beneficiary of the insurance policy.

19 **Q. For an insurance policy. Okay.**

20 A. For a spill, to cover the cost of spill
21 response.

22 **Q. Okay. Have you done any analysis of what a**
23 **spill will actually cost the citizens of Washington?**

24 A. No.

25 MS. BRIMMER: I have nothing further.

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1 JUDGE NOBLE: Any other cross-examination?
2 Redirect?

3 REDIRECT EXAMINATION

4 BY MR. KISIELIUS:

5 Q. Mr. Haugstad, just a quick follow-up to
6 Ms. Brimmer's questions.

7 The tabletop spill drill that you described that
8 she was asking about, is that a standard tool for
9 assessing spill preparedness?

10 A. No. It's just part of one.

11 Q. Okay. And is it -- I think she asked you
12 whether it was a matter of calling people up and making
13 sure they were there.

14 Do you actually sequence it over a set amount of
15 time?

16 A. We sequence it over 48 hours.

17 Q. So the tabletop piece just refers to the fact
18 that you're not out there, you're in a room?

19 A. That's correct. We do not physically deploy the
20 assets or people, but we do call and validate where the
21 equipment is and where the people would come from.

22 MR. KISIELIUS: I don't have further
23 questions on redirect.

24 JUDGE NOBLE: Council questions?

25 Mr. Stone?

HAUGSTAD

1 MR. STONE: Good afternoon.

2 With respect to your testimony on the
3 training that Tesoro Savage provides to first
4 responders, in regard to all the fire departments and
5 fire districts along the rail route in the State of
6 Washington, can you tell us how many of those first
7 responders have been trained?

8 THE WITNESS: Off the top of my head, no,
9 sir. BNSF I know has done some training with some of
10 the responders along the rail route, but they would be
11 probably better to ask that question to.

12 MR. STONE: Okay. Thank you.

13 JUDGE NOBLE: Mr. Lynch?

14 MR. LYNCH: Good afternoon.

15 THE WITNESS: Good afternoon.

16 MR. LYNCH: I listened to your testimony
17 about trying to provide training for the City of
18 Vancouver and other interested fire fighting
19 organizations. I was curious whether you talked to the
20 Port of Vancouver at all about them having their own
21 fire fighting force there at the Port of Vancouver,
22 because I'm aware of at least sometimes in the past some
23 Port districts in Washington having their own fire
24 fighting employees.

25 THE WITNESS: I have not talked to the Port

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1 about that, and I wasn't aware of that either.

2 MR. LYNCH: Thank you.

3 JUDGE NOBLE: Other council questions?

4 Mr. Shafer?

5 MR. SHAFER: Mr. Haugstad, thank you very
6 much for your testimony today. Two questions.

7 When you consider on the whole of the
8 project the oil by rail, the size of the tanks, the size
9 of the vessels, the frequency of the vessels, and I'm
10 pursuing the magnitude of the operation of response to
11 be adequately prepared. As you consider the plan and
12 staging and the materials that you need, the supplies,
13 the lineal foot of boom equipment, personnel and so
14 forth, in your experience of 34 years, would you -- and
15 this is generally, but would you generally consider this
16 a small operation, medium size or large?

17 THE WITNESS: It would be a large
18 operation.

19 MR. SHAFER: Okay. Thank you.

20 And I know you took questions earlier about
21 the worst-case discharge in relative to the Columbia
22 River, and I think the reference there was about a third
23 of a mile in distance away, and I think suggesting that
24 unlikelihood of water reaching the river.

25 How about in terms of groundwater, because

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1 the number I heard to groundwater is about 12 to
2 15 feet, so in a worst-case discharge event, how would
3 you describe the groundwater in terms of risk and the
4 effects on the groundwater?

5 THE WITNESS: In the back of our -- it's in
6 the contingency plan right now, but if we had a spill at
7 the facility, we have an environmental contractor
8 geology that could come out and drill immediately and do
9 monitoring whilst look at if there had been impact to
10 it. I know initially in the tank farm itself, it's
11 lined with a liner, so unless there was damage to that
12 liner, there wouldn't be any impact there, but say
13 outside the secondary where you might get some ground
14 penetration with oil.

15 MR. SHAFER: What's been your experience in
16 terms of oil getting to the groundwater? I know it's of
17 course going to be dependent on the soil type and such,
18 but again, and I deeply appreciate your 34 years of
19 experience in these types of events, could you help us
20 with kind of the range that we're looking at between oil
21 on the surface and getting to groundwater? What kind of
22 depths are we looking at there?

