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ALASKA OIL SPILL COMMISSION

NOVEMBER 15, 1989

ANCHORAGE, ALASKA

ALASKA OIL SPILL MEMBERS

Walter B. Parker, Chairman

Esther C. Wunnicke, Vice-President

Margaret J. Hayes

Michael J. Herz

John Sund

Timothy Wallis

Edward Wenk, Jr.

VOLUME I OF II

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WITNESSES

VIRGIL KEITH

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JOE PORRICELLI

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(AOSC Tape #1A, 11/15/89)

MR. PARKER: The Alaska Oil Spill Commission will come to order. There's a quorum present. Today we are going to be in a work session mode with the audience. From 9:00 to 10:00 we will have something on the agenda called "technical fixes", which I will turn it over to Counsel in a minute to explain. From 10:00 to 12:00 we have findings, recommendations and policy review. And 12:00 to 1:00 for lunch. From 1:00 to 4:00 we have findings and at 4:00 or just before we're going out to a demonstration of the vessel monitoring system that BLM is putting on at the Clarion Hotel, and that's it for today. We'll be out here tomorrow going through substantially the same thing, except for the focus on institutions more than technical fixes, which doesn't mean we won't get into institutions some today I would suspect. Counsel, what's your schedule.

MR. HAVELOCK: Yeah. Just to supplement what you just said Mr. Chairman, I guess we should probably break around 3:30 to go to this Clarion demonstration. And I guess that otherwise I'll just explain to you where I think we are going and what I, from a staff perspective, we hope to get out of today's exercise.

MR. PARKER: Okay, go ahead.

MR. HAVELOCK: And maybe you'll have some questions about process that follow that. You have in your books a

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1 list of the -- a sheet called "Workshop Session" which
2 attempts to set that out and then starts off with a list of
3 what maybe pejoratively are called technical fixes. I
4 don't mean it to be pejorative, though. And there's some
5 substantial questions starting on Page 2 which I thought we
6 might just dig right in to double hulls.

7 MR. HERZ: Can you identify that as a tab.....

8 MS. WUNNICKE: This is 11.15.

9 MR. HAVELOCK: It's 11 -- at the end of your book. I
10 would like for the -- it is a workshop. I would hope to
11 have the opportunity to have members of our staff -- your
12 staff that have been working on this to talk about their
13 own thoughts and what they've been working on -- working
14 into your workshop product. Now, we have a blank sheet on
15 the wall and Steve is going to go up there and my proposal
16 is that he put up a -- on one side something called
17 "findings" and another, "recommendations", and that we will
18 go down and we will see if you have reached consensus on
19 some of these issues. There are findings and there are
20 findings, of course. I mean, there are detailed factual
21 things that my sense of it was that you have reached a
22 point where you've absorbed enough in terms of writing and
23 hearing, that in terms at least of some generalized
23 findings, you know where you're going. And if we have
25 those then we can backfill on those between now and the

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1 next meeting and give you some more detailed findings,
2 specific facts to support sort of the general findings that
3 you think are the key findings to support your
4 recommendations. And there may be, you know, three or four
5 key findings that you think justify a particular
6 recommendation and we want to get them from you. I also
7 hope that you will enlist our contractors to discuss any
8 item where you think that they may have some information or
9 views that are gonna be useful to you and I hope you will
10 include them in your dialogue. It is not an opportunity,
11 I might add, for general, public involvement. It's just
12 the Commission has hired specific contractors to work with
13 them on specific types of tasks and if you -- anybody in
14 the audience is bothered by something going on they can
15 certainly bring it up with a member of the staff who's not
16 engaged. And otherwise there'll be time at the next
17 meeting when these things get more refined for public
18 comment, and so you will have a chance at public comment
19 next time. But this is a closed workshop and includes only
20 contractors as nominated by the Commission.

21 MR. HERZ: I'd like to suggest that we have another
22 category up there which is areas where we think we might
23 want ultimately to make some sort of recommendations, but
23 we don't -- we haven't yet identified findings that are
25 sufficient to underpin or support those recommendations.

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1 MR. HAVELOCK: Okay.

2 MR. PARKER: Okay, Counsel, Commissioner Wenk has
3 asked to say a few words before we get into technical
4 fixes, so.....

5 MR. HAVELOCK: Sure.

6 MR. WENK: It's to say a few words to encourage even
7 more words from our staff director and Chief Counsel. As
8 you know I've raised questions not about substance over the
9 past few months, but about process. And I realize that one
10 of the last things most of us want to do when we want to
11 make a decision is deciding how we're gonna decide. Most
12 of us resist that process until after we've fallen our
13 face. I hear a ticking clock. I'm aware of the fact that
14 for that next meeting of the Commission to be truly
15 effective we need three weeks hence, or a shorter time, the
16 findings and recommendations that we need to debate in
17 draft form -- before we come to that meeting to make it
18 really useful. And, Mr. Chairman, what I'd like to invite
19 the Counsel to do, or the staff director, is to share with
20 us some vision he has of this process of how we, and the
21 staff collectively, are gonna decide how to decide, keeping
22 in mind that if we arrive at findings before we have the
23 evidence there is a temptation then to only find evidence
23 that supports the findings. And one of the things that it
25 strikes me that we need to face is the whole questions of

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1 the credibility of our report. The opportunity to really
2 have an impact to benefit not only the State of Alaska,
3 which has to come first, but the entire country. There're
4 gonna be a lot of readers. They're gonna read it with a
5 professional, and sometimes critical, and a few even
6 hostile, eye. And this, it strikes me, is one of the
7 reasons why whatever findings we have need the
8 reinforcement of the kind of evidence that I think
9 Counsel's used to mobilizing for legal purposes. This is
10 not a legal process. But anyway, Mr. Chairman, in short,
11 I'd like to suggest, subject to action by the Chair, to
12 hear from Counsel just a brief perspective of this process
13 itself.

14 MR. PARKER: Yeah, in line with that I think it was
15 always at least my intent that the report, in addition to
16 straightening out the problems of tanker transportation,
17 would have recommendations that would affect the whole area
18 of marine transportation, which we've had identified to us
19 as probably the most dangerous of transportation of the
20 major transportation modes, at least as far as accidents;
21 not in human life. We had a good illustration of that in
22 the morning paper in which one segment of the marine
23 industry, the cruise ship industry, is already attracting
23 some of the gains we've already made on pilotage -- in
25 attempting to move the pilot station back up to Rock Point

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1 north of Bligh Reef, because they don't want to pay \$300 in
2 excess mooring fees to -- and making threats which sound
3 very similar, that they won't go to Valdez if they have to
4 pick up the pilot south of Rocky Point. Which my only
5 rejoinder would be, you know, if you don't want to operate
6 by the standards of marine safety that the State of Alaska
7 is attempting to establish some leadership in, why take
8 your ship somewhere else. And I think if you don't have
9 that basic attitude, and I'll extend this also as we
10 discussed last night, to tanker traffic into the Gulf Coast
11 and the East Coast, why you're never going to make any
12 major impact on the problem if you accept that you have to
13 return to the lowest common denominator every time you
14 choose to make an advance. So, go ahead, Counsel.