23 THE WITNESS: Boy, that would be difficult
24 to ask [sic] without knowing the makeup of the soil
25 composition there, because the soil composition makes a

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1 big difference. If there's a clay layer underneath,
2 say, 6 feet down, that's like a secondary liner because
3 clay pretty much halts the down slope, unless it's
4 fractured or something, to oil movement in the ground.
5 But I don't have the geology, and that's something that
6 maybe one of the engineers, David Corpron or Savage
7 could ask -- you could ask them about.

8 MR. SHAFER: If the material is sand or
9 largely porous --

10 THE WITNESS: It would migrate.

11 MR. SHAFER: Okay. Thank you.

12 JUDGE NOBLE: Any other council questions?

13 Mr. Siemann?

14 MR. SIEMANN: Thank you for your testimony.

15 I wanted to ask you about prebooming. And I
16 think you testified that at a certain velocity of the
17 river you could not preboom; is that correct?

18 THE WITNESS: That's correct.

19 MR. SIEMANN: And what is that velocity?

20 THE WITNESS: I think in the plan we state
21 1 or 1.5 knots.

22 MR. SIEMANN: And then you talked about
23 something called a Current Buster.

24 THE WITNESS: Yes.

25 MR. SIEMANN: What does that do?

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1 THE WITNESS: Current Buster is one of the
2 best technology advancements in oil spill response in a
3 number of years, and it's basically an air-inflated boom
4 that funnels the water and oil down through a very tight
5 channel, and then dumps it into a bag. And just oil
6 floating on top of water, it goes into the bag and the
7 water drops out the bottom, and there's actually a
8 bottom in the corral area that you can get very high,
9 thick layers of oil that you would then recover.

10 MR. SIEMANN: And so what is the velocity of
11 which that becomes ineffective? Or is that a separate
12 thing?

13 THE WITNESS: It's been tested at OHMSETT up
14 to 5 knots before it failed.

15 MR. SIEMANN: So at what point -- I'm trying
16 to get at where the prebooming is. At what point are
17 you no longer able to transfer oil?

18 THE WITNESS: Really that's based on wind
19 versus river current. You know, the winds get too high,
20 depending on the direction of the ship, it's quite a big
21 of sail area that you would shut down based on wind.
22 The currents based on the fact that we know that the
23 Current Buster is effective up to 5 knots. If you're
24 looking for a limitation based on current, I'd say
25 5 knots for cargo operations.

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1 MR. SIEMANN: And do you know how often the
2 current goes beyond 5 knots?

3 THE WITNESS: Not off the top of my head.

4 MR. SIEMANN: And is there a policy in place
5 that at 5 knots you would stop transferring oil, or does
6 that not play into it?

7 THE WITNESS: It's not been developed. And
8 the thing about current is it's not constant across the
9 river. Out in the middle of the river, you know, it
10 will be running at a higher, say 3 knots versus at the
11 dock where the ship is it may be a knot. So the current
12 is not consistent across the width of the river.

13 MR. SIEMANN: Okay. I guess what I'm trying
14 to get at is, at what point -- or is there a threshold
15 at which it becomes not possible to capture any spilled
16 oil? And then the question is what do you do at that
17 point?

18 THE WITNESS: The beauty about the Current
19 Buster is the answer is no, because if you -- you have
20 to let Mother Nature -- or you have to work with Mother
21 Nature. Up in Cook Inlet, we have 26- to 28-foot tides,
22 and our refinery is just south of the middle ground
23 shoals area. The current routinely gets 4 to 5 knots
24 during the big tide cycles there.

25 And the OSRO up there uses the Current

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1 Busters also as their primary containment capture tool.
2 Instead of fighting the current, especially with
3 vessels, you turn and go with the current. And you can
4 go -- say the current is 5 knots. You can go 6 knots,
5 but your encounter rate is still a knot because you're
6 moving just a little faster than what the river is,
7 you're still going to capture the oil and be able to
8 recover it.

9 MR. SIEMANN: Do waves have any -- alter the
10 effectiveness of this technology?

11 THE WITNESS: Not in a river.

12 MR. SIEMANN: Thank you.

13 JUDGE NOBLE: Any other questions to my
14 left?

15 Mr. Stephenson?

16 MR. STEPHENSON: Thank you.

17 We talked a lot about spill response. I
18 just wanted to get your thoughts quickly on prevention,
19 because you have a lot of experience in these areas.

20 Have you done work with a company on
21 thinking about prevention to keep the spills from
22 happening in the first place?

23 THE WITNESS: Yes. I believe David Corpron
24 testified last week, but we looked at -- first of all,
25 there's the regulatory requirement to have the faster

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1 closing valves. But we also discussed the hydraulic
2 effect of slamming valves on pipelines. There's a shock
3 that goes out. We've looked at -- you know, they've
4 engineered a return line so you don't have any spills
5 through emergency shutdowns, and that's one avenue.

6 We've looked -- you know, prevention is the
7 key to any safe operation because it's well worth
8 preventing it versus cleaning it up. And throughout the
9 whole facility there's been more safety and preventative
10 measures factored in to this than virtually any other
11 facility that I've seen on the West Coast, you know, and
12 it's all geared towards worker safety and the community
13 safety and preventing spills.

14 MR. STEPHENSON: One thing I heard in your
15 testimony is you said, I believe you said, that the
16 railroad is starting to look at contingency planning; is
17 that correct?

18 THE WITNESS: They have emergency response
19 plans, because this past March I was up in Western
20 Montana testing with BNSF a brand-new GRP they developed
21 for the Flathead River, and they actually -- they tested
22 it. They've never -- they did it all on paper and then
23 they went out with their equipment and contractors and
24 deployed it to see if it would work, very much like we
25 do with the Northwest Area Committee. They are being

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1 mandated, I believe it's PHMSA to come up with what's
2 like our oil spill response plan. They have them, but
3 they were not nearly as robust as what industry has had
4 for many years since OPA-90, but they're coming along
5 now.

6 MR. STEPHENSON: Thank you.

7 JUDGE NOBLE: Mr. Lynch has a question.

8 MR. LYNCH: I'm sorry. I thought of
9 something else I wanted to ask.

10 When you do the modeling of the responses or
11 you plan for contingencies, do you ever do that with a
12 situation where you actually have some tanker cars
13 burning at the same time, other ones are spilling oil
14 into the river? Because I would think that that might
15 affect the ability to deploy any sort of responses if
16 you've got some oil cars burning.

17 THE WITNESS: That would be a difficult
18 scenario without proper site assessment. It would be
19 hard to answer that, because every incident's going to
20 be different, location and where the fire is compared to
21 where the spill's occurring. I think if there's a fire
22 and you have oil out on the ground, I believe if it's
23 not burning, it will be shortly, unless it's a
24 derailment, you know, further away and it's just leaking
25 out on the ground. That's a tough one to answer.

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1 MR. LYNCH: I would assume the priority
2 would be to put the fire out as opposed to trying to
3 recover what's in the river or are they equal priority?

4 THE WITNESS: No. No. They would be equal
5 priorities. Safety is paramount to the responders. I
6 mean, if it's not safe to respond to the spill that's
7 leaking into the river, then it won't happen. If it
8 gets them close, depending on the situation, you have to
9 do a very good site assessment and initial size-up of
10 the scene before you start taking actions.

11 MR. LYNCH: Well, I just want to pursue this
12 just with one more question.

13 So if there was a fire and there was a spill
14 going on at the same time, is it likely that you would
15 have a situation, a plan in place that the nearest area
16 downstream that you could deploy booms or somehow be
17 sucking up the oil, that that would be done? Or do you
18 have a sense of that?

19 THE WITNESS: Yes. Unified Command would
20 look not only at the site itself and be focused on the
21 fire, but if there's oil going downstream, they would be
22 given directions to the response contractor, OSRO, to
23 set up booms ahead of it to capture it so it wouldn't go
24 unchecked.

25 MR. LYNCH: Okay. Thank you.

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1 JUDGE NOBLE: Any other council questions?
2 Mr. Stone?

3 MR. STONE: Thank you.

4 Getting back to my other question about fire
5 departments and fire districts along the rail route in
6 Washington state, has BNSF or Tesoro Savage conducted
7 any joint training exercises in response to an oil spill
8 along the route? Any practice exercising with those
9 fire departments or fire districts?

10 THE WITNESS: Not with the fire departments
11 or districts, but yes, we did in I believe it was
12 August of 2014, we went, Tesoro and Savage, went up with
13 BNSF to the Wishram siting to deploy the equipment off
14 the rail flats and GRPs, and the following day we were
15 in the Port of Vancouver doing similar things.

16 MR. STONE: That was just with Tesoro Savage
17 and BNSF personnel?

18 THE WITNESS: That's correct.

19 MR. STONE: Okay. Thank you.

20 JUDGE NOBLE: Any other council questions?
21 Mr. Rossman?

22 MR. ROSSMAN: Thank you for your testimony.
23 I just wanted to follow up on the booming conversation a
24 little bit.

25 So do you have a sense of what percentage of

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1 the time the currents at the dock location are low
2 enough that the prebooming will work?