15 MR. WENK: Can I just say, Mr. Chairman, you make my
16 heart beat with joy when I hear you say those things.

17 MR. HAVELOCK: Well, Mr. Chairman, I'm gonna set you
18 up for a lecture tour with the Alaska Visitor's
19 Association, who no doubt will be delighted to hear your
20 attitude towards cruise vessels. Let me see if I can
21 respond to what Commissioner Wenk has said. Certainly, I'm
22 speaking for myself too, always at my back I hear Time's
23 winged chariots rushing near. And we don't have that much
23 more time to go. And I'm conscious of that and that's why
25 we're doing a work session, 'cause I want to get some

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1 preliminary decisional work out of you. And I guess I'm
2 really, you know, the nature of the beast, since you're not
3 all as predictable as you might think you are, collectively
4 certainly, is we will no doubt as a staff -- we will
5 regroup at the end of this two-day session. We'll figure
6 out, you know, from what we've got where we can go. But we
7 do have a model for a decisional train, and indeed I talked
8 to Mr. Larson (ph) briefly yesterday, who was very pleased
9 to hear what was happening today and tomorrow. And as I
10 think I indicated, we're gonna start off with what
11 hopefully are some -- Mr. Larson's (ph) an expert on --
12 pardon me, Lathrop. So -- and he -- that's one of his
13 things, is decision trains and so on and I'll consult with
14 him since he is our consultant, and I will talk with him
15 after the meeting and find out what he thinks of the broth
16 that we have at that point. But certainly, Commissioner
17 Wenk, we will certainly have a full platter for you well
18 before the next meeting, of findings. And I didn't mean
19 anything in what I was saying to suggest that we were going
20 to suppress dissenting views or contrary evidence. It's
21 just simply that we need to have a focus in terms of where
22 we think you're going. And after all we are a staff, so we
23 are going to -- it is true -- if you decide that black is
23 white we will try to write black is white even -- but we
25 will present to you the opposing view that you will not be

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1 shielded from. But at any rate, it'll help give us the
2 focus on the issues and we will present all the evidence
3 and I think the report is going to have to be written to
4 cover a whole lot of arguments that are involved. We're
5 not just gonna write a puff-piece pushing in a single
6 direction.

7 MR. WALLIS: Are you saying the staff is going to
8 write a minority report?

9 (Laughter)

10 MR. HAVELOCK: Well, you may get dissenting staff
11 views. I don't know. And then an expose letter after
12 everything is done, you know, when they send the
13 (indiscernible) have told to some newspaper reporter. But
14 no, I think you're -- at the moment, at least, I'm
15 comfortable that the staff is very close to the heart of
16 the Commission insofar as I can identify a heart to the
17 Commission.

18 Now, I would like to get on and start doing some of
19 these findings and doing some of these issues and see what
20 you have to say. At a point, we get enough of them up
21 there, we might have a trial-run at, as I've talked to
22 Commissioner Wenk about doing, a delphi or something like
23 that to find out which of these things you think are really
23 the most important ones. If we're gonna have -- since
25 there'll be an emphasis issue is certainly a very important

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1 one in terms of the direction we're for it. But I wanta
2 get everything up first and on the board, as it were, and
3 then work on emphasis areas. And maybe that tells you a
4 little bit about decision train too. But I'll get it up
5 and then fix your priorities. Now, do you have a -- I
6 think you may have some more specific questions,
7 Commissioner, you wanted to ask me. Or am I leading you
8 where you want to go.

9 MR. WENK: Well, I -- let -- I'm inclined to follow
10 your lead on this, and let's get a few -- it's like a menu
11 on a computer -- let's get the menu up there and see where
12 we go. I think I would like to comment but I don't want to
13 interrupt this train -- I -- I'm.....

14 MR. HAVELOCK: Oh, I'm sure you'll comment.

15 MR. WENK: (Laughter) Reticence is not one of my
16 virtues.

17 MR. HAVELOCK: Inevitably when you talk about, you
18 know, you -- I think the technologies are up first because
19 they seem -- there is a certain simplicity to them.
20 Alright, and I expect that the real issues do involve
21 institutional arrangement and that's a hard nut and you're
22 gonna get into it I'm sure. Inevitably you get sucked into
23 it as you go. But we're gonna give it a try.

23 MR. PARKER: Okay. You want to start with double-
25 hulls then?

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1 MR. HAVELOCK: Well, we will start with double-hulls,
2 and I was gonna ask Marilyn to work into that, to tell us
3 where the Congress of the United States is, in her view, on
4 double-hulls at the moment so we have some notion of how
5 our recommendations fit with what's going on nationally.
6 Not now. Now.

7 MARILYN: Now?

8 MR. HAVELOCK: Now. We're not always as fully
9 coordinated as you might think.

10 MARILYN: Well, I wasn't prepared to do this, but I'll
11 do my best at explaining what I think is where Congress is.
12 And there may be other people who know more in the
13 audience. Jay Nelson, who is not here right at this
14 moment, said he would assist. He was back in Washington
15 D.C. during the votes on the floor so he has a lot of
16 information about it. In the Senate, as you all remember
17 6.86, there was a provision for double-hulls pending study
18 by the Coast Guard -- a year-long study. And the House, I
19 believe, they voted by a voice vote for double-hulls and
20 double-bottoms. So there's a difference between the House
21 and the Senate now. John asked me yesterday, is that for
22 the international fleet. I don't know the answer to that
23 yet, but I can try and find that out. So that's the
23 difference between the House and the Senate right now. And
25 I don't know a lot of the details but I can -- if people

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1 want me to I will do my best to determine -- right now I'm
2 trying -- we should be receiving in the mail the
3 Congressional record of what occurred on the floor. But
4 I'm pretty sure every amendment that was brought up passed.
5 And we do have copies of those amendments. So we're still
6 working on rough information at this point. But hopefully
7 by the end of the day or early tomorrow we'll have all the
8 information of what passed in the bill. And Congress still
9 hasn't determined when the conference committee will be -
10 - I'm pretty certain there will be a conference committee,
11 although there were rumors that they might go with a House
12 bill, but I doubt that that will happen.

13 MR. HAVELOCK: Well I guess my first question is, is
14 the Commission prepared now to say that subject to
15 verification of some of the data in the ECO report, which
16 is still to be forthcoming, that the Commission is inclined
17 to recommend that double-hulls be used in some traffic
18 through some configuration?

19 MS. WUNNICKE: Well, I think.....

20 MR. WALLIS: Can we recommend anything less?

21 MR. HAVELOCK: The staff recommendation is that you
22 do. That you recommend double-hulls.

23 MR. PARKER: Well perhaps for just to brief everyone,
23 why we should ask Virgil Keith to run through the three
25 options that have been presented to us on double-hulls.

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1 MR. HERZ: Could we -- as he's doing that, I'd like to
2 see itemized what the particular pieces of information --
3 that we've -- what information we have as findings relative
4 to making a recommendation and what ones we would like to
5 add, assuming that they can be added in a time frame that
6 will make them fit. For example, the question -- depending
7 on which one of the double-hull configurations we might
8 want to recommend, if we want to get that specific, the
9 question of whether the reduction in capacity and the
10 increase in tanker traffic would be compensated, or more
11 than compensated for by the reduction in oil spill in
12 projected collisions resulting with double-hulled vessels.
13 And there's some numerical information that we don't have
14 that, it seems to me, if we're gonna make a strong case we
15 want to have as much as we can in the way of hard data or
16 projected figures.

17 MR. PARKER: Virgil, why don't and Joe come up and
18 we'll have at this.

19 MR. WENK: Could I just, Mr. Chairman, add one
20 dimension to Commissioner Herz's request. It strikes me
21 that, coming back to the Counsel's statement about findings
22 supported by evidence, that it would be of interest to look
23 at two major questions on double-hulls. The first is what
23 is the current evidence as to the limited spill that would
25 have occurred if indeed Exxon Valdez had a double-hull.

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1 I've seen photographs taken down in the bottom down in San
2 Diego that to me are quite striking in terms of the bottom
3 five feet being gone from much of that bottom. Whereas a
4 double-hull 11 feet high would have contained a tremendous
5 amount of oil.

6 MR. PARKER: According to the Coast Guard it would've
7 contained somewhere between 25 and 60% of the spill.

8 MR. WENK: It strikes me that this can be pinned down
9 a lot more precisely than that range. That's an enormous
10 range. But the second question is this. In terms of the
11 kind of evidence I believe this kind of a commission needs
12 to support its proposition versus what would come, say from
13 the National Research Council. If we took a look -- or our
14 advisors, our consultants took a look at, let's say, the 10
15 or 20 worst spills in U.S. waters, or world-wide, what
16 would the effect of double-hulls have been in those
17 dramatic cases. It strikes me that that would be one way.
18 I'm not suggesting it's the only way to make the case, but
19 that is one way a commission such as ours could make its
20 case without getting into the highly technical detail which
21 may or may not be appropriate to our process.

22 MR. SUND: Mr. Chairman, may I just make an
23 observation here. I think that the issue is, does the
23 Commission feel comfortable or uncomfortable with
25 recommending double-hulls. I mean, that's just a generic

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1 "how you feel." And then the second layer of that is
2 somebody develops the arguments. There are many historical
3 arguments for and against double-hulls and I think that's
4 what the staff can -- most of these guys here could write
5 'em down in their sleep and put 'em down, and then just see
6 what -- then you can get down to the evidentiary level of
7 is there evidence that supports those arguments or doesn't
8 support the arguments and where we go. But I would say, as
9 one Commissioner, as a general across-the-board feeling, I
10 feel comfortable stating that I would go with double-hull
11 would be a good thing to do.

12 MR. PARKER: Yeah. We have, you know, the past
13 research on double-bottoms. I think the research on
14 double-hull effect is somewhat less but I'm not going to
15 get out in front with -- of Virgil and Joe on this one,
16 'cause they spent the last 20 years on the issue almost.
17 So I think that -- so, is there anything on double-hulls
18 similar to what Coast Guard did on double-bottoms.

19 MR. KEITH: Well, I think first of all we gotta define
20 this. When we talk about a double-hull we're talking about
21 a double-bottom with the double-side. So everything that
22 you see on double-bottoms pertains to double-hulls, it's
23 just that -- as you Commission heard the testimony of the
23 Coast Guard down in Cordova at the presentation before the
25 House Committee, is the Coast Guard feels very strongly, in

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1 addition to protecting the tanker against bottom damage,
2 you also have to protect against side damage. And that
3 argument was made in testimony before you by Vice-Admiral
4 Robbins. I've heard it twice, I think. And it's a very
5 valid argument. So, while double-bottoms takes care of the
6 bottom damage, the double-hull offers you some side
7 protection. And we'll get into that. And I think it's a
8 very valid argument. I think it's a -- and so therefore,
9 what we're saying when you look at double-hulls you've got
10 everything that the double-bottoms has, plus more.

11 MR. WENK: Mr. Chairman, just very briefly. I'm
12 impressed with Commissioner Sund's comment and it's in line
13 with I think what the Counsel wanted to do in terms of
14 testing the water. And to get this menu up on the board.
15 Because what now I see in view of the kind of interesting
16 discussion that could take place, we could spend the whole
17 morning on double-bottoms, legitimately. I wonder if it
18 wouldn't be of virtue to try to get this menu up first
19 along the lines that Commissioner Sund suggested in terms
20 of gut-feeling and see where we go from there.

21 MR. SUND: Mr. Chairman, what I want to try to get is
22 let's go through and see on these major issues where
23 everybody's at, and then come back again. We can revisit
23 these things this afternoon or tomorrow, and just go around
25 the room.

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1 MR. PARKER: Make a motion.

2 MS. WUNNICKE: Mr. Chairman. Question of somebody,
3 Counsel or Mr. Sund.

4 MR. PARKER: It's a formal session, motions are
5 accepted. It's a work session but -- we need motions if
6 we're going to nail this down.

7 MR. SUND: Mr. Chairman, I would move that we follow
8 Counsel's recommendation here then, that we just go through
9 his list that he's made out here, get a feeling whether we
10 want to pursue the issue or not pursue the issue -- put 'em
11 on the board and then come back and if Commissioners want
12 to have a further discussion about some of the particular
13 issues or items or findings of fact within those issues
14 that we revisit them again later on.

15 MR. WENK: Second.

16 MR. PARKER: Is there any objection to that? Alright,
17 proceed.

18 MR. HAVELOCK: Mr. Chairman? The discussion so far
19 has been helpful because -- and I don't want your procedure
20 to cut off comments such as Mr. Wenk was making because
21 what he suggested is some ancillary findings of fact that
22 he wants to see addressed. He wants to know, you know, for
23 example, we should come back with -- and I'm sure we can --
23 -- what would've been the effect on the Exxon Valdez spill.
25 What was the effect on the 10 worst spills. Although I

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1 don't - those are by no means the only issues that -- or
2 findings that might support the use of double-hulls, but
3 nonetheless it helps to give direction. I would encourage
4 Commissioners to ask questions like that but we're not
5 gonna answer them today. We are simply going to -- we'll
6 give you those findings, and everything you do today
7 tentative, because you're gonna address.....

8 MR. PARKER: The problem the Chair has always faced is
9 there's a vast difference in the level of exposure among
10 individual Commissioners on different items. And, you
11 know, I think the Commission owes it to itself to establish
12 at least a minimal ground-level of information that's
13 common to all members.

14 MS. WUNNICKE: Then may I ask a question?

15 MR. PARKER: Yes ma'am.

16 MS. WUNNICKE: When you say double-hulls, you mean
17 transport of oil in all the trade -- Alaska trade, American
18 coastal trade, international trade -- across-the-board. Am
19 I understanding that correctly?

20 MR. HAVELOCK: Well, that -- you've only voted on one
21 question so far. And I think that's the next question is
22 scope.

23 MS. WUNNICKE: (Indiscernible) I'd like to ask the
23 question.

25 MR. PARKER: Okay. I would like you to.

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1 MR. SUND: I think maybe that when we get into these
2 issues that some of us have taken upon to study a little
3 bit more in depth than others, and we can get into that.
4 But I think the issue here is, does the Commission feel
5 comfortable with double-hulls, yes or no. Okay, Staff,
6 make the best case you can for them. Right? And it means
7 you gotta answer all of these problems. Everybody knows
8 what the challenges are. The Governor's office has already
9 issued a letter stating that they are not in favor of
10 double-hulls if it only applies to the Alaska trade. They
11 do not want the Alaska trade singled out for per-barrel
12 taxes, for hulls, or any special thing, right? So that's
13 on the table, but I -- you know, it's a quarter to 10:00
14 and if we launch into double-hulls it'll be 1:30 and we'll
15 still be in double-hulls. And --.....

16 MR. PARKER: It doesn't need to be.

17 MR. SUND: No, but we could be. This Commission has
18 a history of doing that.

19 MR. HERZ: Well, as I understand your motion, the
20 intent was to get the laundry list up there, then we can
21 allocate how much time we're going to spend on each of the
22 items and have a sense of what we can get through.

23 MR. HAVELOCK: Do you want to go to traffic control,
23 then, Commissioner. Is that your suggestion, and come back
25 to the subsidiary questions?

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1 MS. WUNNICKE: Put it up. Put it up. Put it up.

2 MR. SUND: Just put it up. Put it up and go on.

3 MR. DOOLEY: Mr. Chairman, I'd like to offer a word of
4 caution here about focusing on the Exxon Valdez as the
5 standard-bearer for technical fixes. At the National
6 Academy of Sciences original -- their organizational
7 meeting on this discussion of double-hulls and double-
8 bottoms, it came out that there had been five studies done
9 on the Exxon Valdez and the results are mixed in this
10 regard. I would suggest that if the Commission is looking
11 for evidentiary information that they look at it in a
12 broader context than solely the Exxon Valdez. The other
13 comment I meant to make earlier was on the Senate bill. It
14 doesn't mandate double-hulls, but it makes the test for new
15 shipping to be tested against the effectiveness of double-
16 hulls, rather than double-hulls being under evaluation.
17 What it does is put other shipping standards to be
18 evaluated against the effectiveness of double-hulls. It is
19 the new threshold in the Senate bill for effectiveness, and
20 it changes the whole area and it allows flexibility for
21 considering the needs of unique ports and shipping
22 requirements. And it's much more flexible and not as
23 rigorous as the amendment that was described in the House
23 bill.

25 MR. PARKER: Counsel, in your subsidiary questions

/cf

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1 under double-hulls do you wish to return to those then, or
2 do you wish to have findings on those?