3 THE WITNESS: You know, other than a big
4 heavy rain event, snow runoff, the time of year, I don't
5 have a percentage off the top of my head, but, you know,
6 we operate a petroleum terminal just up the stream, have
7 for a long time, and ever since we've been prebooming,
8 there's not too many times we don't preboom the barges
9 that are going to be up river.

10 MR. ROSSMAN: Is there an assessment of the
11 current speed made at the time or is it just -- is it a
12 little bit more sort of an intuitive sense of how
13 quickly the water's moving there? Is it measured?

14 THE WITNESS: No, it's a visual. You can
15 look at the current and pretty much tell if it's within
16 range or not. And if you have any questions, you can
17 always call up the pilots and get information on current
18 speeds, and if that doesn't work, you can call the dam
19 and see what the flow rate is. There's quite a bit of
20 information out there to get that info.

21 MR. ROSSMAN: Are you familiar with any
22 point in the process where that information is going to
23 be checked or is it just on particularly windy or stormy
24 days that it would be checked?

25 THE WITNESS: It would be -- you know, if

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1 there's been no environmental change from one day to the
2 next, probably not. If they had heavy rains upriver or
3 it's the time of year where you have the peak runoff,
4 then they'd probably check on a more routine basis.

5 MR. ROSSMAN: And at the times where the
6 currents were too high for the prebooming, the Current
7 Buster would be available, but that wouldn't be
8 deployed -- it wouldn't be pre-deployed; is that right?

9 THE WITNESS: No. It would be ready to be
10 deployed at the site.

11 MR. ROSSMAN: And what would trigger its
12 deployment and how long would deployment take?

13 THE WITNESS: Deployment takes roughly
14 20 minutes at the most. If there was a spill on deck,
15 we'd go ahead and have the boom boats deploy it. That's
16 still in a preliminary mode right now. We put the draft
17 prebooming thing up there, but there's some other things
18 we can take a look at.

19 MR. ROSSMAN: So I understand it'll be
20 Tesoro or Tesoro Logistics employees operating the dock
21 portion; is that correct?

22 THE WITNESS: The PIC, person in charge, at
23 the facility would be Tesoro. We'd -- I believe Marc
24 Bayer said he would have a marine superintendent. But
25 we would also have people, not Tesoro employees, but

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1 contractors in the boat. Whenever there's a vessel at
2 the dock, there would be crews in a boat doing checks
3 around the vessel for any sign of a sheen or anything.

4 MR. ROSSMAN: So the booming contractor
5 would not be a Tesoro employee --

6 THE WITNESS: No.

7 MR. ROSSMAN: -- it would be a contractor?

8 THE WITNESS: Yeah. We do that at our
9 Anacortes and Port Angeles facilities now. In fact, our
10 Vancouver facility, we contract that to a local
11 contractor in Portland.

12 MR. ROSSMAN: Thank you.

13 JUDGE NOBLE: Any other council questions?
14 Mr. Snodgrass?

15 MR. SNODGRASS: Just a couple of quick
16 questions that came to mind particularly about incidents
17 away from the dock.

18 In the case of a collision or an allision,
19 obviously it could be different cases, but in general,
20 is the practice to keep the boat where it is as best you
21 can once that occurred or is it to bring it to shore
22 quickly?

23 THE WITNESS: Again, it depends on the
24 situation and location. It would be difficult to answer
25 that.

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1 MR. SNODGRASS: Okay. In the event of, say,
2 one of those incidents that I just mentioned where
3 essentially the boat is not quickly brought to shore or
4 a grounding, does other river traffic -- does cleanup
5 and mitigation take precedence over the entire other
6 traffic that would otherwise go up and down the river
7 channel?

8 THE WITNESS: Initially, yes. The Coast
9 Guard would probably close the section of river that it
10 happened in until they had a full assessment of the
11 situation. Based on the assessment of the situation, if
12 it's safe for vessels to transit and not contaminate the
13 hulls of the vessel or impede the progress, they'll open
14 it up and maybe call it a one-way zone for vessel
15 traffic to continue to keep commerce going. But they
16 would initially probably close that section of the river
17 until they had a good assessment.

18 MR. SNODGRASS: Okay. It sounds like safety
19 of those other vessels is the primary criteria for the
20 Coast Guard to make that decision?

21 THE WITNESS: It really depends on the
22 situation.

23 MR. SNODGRASS: I mean, where I'm going, to
24 what extent does other traffic going through a river --
25 a cleanup operation that's not on the side, to what

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1 extent does other traffic make the cleanup harder?

2 THE WITNESS: I mean, for us, cleanup would
3 be first and foremost versus the other traffic, because
4 if you can get it off the water and get it contained to
5 a shoreline, you've pretty much ended the impact to
6 other users.

7 MR. SNODGRASS: Right. Does it make -- how
8 harder does it make it for you to do your work if the
9 river is still open for traffic?

10 THE WITNESS: It depends on the situation,
11 sir.

12 MR. SNODGRASS: Thank you.

13 JUDGE NOBLE: Any other council questions?
14 All right. I have a question for you, Mr. Haugstad,
15 about financial assurance.

16 I noticed in your testimony that you said
17 that the company files Certificates of Financial
18 Responsibility for your operations throughout the United
19 States as required by applicable state law. And my
20 question has to do with the instruments of financial
21 assurance. You mentioned self-insurance, like a letter
22 of credit, I assume you mean. And then insurance.

23 What about bonding? Has the company ever
24 purchased a bond?

25 THE WITNESS: Our company has never done

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1 that that I'm aware of. Depending on the various
2 states, there are different instruments to demonstrate
3 and assure that you have your financial capability for
4 your worst-case spill.

5 And most of those, whenever -- if you
6 self-insure or you've insured a certain amount, in
7 California, once you become aware that you no longer
8 meet it, you have five business days to contact the
9 State and either get the insurance or post a bond.
10 There's a number of avenues, I don't remember them all
11 off the top of my head, but there's a number of ways to
12 demonstrate that.

13 JUDGE NOBLE: But the instrument of
14 financial responsibility, the ones that you know of that
15 are deployed -- or are employed, are self-insurance and
16 an insurance policy?

17 THE WITNESS: That's correct.

18 JUDGE NOBLE: All right. Would there be
19 some reluctance to purchase a bond as a financial
20 responsibility instrument if that's what state law
21 allowed, even if it didn't require that particular
22 instrument?

23 THE WITNESS: I would have to defer that to
24 the management team. I do the applications and the
25 paperwork but they supply me the information.

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1 JUDGE NOBLE: All right. But that would not
2 be the normal method or normal instrument of financial
3 responsibility?

4 THE WITNESS: No.

5 JUDGE NOBLE: Okay. Thank you.

6 All right. Now are there questions based
7 upon council questions and my questions?

8 MS. BRIMMER: A few. Thank you, Your Honor.

9 RECROSS-EXAMINATION

10 BY MS. BRIMMER:

11 Q. Mr. Haugstad, I'm going to first start with some
12 questions that came from Council Member Siemann that
13 were about the current and use of the Current Buster.
14 And I think in response to one of those questions where
15 I think he inquired whether there would be a policy to
16 stop loading vessels at 5 knots, you noted that current
17 isn't consistent or constant across the width of the
18 river.

19 Do you recall that?

20 A. Yep.

21 Q. So I assume, then, that spilled oil isn't going
22 to confine itself to certain parts of the river at
23 certain currents, so at that point in time you've got
24 oil moving at different speeds and different parts of
25 the current, some of it maybe at 5 knots, some of it

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1 maybe at 2.

2 Is that the scenario?

3 A. Potentially, but typically there's not that big
4 of a spread.

5 **Q. So there's a spread, but it's not a very big**
6 **spread?**

7 A. So what I'm saying is we could have like 1 knot
8 alongside the dock at the ship and like 3 knots out in
9 the middle. They're not the same, but they're not like
10 1 at the dock and 6 out in the middle, because I haven't
11 seen it that way.

12 **Q. I think he was -- Mr. Siemann I think was**
13 **inquiring if it was 5 knots or above.**

14 **Do you know what it's like in the river when**
15 **that's happening?**

16 A. The oil would travel downstream.

17 **Q. I think you at one point in response to some**
18 **questions from Council Member Rossman, you said**
19 **something about you have a facility just upstream.**
20 **Upstream in the Columbia from this facility?**

21 A. That's correct.

22 **Q. Is it the other side of the dams?**

23 A. No, it's literally a half mile up the river.

24 **Q. Then I think there was a question, I think this**
25 **was from Council Member Lynch, if I'm correct.**

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1 If you have to deploy the Current Buster, the
2 river is going to be moving fast; right? That's when it
3 gets used; correct?