3 MR. HAVELOCK: Well, I don't want to -- if
4 Commissioner Sund wants to move to the major topics and
5 then come back, that'll work for me too. Either way.
6 Major topics?

7 MARILYN: Can I just make one comment, Mr. Chairman?
8 The list here that's headed "Double-Bottoms, Double-
9 Hulls", this is my best list of what amendments were
10 offered on the floor of the House. And it was before the
11 amendments were offered so there may be changes, but
12 according to my best knowledge here on the front page
13 Representative Gallows (ph) and Representative Toricelli's
14 (ph) -- bill -- amendments passed and McDermott (ph) was
15 never offered. But those are the two that were offered and
16 did pass. And attached are other amendments that were
17 brought on the floor.

18 MR. HAVELOCK: The next generic topic, Mr. Chairman,
19 is traffic control.

20 MR. PARKER: Is anyone opposed to traffic control as
21 due for consideration?

22 MR. WENK: Excuse me, could I, Mr. Chairman, call
23 attention to a key word that the Counsel has in his draft,
23 and that is "mandatory." And I think that this is the
25 operationally powerful element of traffic control, on which

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1 there has been a tremendous amount of debate. Now I've -
2 - if you're proposing mandatory I would raise my hand yes.

3 MR. HAVELOCK: That's what the staff recommendation
4 is.

5 MR. HERZ: And does that mean -- does traffic control
6 mean local VTS-type or does it mean global positioning and
7 alarm systems.

8 MR. PARKER: Now we're getting into discussion. We're
9 supposed to just make the major cuts.

10 MR. HAVELOCK: Well those are the subsets under it and
11 I think.....

12 MR. HERZ: Okay, but I don't see those agendized
13 there. I just.....

14 MR. HAVELOCK: Well we've got (indiscernible) as the
15 first subsidiary question. What are the ingredients, okay.
16 And now I can't resist my own comment which is I'm not sure
17 that mandatory is a word subject to interpretation by
18 lawyers and others. And -- which is to say that the
19 captain is still at the helm of his vessel and he is going
20 to do what he does. Mandatory means, in my lexicon, that
21 he is under some compulsion to do what somebody else is
22 telling him. But since you've been talking about team
23 management anyway, I would assume that what you're talking
23 about is team management including a ground controller with
25 some elements that are going to look a lot like FAA

/cf

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1 configurations, and that's sort of the concept that I'm
2 thinking.

3 MR. PARKER: Well, it's mandatory in the sense that if
4 you want to use our port you use our system. As captain
5 you're perfectly free to go elsewhere if you don't choose
6 to use the system.

7 MR. HAVELOCK: I assume that you would have a hearing
8 process or something if somebody deviates. You're gonna
9 have to face some bureaucratic hearing on why there was a
10 departure and knowing actually that my experience with
11 policing is that as soon as New York started having
12 inquiries as to why policemen -- you had to file a report
13 as to why you pulled your gun out. The number of times a
14 police officer pulled his gun out dropped by -- from --
15 down to 10% of what it was beforehand.

16 MR. WENK: Mr. Chairman.

17 MR. PARKER: There's no recommendation that we're
18 going to force -- used armed force on these guys.

19 MR. WENK: Mr. Chairman, just very briefly on this
20 question of mandatory. There are two subtle qualities here
21 that I don't propose that we discuss, but simply to get 'em
22 on the floor. The first is that the term "mandatory" is
23 now used in the trade as compared to "advisory." So there
23 is getting to be a common usage. The implication, however,
25 was very important that when you have mandatory traffic

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1 control the traffic controller is taking some
2 responsibility for safety. And this frightens controlling
3 organizations. Secondly, whether or not the vessel being
4 controlled, or the master or the operator of that vessel,
5 depends on the confidence they have in the controller. And
6 you've heard testimony about the value of having people
7 with extensive pilotage experience or at-sea experience and
8 so on, as compared to less-experienced people, let me just
9 draw your attention to the fact that the Canadian Coast
10 Guard, which employees civilians in their vessel traffic
11 control, have people who have been at it for years and
12 there is a much different attitude taken toward the traffic
13 controllers in Canadian waters as a consequence. These are
14 just two subtleties, Counsel, that I believe you will want
15 to take a look at.

16 MR. PARKER: I think we can return to those in great
17 detail when we discuss these in depth. Manning proposal.

18 MR. WALLIS: Excuse me. Can I ask just one
19 (indiscernible) question on this traffic control.

20 MR. PARKER: Sure. In fact, questions are welcome.
21 Expositions we should hold until we discuss in great deal.

22 MR. WALLIS: I understand. But just, you know, so I
23 can think about it. What are we talking about on traffic
23 control. You know, when I think of traffic control I think
25 of this tower out at the airport. What are we talking

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1 about here -- where's it gonna be located. Are we talking
2 about Prince William Sound and Cook Inlet.....

3 MR. HAVELOCK: Well, as I indicated there, one of your
4 subsidiary questions is where are you going to require
5 those things, the same with where is our double-hull gonna
6 be required. You've got that same question with traffic
7 control. For that matter, it needs to be addressed when
8 you go outside of Cook Inlet when you go -- are you saying
9 the same things for the Arctic? Are you saying the same
10 things for anybody that comes within 150 miles of
11 Ketchikan?

12 MR. WALLIS: Well, who's going to be in charge of
13 traffic control?

14 MR. PARKER: That's the big question.

15 MR. HAVELOCK: That's your institutional response.

16 MR. WALLIS: Okay. Thank you.

17 MR. PARKER: That's the one I don't think we're even
18 close to.

19 MR. HAVELOCK: Yeah. I mean, because you pick the -
20 - as Commissioner Wenk just indicated -- you talk about
21 dollar responsibility, you talk about confidence in
22 controllers. That has institutional implications. So as
23 he suggests, the Coast Guard cannot continue to do what it
23 is now doing and still have that kind of a system. So
25 either somebody else is gonna do it or the Coast Guard is

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1 gonna have to change the way they do business.

2 MR. PARKER: Okay, pilotage. Do we want -- oh
3 manning. Do you -- anybody doesn't want to consider
4 manning as a major proposal? Put manning up. Pilotage.

5 MR. HAVELOCK: There are theories under manning, of
6 course, that -- questions. I put the emphasis on the
7 overtime issue and the principal proposal that you have
8 specific manning things and -- the institutional question
9 it seemed to me got special emphasis from yesterday's
10 testimony with respect to who is setting what manning
11 standards. And.....

12 MR. PARKER: Or is anyone really setting any
13 standards.

14 MR. HAVELOCK: Is anybody really setting any is what -
15 - yeah. I don't think that the American public is aware of
16 what goes on in that category.

17 MR. HERZ: Your Section 3.2 -- is that meant to
18 include certification, licenses?

19 MR. PARKER: Yes.

20 MR. HAVELOCK: Yes.

21 MR. PARKER: Okay, pilotage. Anybody that does not
22 want to get into pilotage. Put it up. Escort vessels
23 under way. Escort vessels docking. Put 'em up. Collision
23 prevention.

25 MR. WENK: Could someone explain what that is intended

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1 to.....

2 MR. PARKER: Yeah, I don't -- I need some explanation
3 on that too.

4 MR. HAVELOCK: That really shouldn't be there as a
5 separate category. That's a glitch. It should -- that
6 belongs -- is a subset under traffic control.

7 MR. PARKER: Okay. That's where it belongs all right.

8 MR. HAVELOCK: I guess it's a scope question as to,
9 you know, what you've mentioned yourself as to how far
10 you're gonna take traffic control. Are we just talking
11 tankers or are we talking other vessels.

12 MR. PARKER: Okay, under the next one -- terminal
13 control. Wouldn't that be more properly expanded to just
14 loading and unloading procedures as a generic term to
15 consider all aspects of that or is.....