4 A. One could assume that.

5 Q. Well, I mean, that was why you bought it, to
6 deal with the faster currents; right?

7 A. Well, to be more effective with the faster
8 currents.

9 Q. Because the prebooming isn't going to happen if
10 it's above 1 1/2 knots; right?

11 A. That's correct.

12 Q. And it takes about 20 minutes to deploy the
13 Current Buster; right?

14 A. That's correct.

15 Q. So at that point in time the river is moving
16 faster, that means the oil is going to be moving faster,
17 right?

18 A. Yep.

19 Q. At 5 knots, if the river is running at 5 knots,
20 do you know how fast that oil is going to get downstream
21 in 20 minutes?

22 A. Quite a good distance.

23 Q. In fact, would you disagree that at 2 knots it's
24 going to move about 2.3 miles downstream in an hour?

25 A. Oh, no.

1 Q. You don't know or --

2 A. No, I don't disagree.

3 Q. Okay. My last question, this is to follow up on
4 a question from Council Member Lynch about if there's
5 fire, if there's somehow fire involved.

6 I would assume that if you had fire and/or tank
7 cars in the river, that's going to adversely affect this
8 new inflated boom and how it's going to work.

9 A. Well, it's not a fire boom so you wouldn't use
10 it as such.

11 MS. BRIMMER: Okay. Thank you. I have
12 nothing else.

13 JUDGE NOBLE: Are there any other questions
14 from the opponent side of this witness based on council
15 questions? All right.

16 Then Mr. Kisielius, do you have any other
17 questions based on council questions?

18 MR. KISIELIUS: I do not. Thank you.

19 JUDGE NOBLE: All right. Mr. Haugstad, you
20 are excused as a witness. Thank you very much for your
21 testimony. It's been quite long this afternoon. We
22 appreciate it.

23 THE WITNESS: Thank you.

24 JUDGE NOBLE: Thank you.

25 It is 4:50. I think probably this is a good

1 place to stop for the day.

2 Is there anything we need to do on the
3 record before we go off the record today? Oh, we do
4 need to find out what's happening tomorrow.

5 MS. REED: Your Honor, I believe we also
6 need to go through the Vancouver exhibits on the record.

7 JUDGE NOBLE: We do. I was going to go back
8 on the record after council -- unless they want to stay
9 for that scintillating...

10 So tomorrow, witnesses and subject matter.
11 As I understand it, you're going to provide the council
12 with a list of exhibits for tomorrow as soon as you're
13 able to do that so they can review those.

14 MR. JOHNSON: Yes, Your Honor, that's right.
15 So tomorrow, and I'm just going to use last names again
16 here. Witness Kaitala, she has filed prefiled testimony
17 in this matter. She's a -- she testifies about rail
18 operations, BNSF rail operations. She's one of these
19 witnesses that is kind of a fact expert. She'll be
20 providing rebuttal in response to Witness Senter and in
21 response to Witness Robert Johnson, in addition to just
22 some of that factual testimony that she can speak to
23 about rail operations.

24 Then Witness Hack, he also filed prefiled
25 testimony about rail operations and will principally be

1 rebutting Witness Millar and Chipkevich. Then we'll
2 have Port Witness Guthrie, and that's more rail
3 operations. And I think Guthrie also provided prefiled
4 testimony.

5 And then, Your Honor, there's a possibility,
6 however, this is going to depend on maybe some of the
7 off-the-record stuff that we would have, Brian Dunn
8 testify, testifies about some traffic-related issues.
9 But we're starting to run into the potential need to do
10 some of the telephone witnesses based on your ruling
11 earlier today. So that's getting a little complicated,
12 because we don't know who at this point of those
13 witnesses.

14 It could be helpful to get some feedback
15 from you about whether or not the council still desires
16 to hear from all of those witnesses that were on the
17 original list of those who we weren't planning on
18 calling and the opponents weren't planning on calling.
19 So maybe we can talk about that after the council is
20 gone.

21 JUDGE NOBLE: We can. And I also want to
22 ask the council if they still have the questions of all
23 of those witnesses that are listed in my letter to you.
24 Possibly those questions have been answered by now, so
25 we'll get the update on that.

1 MR. JOHNSON: Okay. So that's where we are
2 for tomorrow.

3 MR. BARTZ: Your Honor, excuse me. Dave
4 Bartz for the Port of Vancouver. Our Witness Guthrie
5 will address Mr. Hildebrand's comments, so I just
6 thought I'd get that out there for others to know.

7 JUDGE NOBLE: Thank you, Mr. Bartz.

8 Anything else we need to do on the record
9 with the council here? All right then. We will be off
10 the record until we go back on in a minute.

11 (Discussion off the record.)

12 JUDGE NOBLE: Ms. Reed, the City of
13 Vancouver has some witnesses that had previously had
14 their testimony listed as exhibits, and that testimony
15 belongs with the transcripts and we are not designating
16 those testimonies as exhibits. However, those
17 testimonies had attachments to them --

18 MS. REED: Resumes.

19 JUDGE NOBLE: -- just the resumes, and so
20 those need exhibit numbers because they are exhibits.
21 So Ms. Reed, if you could tell me now what numbers you
22 would like to attach to those CVs and resumes.

23 MS. REED: Sure. You had asked us to
24 substitute the resumes for the testimony as appropriate,
25 so I will just go through our exhibits in numerical

1 order and tell you which ones are withdrawn and which
2 are substituted.

3 JUDGE NOBLE: All right.

4 MS. REED: Exhibit 3002 is withdrawn;
5 Exhibit 3004 is withdrawn. Your Honor, I had a question
6 about Exhibit 3006 as to whether it had been admitted.
7 My record did not indicate whether it had been admitted.

8 JUDGE NOBLE: Staff has done a good job for
9 me in giving me a list that I have pretty much
10 confidence is the same as my list because I checked
11 exhibit by exhibit.

12 So 3005 did you say?

13 MS. REED: -006.

14 JUDGE NOBLE: Okay. That was admitted.

15 MS. REED: Okay. Thank you, Your Honor.

16 Exhibit 3007 is withdrawn. Exhibit 3009, we
17 have substituted the resume, withdrawn the testimony and
18 substituted the resume. And you all should already have
19 an e-mail from our office providing the link to the FTC
20 site and the explanation. Exhibit 3010 is withdrawn.

21 JUDGE NOBLE: Just a minute. For 3009, that
22 is -- it's a resume?

23 MS. REED: Yes, so now the description is
24 the resume of Eric Holmes, Vancouver City Manager.

25 JUDGE NOBLE: Is there any objection to

1 that?

2 MR. KISIELIUS: No, Your Honor.

3 JUDGE NOBLE: I'll just admit 3009 now.

4 MS. REED: Thank you, Your Honor.

5 Exhibit 3010 is withdrawn. Exhibit 3012,
6 we're proposing to substitute the resume of Michael S.
7 Lester, Vancouver Assistant Police Chief, for his
8 prefiled written testimony.

9 JUDGE NOBLE: Is there an objection to 3012?

10 MR. JOHNSON: Not as amended, Your Honor.

11 JUDGE NOBLE: That will be admitted. Thank
12 you.

13 MS. REED: Exhibit 3013 will be withdrawn.
14 Exhibit 3016 will be -- the prefiled testimony will be
15 withdrawn and if its place we'll substitute the resume
16 of Joseph B. Molina, Vancouver Fire Chief.

17 JUDGE NOBLE: Is there an objection to the
18 resume of Joseph Molina as 3016?

19 MR. KISIELIUS: No, Your Honor.

20 JUDGE NOBLE: That will be admitted. Thank
21 you.

22 MS. REED: Exhibit 3019 will be withdrawn.

23 JUDGE NOBLE: Exhibit 3019 was admitted
24 already. So it will be withdrawn?

25 MS. REED: Well, Your Honor, it's an errata

1 correction to prefiled testimony, and so we thought
2 that, you know, given your ruling about prefiled
3 testimony not being an exhibit, we thought that should
4 be withdrawn.

5 In the very next exhibit, Exhibit 3020, is
6 the corrected exhibit to the prefiled testimony which
7 the erratum had introduced. So we have the corrected
8 exhibit already as a separate exhibit.

9 JUDGE NOBLE: Right. Okay. So although it
10 was previously admitted, it will now be withdrawn; 3019
11 will be withdrawn.

12 MS. REED: Okay, thank you.

13 And then with respect to Exhibit 3026, I do
14 not have an indication on that as to whether that was
15 admitted or objected to.

16 JUDGE NOBLE: 3026 was admitted.

17 MS. REED: Okay. Thank you, Your Honor.

18 And I believe that covers all of our
19 exhibits. Let me just page through here. Oh, no.
20 Okay.

21 So there is another change which was the
22 subject of the e-mail that went out today, 3068, which
23 is the ground lease between the Port of Vancouver and
24 Tesoro Savage.