16 MR. HAVELOCK: That's a major question it seems to me,
17 is to how far up -- and I was thinking of it when
18 Commissioner Wenk was talking yesterday about his mega-
19 system -- he started his mega-system at dockside. Many of
20 us would argue that the system starts in the -- at Prudhoe
21 Bay. And the question of, you know, what you want to
22 address and how far you want to address it.

23 MR. PARKER: I'd say I -- having read it through more
23 thoroughly, I think terminal control is alright, or just
25 terminal but -- any other thing else in there that you.....

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1 MR. SUND: Well, we did talk about this harbor master
2 concept.

3 MR. HAVELOCK: That's what this particular one here
4 was addressing.

5 MR. SUND: Yeah. And the other thing that has come up
6 is -- I don't know where it comes in, but it's drug and
7 alcohol testing at the terminal. I think they do it now.
8 I think to get on the terminal at Alyeska you'd have to go
9 through some alcohol screening. But I don't know exactly
10 where that all fits in.

11 MR. PARKER: Well, it's one of the major.....

12 MS. WUNNICKE: Goes back to manning doesn't it?

13 MR. PARKER:recommendations.

14 MS. WUNNICKE:one of the conditions of manning.

15 MR. PARKER: I think the difference, what I think the
16 difference in perception on some of those is on drug and
17 alcohol testing is, who does it? You know.

18 MR. SUND: Yeah, that's what I was kind of getting
19 at.....

20 MR. PARKER: Okay. Weather information. We -- and
21 tank farm increase, which probably could go, I guess, under
22 terminal or.....

23 MR. HAVELOCK: It's a terminal issue, yeah. Although
23 it's a distinctive issue. I mean, are you or are you not
25 going to make a recommendation that they expand their

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1 capacity at that terminal to increase flexibility.

2 MS. WUNNICKE: Mr. Chairman, just a point. Are we
3 continuing to focus on Prince William Sound or are our
4 recommendations going to be at least Alaska-wide.

5 MR. HAVELOCK: Well, one could make that a generic -
6 - I mean, that you could set requirements like -- you know,
7 the ability to be -- not have vessels for 10 days, 14 days,
8 whatever, in a holding capacity to cover X-period of time
9 or you could just.....

10 MR. PARKER: Well the critical cut on what we've just
11 been discussing on harbor master is are you going to put
12 that authority with the Environmental Conservation,
13 Transportation, who?

14 MS. WUNNICKE: But we're not to "who" yet, we're still
15 finding out "what."

16 MR. PARKER: Yeah, I know. But that's the critical
17 cut you've gotta make. Okay, next one is we go into
18 response. Do we want to deal with these now in detail, or
19 do we want to go on and decide what we want to do on
20 response?

21 MR. WENK: Could we nominate one or two more in this
22 same group?

23 MR. HAVELOCK: Sure. That's what we're hoping to do.
23 I picked out the easy ones actually (indiscernible).

25 MR. WENK: Well, these fall into the same general

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1 category -- call 'em fixes. Increased enforcement and
2 stiffer penalties for violations.

3 MS. WUNNICKE: (Indiscernible) institutions?

4 MR. PARKER: You think that's institutions?

5 MR. HAVELOCK: We can -- we'll put it there, but yeah,
6 it's an institutional question, but not entirely.

7 MR. WENK: Okay I -- yeah the institutions struck me
8 as getting more to the "who." This is sort of a "what."
9 But anyway, let me just mention one or two others just so
10 they get on the agenda. One has to do with response to the
11 analysis, accident recommendations in the wake of an
12 accident by the National Transportation Safety Board. The
13 fact that, to the best of my knowledge, and I think this is
14 something Staff can look at, FAA implements well over 80%
15 of their recommendations, Coast Guard less than 50%.

16 MR. HAVELOCK: Let's -- we add that as a finding.
17 We're looking at that as a finding which would support an
18 institutional recommendation.

19 MR. WENK: Well, but the merit of -- this gets down to
20 the notion of some systematic monitoring so as to be
21 mindful of implications of these accidents. And not simply
22 rely on the Coast Guard with its own casualty study. The
23 Coast Guard, for example, still has a report forthcoming on
23 Exxon Valdez. I don't know whether it's gonna be a year or
25 two after the accident before we see it or when. Finally

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1 the -- and I'm sure you've got this someplace, is requiring
2 marine underwriters to provide incentives for safety.

3 MR. PARKER: I hope we've got it. We're gonna have a
4 contract on it.

5 MR. HAVELOCK: We'll put that down here as a way of -
6 - addressing it.

7 MR. PARKER: Okay. Do we want to go on and make the
8 cuts on the response or do you want to deal with these
9 recommendations in some detail? What's your pleasure?

10 MS. HAYES: Let's just do these and then see how it
11 goes.

12 MR. PARKER: Alright. Commissioner Hayes has
13 suggested let's do these and see how it goes.

14 MR. HERZ: Does that mean discuss these or do the
15 response (indiscernible). Which are you saying?

16 MS. HAYES: Okay, I'm suggesting that we focus more on
17 prevention at the moment.

18 MARILYN: May I make a suggestion. This -- in your
19 packets is this list of recommendations that have just been
20 things that I have collected and other people have
21 collected and told me and written down. They're from
22 reports. They're from testimony. They're just a list of
23 recommendations and the way that it's broken out is -- and
23 this may help.....

25 MS. HAYES: Marilyn, could you explain where that is?

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1 Which tab?

2 MS. WUNNICKE: It's not under a tab.

3 MARILYN: It might be in the back. It looks like
4 this. It says "draft" at the top, and has recommendations.
5 The way that this is -- does everyone see it. The way it's
6 divided is institutions prevention, institutions response,
7 technical prevention and technical response. And that's
8 just a -- one way of dividing it out, but it helps to see -
9 - I mean, the way these are -- the way I see these -- these
10 are technical prevention and the items (indiscernible) are
11 technical response. And some of those things, like
12 enforcement penalties, I've listed under institutions
13 prevention. So this is a way of thinking about things that
14 might be helpful.

15 MR. PARKER: Returning to double-hulls, the Commission
16 has heard the argument against double-hulls at our
17 September 1st meeting in some depth. Does anybody feel the
18 need to revisit those arguments against them which are
19 both in the realm of safety that double-hulls and or
20 double-bottoms can cause ship imbalance due to flooding and
21 so forth, and also in economics that will lessen the
22 capacity of the tankers to carry oil by some 35%. Do we
23 want to revisit those or not?

23 MR. SUND: Jim, I would ask a question of Counsel here
25 in terms of just having some kind of record or whatever.

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1 Basically, the double-hull proposal from ECO in the report
2 is the type of a hull that doesn't exist. So that where
3 we're at is the Commission, in a position of recommending
4 a type of a hull or a configuration that is somewhat new.
5 And I'm just wondering if it is maybe worthwhile to take 10
6 minutes here to let the ECO people explain their rationale
7 on the record why they think this proposal here solves some
8 of the problems or some of the arguments that have been
9 posed against double-hulls.

10 MR. PARKER: I think that would be wise. Is there any
11 objection to that.

12 MR. HAVELOCK: Yeah, I did -- just to let you know
13 where I think we stand is the -- we think that the ECO
14 proposal -- specific proposal should be suggested as the
15 type of model which addresses these things that we do not
16 feel that this Commission should be recommending a specific
17 tanker design. That the Commission would recommend double-
18 hulls in principle and show herein one type of
19 configuration that it would appear to meet these kind of
20 requirements. But I think that the Commission is going too
21 far out on a limb by suggesting that the expertise here,
22 collectively, although there may be individuals that have
23 it, but that there is a collective wisdom here that could
23 put an imprimatur on a particular tanker design.

25 MS. WUNNICKE: Good point.

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1 MR. PARKER: Well, there's -- I don't think it was
2 ever the intent to recommend anything specific. If
3 Congress gets into a real debate on Type One versus Type
4 Two or something we may have to revisit this. But I -- you
5 know. There's many different configurations that may adapt
6 to many different shipping problems. So.....