25 JUDGE NOBLE: That was previously admitted.

1 MS. REED: It was previously admitted but it
2 was incomplete, and so counsel for Tesoro Savage
3 provided us with a complete version and we have now
4 substituted that. So I think it might need to be
5 readmitted.

6 JUDGE NOBLE: We could withdraw 3068 or we
7 could substitute 3068, the complete lease.

8 MS. REED: We've already Bates numbered the
9 complete lease with 3068. We'd prefer to substitute.

10 JUDGE NOBLE: All right. Then it will be
11 substituted. The new 3068 will be as you submitted --
12 have you submitted it already electronically?

13 MS. REED: We have, Your Honor, this
14 afternoon. And we will be sending hard copies. Well,
15 I'll give you the electronic version in the morning and
16 then we will be sending the hard copies by overnight
17 delivery tomorrow so they should arrive here on
18 Thursday.

19 JUDGE NOBLE: All right. Thank you. So we
20 don't actually have the electronic version yet?

21 MS. REED: We sent out an e-mail with the
22 FTC links, but it's my understanding that the council
23 wants an electronic copy on disk which I will provide
24 first thing in the morning.

25 JUDGE NOBLE: All right, then. What I

1 should do is wait until we actually have it to admit it.
2 So would you just remind me?

3 MS. REED: Okay. Let me just check and see.
4 I believe that's...

5 There's one, it looks like another one that
6 we need to withdraw, 3119, which is also a prefiled
7 testimony.

8 JUDGE NOBLE: And you're withdrawing 3119?

9 MS. REED: Yes. And that's it.

10 JUDGE NOBLE: All right. Good. Thank you
11 for that.

12 MS. REED: Thank you, Your Honor.

13 JUDGE NOBLE: My list of exhibits is almost
14 all green, which is a good thing.

15 Is there anything else we need to do on the
16 record before we adjourn for today?

17 MR. HALLVIK: I do. I just have one thing.

18 Clark County has a single exhibit that it
19 will need to follow a similar procedure for as Ms. Reed
20 just did. I expect to have that exhibit soon. It's the
21 CV of Dr. Peterson that was attached as an exhibit to
22 his testimony similar to the situation involving City of
23 Vancouver.

24 JUDGE NOBLE: Do you know the number?

25 MR. HALLVIK: I don't have -- it was

1 attached as an exhibit to the prefiled testimony. Clark
2 County did not file the prefiled testimony as an
3 exhibit, but the CV was attached to the prefiled
4 testimony --

5 JUDGE NOBLE: Oh, I see.

6 MR. HALLVIK: -- as Exhibit B, for instance,
7 or A. I can't remember which it was.

8 JUDGE NOBLE: So when we get it, you'll need
9 a new number?

10 MR. HALLVIK: Yes. I will just plan to add
11 it sequentially to the end of whatever our -- the next
12 sequential number and then offer it, and I presume that
13 there would not be an objection to that, but we can
14 confer. Thanks.

15 JUDGE NOBLE: So did you just say offer it
16 tonight?

17 MR. HALLVIK: No, at another day.

18 JUDGE NOBLE: Thank you. Would you remind
19 me so that I don't forget to take care of that?

20 MR. HALLVIK: Yes, I will.

21 JUDGE NOBLE: I'll try not to forget.

22 MR. HALLVIK: It will be my project.

23 JUDGE NOBLE: Well, thank you.

24 Thank all of you. I really appreciate your
25 patience. And one more apology for the trying to

1 squeeze in the extra couple of days and all the problems
2 that's causing the Tesoro Savage attorneys and the Port.
3 Thank you very much. Thank you all. We are adjourned.

4 (Proceedings adjourned at 5:24 p.m.)
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C E R T I F I C A T E

STATE OF WASHINGTON)
) ss.
COUNTY OF SNOHOMISH)

THIS IS TO CERTIFY that I, Diane Rugh, Certified Court Reporter in and for the State of Washington, residing at Snohomish, reported the within and foregoing testimony; said testimony being taken before me as a Certified Court Reporter on the date herein set forth; that the witness was first by me duly sworn; that said examination was taken by me in shorthand and thereafter under my supervision transcribed, and that same is a full, true and correct record of the testimony of said witness, including all questions, answers and objections, if any, of counsel, to the best of my ability.

I further certify that I am not a relative, employee, attorney, counsel of any of the parties; nor am I financially interested in the outcome of the cause.

IN WITNESS WHEREOF I have set my hand this 20th day of July, 2016.

DIANE RUGH, RPR, RMR, CRR, CCR
CCR NO. 2399