7 MS. WUNNICKE: Mr. Chairman, I think that that's a
8 good point. I think that Counsel makes a good point. As
9 we all are struck by the fact that the response technology
10 is 20 or 30 years old, I think we should be very careful in
11 taking a snapshot of any technology at one point in time.
12 I'd like to see us establish standards and goals that we
13 would want to see achieved and not shut off any innovation
14 or creativity on the part of people who may be able to meet
15 those goals with some other technology that I certainly
16 have not and maybe none of us have even thought of. So I
17 think that's a very, very good point that we not be seen as
18 the Exxon Valdez dinosaur in terms of making
19 recommendations that are only pertinent on November the
20 15th, 1989.

21 MR. HERZ: It seems to me that, Mr. Chairman, that one
22 of the things that we can do that is consistent with what
23 you're suggesting is -- and that will give, I think,
23 greater value to the report overall -- is to try to define
25 a set of questions, unanswered questions, that need to be

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1 addressed, and laying out an agenda of unanswered,
2 unresolved issues that need to be addressed by experts in
3 the various fields.

4 MR. PARKER: I think the -- yeah. And I think the
5 great value of what ECO has developed is that it does
6 answer the economic problem that was brought before us by
7 the industry at our September 1st meeting thereby opening
8 up that argument. Which doesn't mean that we recommend it.
9 It means that it has been advanced as part of the general
10 discussion to counter the argument that we can't have
11 double-hulls 'cause it will one, wipe out the American
12 domestic shipping industry, two, encourage the shipping in
13 the worst possible tankers into all of our East Coast and
14 Gulf ports, etc. All the things which some congressmen
15 stated on the floor in the past week.

16 MS. HAYES: Mr. Chairman, I would like to second
17 Esther's comments and I'd also like to suggest that our -
18 - I'd like the distinction that Dennis brought out in the
19 House version of the bill -- of using double-hulls as a
20 standard for technology to shoot at. It gives us more
21 breadth to innovation in design and using the new materials
22 as we were talking earlier this morning. There are things
23 that we haven't discussed yet in terms of bladders and
23 various other systems that may be even more appropriate.
25 So I personally would like to see it left more open-ended

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1 and let technology have a shot at it.

2 MR. PARKER: I think we should do as Commissioner Sund
3 suggested and hear for 10 minutes on this to, you know,
4 broaden our horizons above and beyond where we are now so
5 you can ask questions just as you did on bladders. 'Cause,
6 you know, there are pros and cons that need to be addressed
7 there. John.

8 MR. HAVELOCK: I would like to hear from our
9 contractor within -- who has been listening to this
10 conversation, what he thinks are the recommendations that
11 we can make as a non-naval architecture body. He probably
12 had some idea of the types of recommendations that are safe
13 for us to address.

14 MR. WENK: Mr. Chairman.

15 MR. PARKER: Yes.

16 MR. WENK: Just very briefly, I associate myself also
17 with the Counsel's recommendation and Commissioner
18 Wunnicke's proposition. When he referred to the fact that
19 perhaps there was someone on the Commission that did have
20 technical expertise to deal with this, maybe I do and maybe
21 I don't. But whether I do or don't isn't relevant. I feel
22 as all of you do, as I sense at least, that in terms of
23 maintaining credibility the Commission as a whole really
23 should be, in a sense, using this example as a principle to
25 adopt throughout its continued discussion in terms of how

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1 much technical detail it really wants to take a position
2 on. And I think that everybody's experiences, that the
3 more technical detail that you add, even if you think you
4 have supporting evidence, the more vulnerable it is to
5 criticism by somebody who wants to find something that they
6 can attack and thus undercut the whole report. I just
7 think there's some virtue in following the Counsel's
8 proposition here.

9 MR. PARKER: Tim.

10 MR. WALLIS: Just a question. Are we going to talk
11 about a timetable as to when we want this accomplished?

12 MR. HAVELOCK: Yeah.

13 MR. WALLIS: Do you have a recommendation?

14 MR. HAVELOCK: No.

15 MR. PARKER: Go ahead Virg.

16 MR. KEITH: Mr. Chairman, I think both Joe and I were
17 talking. We think what Counsel has advised is also the
18 right way to go. It's gonna be very difficult if you're
19 gonna recommend a Type One double-hull that we're going to
20 explain to you as the most safest to back off of that. So
21 maybe you want to take the same way that -- I know
22 Commissioner Sund and myself met with Senator Adams and -
23 - or his staff, Bruce Snead (ph) -- is just recommend a
23 double-hull or the standard that's involved with that
25 double hull on the -- and not get into the definition. But

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1 we're very pleased on this particular double-hull that we
2 came up with is it is using the segregated ballast that's
3 available. We're not reducing the cargo-carrying capacity
4 at all. On the other hand, we've made it very, very clear
5 in our report, and you will see in the graphics, it is not
6 -- does not have the side-wall distance of the Type One
7 double-hull, which has an associated reduction in carrying
8 capacity of about 30%. So we'll start on that, and the
9 first one Joe is -- I'll get the light.

10 MS. WUNNICKE: What page on your report is that.

11 MR. PORRICELLI: It's Figure 5-2. I'm afraid I don't
12 remember the page number.

13 MARILYN: It's a fold-out. It's one of the fold-
14 outs.

15 MR. KEITH: And it's -- Esther, it's Roman 5-4.

16 MS. WUNNICKE: Okay, got it. Thank you.

17 MR. KEITH: And what we're gonna do -- now this -- in
18 the last 10 years things have changed significantly from
19 the way tankers operated at the start of the pipeline. As
20 most people in this room realize, prior to the mid-
21 Seventies, tankers could interchange their tanks. So they
22 could carry oil, fill up all their tanks with oil on one
23 trip, and when they're coming back in ballast put salt
23 water in those same tanks. And they had a system called
25 "load-on-top" which you basically allowed the oil to settle

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1 out that Joe and I have written a number of papers on which
2 were very, very ineffective. But after that time on new
3 tankers, never the two tanks can mix. So now the tankers
4 that you're using for salt water are only exclusive for
5 salt water. Likewise, the tankers that use for ballast or
6 for oil are exclusive for oil. And never the two should
7 mix. So what Joe's gonna do is explain that now when
8 you've got this tankage from this tanker, about 30% of that
9 space, that volume, with 30% of those tanks, are
10 exclusively for salt water. So now it comes into an
11 argument, where do you put those tanks, how do you decide
12 to build this tanker, recognizing that 30% of that has to
13 be used exclusively for salt water. One way to do that in
14 a single-hulled tanker is to go with the staggered-wing
15 design where you simply minimize costs. So you design this
16 tanker with this 30% that's exclusively for salt water, in
17 the least-cost fashion. And that's what Joe's gonna pick
18 up on this schematic and show you what that would be for a
19 typical Cook Inlet tanker.

20 MR. PARKER: Is that why the decision was made to go
21 to that in '78 in the '78 IMO prevention then?

22 MR. KEITH: That's correct, sir.

23 MR. PARKER: Okay.

23 MR. PORRICELLI: The drawing that I've got on the
25 view-graph right now shows a 250,000 dead-weight ton cruise

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1 ship in a double-hull configuration. But if you would
2 allow me and hand me your imagination for a couple seconds,
3 I think I should bring you back one step to understand what
4 an existing ship today can look like, be in full compliance
5 with IMO and Coast Guard requirements. As Virgil's
6 mentioned, what the rule states is that a tanker must be
7 provided with sufficient ballast capacity. And you've got
8 to think in terms of capacity in cubic feet, the ballast
9 and so forth, it's got to have sufficient cubic space which
10 is exclusively dedicated to the use of ballast. And it is
11 totally segregated from the cargo system, hence the name
12 segregated ballast, so that the ship, with no recourse to
13 any other ballast can, in the absence of cargo, reach a
14 certain minimum drag and a certain trim to assure
15 propeller motion. And there's a formula for that. And
16 what a naval architect will go through is he'll decide how
17 much weight he needs and where to locate it relative to the
18 longitudinal center of gravity and longitudinal center of
19 flotation of the ship so he meets the drag requirement and
20 the trim requirement. On a -- what we refer to as a
21 staggered-wing segregated ballast tanker, if you can just
22 imagine for the moment that the double-bottom and double-
23 side that show in this drawing are not there, typically you
23 would find -- and this all (indiscernible) the port and
25 starboard for symmetry -- that number two -- what shows

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1 here is number two cargo tank, number four and number six.
2 So three pairs of wing tanks would be dedicated for salt
3 water ballast. And they ordinarily go for a whole bunch of
4 reasons, primarily weight distribution, they'll go every
5 other cargo wing tank, hence the name staggered-wing tanks.
6 So right out of the prop this ship, without the double-
7 bottom, double-hull, we have approximately six of these
8 wing tanks or three pairs of them, whose volume is excluded
9 from having cargo in it and whose volume is dedicated to
10 the carriage of segregated ballast. So that is your
11 ground-zero. And what Virg has been suggesting is we're
12 going to take that same cubic capacity and just
13 redistribute it a little differently.

14 And one last thing I might add, in the 1973 convention
15 the requirement for segregated ballast applied to crude
16 carriers of 70,000 dead-weight tons and above. As a result
17 of the 1978 protocol to the '73 convention, that was
18 modified for both crude ships and product ships in
19 different ways, but basically it lowered that down to the
20 crude ship -- tell me Virgil.....

21 MR. KEITH: 20,000.

22 MR. PORRICELLI: 20,000 and for the product ships
23 40,000 dead-weight, they had to have a segregated ballast.
23 And that was also the time under the Administration's
25 direction, the President's office at that time, that they

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1 did make a -- the Coast Guard, on behalf of the U.S., made
2 another application or a try at IMO for the double-bottoms,
3 but in lieu of that the compromise that was reached there
4 was another regulation which is referred to as the
5 "Protective Location." What that says is that you have to
6 so locate your ballast so that 40% of the total area of the
7 side and the bottom is protected by segregated ballast.
8 Well as a matter of coincidence, I can do that by filling
9 up number two, number four and number six wing tanks.

10 MR. KEITH: So, again, what we're looking at -- this
11 is the least cost method to meet the regulation. Certainly
12 one of the goals.

13 MR. PORRICELLI: And if I may, one more other thing,
14 Virg. It does not prohibit, does not prohibit, your option
15 as a ship designer or ship owner, to take that ballast and
16 distribute it solely on the bottom, which would meet the
17 regulation, or on the bottom and sides.

18 MR. KEITH: And now what we're going to do is jump to
19 the other. This is the least cost, the single all-tanker
20 lowest common-denominator way to meet the rules. Now what
21 Joe's gonna put up -- we're gonna go to the Type One.....

22 MR. PORRICELLI: Excuse me, Virg. Just I -- we've got
23 this one that just shows the Type Three.

23 MR. KEITH: This would be the cross-section. So we
25 section the ship. This is -- typical. Why don't you read

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1 the numbers off. This is a 250. So this would be the
2 maximum-size tanker that you're seeing operate in Prince
3 William Sound.

4 MR. PORRICELLI: And it's with the 180' beam, 95'
5 (indiscernible) which doesn't show on here, it'll be a 65'
6 drag, and your bulkheads, the longitudinal bulkheads which
7 are the vertical lines right here separating the center
8 cargo tanks and the wings, both are spaced out at 45'
9 spacing in from the side.

10 MR. KEITH: And again, we're looking at a shell
11 thickness of about an inch. So we've got oil all the way
12 through. So if I was to fill this cross-section up we
13 would have oil from side to side on the opposite tanks that
14 Joe talked about. The one, the three, the five. In other
15 words, they're not ballasts. So there's portions of the
16 ship where you've got oil side to side all the way across.
17 So if we were to color that in with oil we'd color the
18 whole inside black.

19 MR. PORRICELLI: And that type of ship -- oil tanker
20 which -- if you have a single-hull tanker under the
21 title.....

22 MR. KEITH: Joe, what we want is the Type One first.
23 Type One double-hull.

23 MR. PORRICELLI: Okay, going the other way.

25 MR. KEITH: We're gonna now jump to the other end of

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1 the scale. So you could go right down to Kenai and you
2 could look at an LNG tanker, either the Polar Alaska or the
3 Arctic Tokyo. Some of you I know have been on them. Now
4 we're looking for a Type One double tanker. This is the
5 highest standard around. This is required for the, quote,
6 the most hazardous of cargo. Unfortunately that term "most
7 hazardous" doesn't really reflect environmental damage, but
8 it's safety for the crew and the population around. So you
9 can see the part that we've got in black on the outside
10 would be ballast and cargo would only be allowed to be
11 carried in the white portion. And this is throughout the
12 entire cargo length of the ship. So we've got on the
13 bottom -- we've got on the bottom a double-bottom, and this
14 is required by regulation -- Title 46, 231 Part 151, it's
15 in your (indiscernible), a B on 15 double-bottom. So that
16 says it takes the beam, which is 180', divide that by 15 so
17 we come up with our 12' double bottom. That's in that set.
18 That's a minimum standard. You can do more, but that's a
19 minimum standard. And then it says on the side, where the
20 double -- since we know that a double-hull is a double-
21 bottom as well as double-side -- it says on the double-
22 sides, from there to there, that spacing -- the minimum
23 spacing is equal to B on 5. So we divide the 180' beam,
23 the width of the ship, by 5 and we come up with 36'?

25 MR. PORRICELLI: 36', yeah.

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1 MR. KEITH: 36'. That entire shaded space, then, is
2 lost for the carriage of cargo. Look at the number right
3 up on the top. Now our 250,000 ton tanker, lo and behold,
4 can only carry 175,000 dead-weight tons. So we reduce that
5 cargo-carrying capacity of that ship by about 30%. It is,
6 however, the safest form of tanker as far as.....

7 MR. PORRICELLI: Virg, if I may too, just for the
8 Commission's edification. The terms Type One, Type Two,
9 Type Three, are in the what we refer to as the chemical
10 code. This is in Title 46, Part 153. Therefore, depending
11 on what product you carry the regulation demands a Type
12 Three which is a single-hull, or Type Two which we haven't
13 talked about yet, and then for the highest hazardous
14 product that are regulated by part 153 requires the Type
15 One hull. And this is also an international standard.

16 MR. PARKER: Is anybody using Type One besides LNG?

17 MR. PORRICELLI: Well, the Type One would be for the
18 hazardous type of.....

19 MR. KEITH: LNG is a separate code on itself which
20 comes down, but it the -- we can provide that out of the
21 code for you. It's the most dangerous of chemicals. So
22 the.....

23 MR. PARKER: What other chemicals are being used in
23 Type One hulls?

25 MR. PORRICELLI: One I can think of is the acids --

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1 sulfuric acid, nitric acid, those types of acids that are
2 extremely.....

3 MR. KEITH: Nitro --

4 MR. WENK: Beaujolais (ph).

5 MR. PORRICELLI: They're only in a Type Two, Ed.

6 MR. KEITH: Now the other thing on this very quickly
7 is we come up -- now we have more ballast than what we --
8 so we have a lot of dead-space in this ship. Because of
9 that shaded area which'll all be for salt water ballast
10 around the outside, we come up with that 75,000 ton
11 (indiscernible) equivalent equal in lost space. We have
12 excess ballast. Commissioner Wenk.

13 MR. WENK: Quick question. Would I be right, Virg,
14 that the double sides are to provide protection against
15 collision?

16 MR. KEITH: That's correct, sir.

17 MR. WENK: Do you recall what assumptions were made in
18 terms of what the size, speed, so on of the ship colliding
19 with the tanker was on the basis of which they arrived at
20 that standard?

21 MR. KEITH: The initial studies on the Type One were
22 done 20 years ago and it was before we were looking at a
23 250,000 dead-weight ton tanker. So the initial Type One
23 were done on 20,000 ton tankers and the striking speed was
25 normally 125 knots with a ship of equal size.

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1 MR. WENK: Equal size.

2 MR. KEITH: The problem is when we got to the bigger
3 ships, now we're at a 250,000 ton tanker, this particular
4 tanker is 1,000' long, now the population out there that
5 can get into that depth -- in other words, the other
6 vessels that would strike you are so much smaller, the
7 population as a whole, that all of a sudden that criteria
8 that you applied to the 20,000 really doesn't apply in a
9 250,000 ton. Again, you're dividing the beam by 15, so now
10 we're talking 35'. The other beams on the other ship were
11 like 80', so we divide that by 15. Now we're coming up
12 with numbers like the two meters. Somebody asked that
13 question before. So we're looking at six, seven feet in
14 that number.

15 MR. PORRICELLI: See, what they did with the data,
16 Commissioner Wenk, is they looked at the amount of
17 penetration as a function on dimensional lines to beam, of
18 actual historical collisions over -- (indiscernible) you
19 did it for Jim (indiscernible), I don't remember.

20 MR. KEITH: It's over a 20-year period.

21 MR. PORRICELLI: It's over a 20-year period and they
22 got distributions of penetration from the outboard side
23 going in. And what the conclusion was, was that if you
23 wanted, you know, maximum protection, if you put this
25 longitudinal bulkhead at B over 5, I think it was at the

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1 98% level, 99, I can't remember. But 99% of all recorded
2 collisions never got in here at any further than this.

3 MR. WENK: Let me just add a little footnote to this.
4 Back in early 1950's Admiral Rickover (ph) asked me to
5 study the survivability of a submarine struck broadside in
6 harbor.

7 MR. KEITH: Sure.

8 MR. WENK: And I came up with an answer. A
9 submarine's pretty strong. But I also came up with another
10 conclusion and that is, if this constitutes a hazard for
11 shipping generally we ought to propose crushable bows as a
12 technique of absorbing energy rather than penetrating the
13 ship.

14 MR. KEITH: And that is especially true if you're
15 looking at passenger vessels, this type of thing. For an
16 oil tanker where we've got -- we're outmatched by size it's
17 like we've got our 15 pound sledge hammer. We're really
18 not too worried about the other ships. If you're on a
19 passenger ship or a cruise ship it makes a lot of sense for
20 you to argue that the other vessels ought to have crushable
21 bows.

22 MR. WENK: That's exactly right.

23 MR. KEITH: Now we're gonna -- I'm sorry, Commissioner
23 Sund.

25 MR. SUND: Well, I just -- you know, will throw up the

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1 one other point up here that a lot of these other tankers
2 or crude carriers or cargo carriers need double-hulls for
3 another reason. And that's the fact they need a cleanable
4 inside hull that they can't have any structural members
5 within the cargo-containing capacity, carry capacity. Like
6 your sulfuric acids probably have to be stainless steel and
7 somewhat cleanable. So there is a -- and I don't know
8 about LNG, whether it needs a smooth wall inside for that
9 purpose or not, but anyway there's another factor why some
10 of them have two hulls.

11 MR. WALLIS: Mr. Chairman, so I can listen for an
12 answer, could you tell me what the question is?

13 MR. HAVELOCK: Mr. Chairman, I think that's a good
14 question. And the question that I think should be posed,
15 which I was hoping to hear an answer to, is what can this
16 board recommend in terms of the generic standards with
17 respect to the double-hull other than saying two skin.

18 MR. KEITH: Let us step through on this in the next
19 slide. Now we will go quickly to the Type Two, which is
20 the lowest form of the double-hull, or the secondary form
21 of the double-hull. So now we go to the Type Two. Look
22 what happens to those double sides. See. Now this is the
23 minimum requirement under the code for certain chemicals.
23 These are less severe chemicals. Again, many of them
25 derivatives of petroleum products. So they're required to

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1 be carried in the double-hull tanker, but again, not a
2 double-hull tanker with this same type of thickness on the
3 sides. Note the double-bottom (indiscernible). The
4 double-bottom is absolutely identical in a Type One and a
5 Type Two, i.e. B on 15 for the 12'. However, the minimal
6 double-side goes down to the 76 centimeters, or about 30".
7 Now, as an oil tanker, as an oil tanker we don't have
8 enough ballast space on this. So this is certainly a
9 double-hulled tanker that the Commission could consider.
10 The problem is you still need more space for the ballast
11 under (indiscernible) so you need more space for the
12 ballast. Now the next double-hull that we're gonna go
13 through.

14 MR. PORRICELLI: And also note, there is no difference
15 in carrying-capacity on that Type Two.

16 MR. KEITH: Right. In fact we have to steal a little
17 space elsewhere for our ballast. Now what we're coming up
18 with is -- and I think even though it's our design, we
19 think it would be best if the Commission not recommend this
20 design. All we've done is take and optimized that to
21 ballast. So now we've said, is take the B on 15 and wrap
22 that all the way around. Look at the very top figure.
23 250,000 tons. We haven't reduced the carrying-capacity one
23 iota. We have cut down in the sides. So now what we did
25 at ECO is we said let's take that ballast capacity, the

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1 entire 30% of the volume of the ship, and let's just smear
2 that around the outside of the ship. Let's just make that
3 determination that that's the protection that we want.
4 We're obviously locked in the bottom since both Type One
5 and Type Two has the B on 15 double-bottom. So we've got
6 the same double-bottom as the Type One, Type Two. We've
7 got a double-side that's not as great as the Type One, i.e.
8 we're running here only 12' as opposed to the 32'. It's
9 significantly greater than the 30" of the Type Two and it
10 hasn't reduced the carrying capacity. It in essence is a
11 Type Two double-hull, since the Type Two is the minimum
12 requirement. So we do not have the requirements for the
13 Type One double-hull, it's a Type Two, and we've called it
14 a Type Two modified, to show that it's somewhat greater
15 than the standard minimum Type Two.

16 MR. HERZ: Can you give us the information that
17 compares information on collision damage avoidance between
18 this spacing on the side and the full spacing on the side.

19 MR. KEITH: Yes. With the bottom we're absolutely
20 identical. So I would recommend a couple of studies that
21 Counsel has, is (indiscernible). First is that 1975 OTA
22 study that I know Commissioner Wenk was very familiar with,
23 and that has been sent up to the Commission. That's the
23 guideline for these groundings. So on the bottom we know
25 that we're looking to prevent in the neighborhoods of 70 to

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1 90% of the grounding incidents. The study that the Coast
2 Guard on that OTA shows 96%. We're looking at collisions
3 for this size tanker. Now remember we're now looking at a
4 250,000 ton tanker as opposed to the ones that Joe and I
5 looked at 20 years ago, which most of the studies were done
6 for a 20,000, of protecting 90% of the collisions for this
7 particular vessel. The only one that can really hit us in
8 Prince William Sound, and damage us, is another BLCC. So
9 we're protected against the ferries, we're protected
10 against the fishing vessels, we're protected against
11 general cargo ships. So we're 90% effective of the type of
12 the Type One double-hulls, however there are those 10% of
13 the high-energy collisions that could penetrate our B on 15
14 double-side.

15 MR. HERZ: I'm still not clear. The -- where you have
16 the wider spacing on the sides, is that Type One.

17 MR. KEITH: That's a Type One.

18 MR. HERZ: What percentage of the.....

19 MR. KEITH: That's the number that Joe got. When we
20 looked at that it was 98% of all the collisions.

21 MR. HERZ: Alright. So it's 98 versus 90 is what
22 you're saying?

23 MR. KEITH: Ninety. Correct, sir.

23 MR. PORRICELLI: And to gain that 8% you've gotta give
25 off 30% of your cargo.

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1 MR. PARKER: Okay. Well I think that's the criteria
2 that we need to consider in our proposal, whether we want
3 to go for 98% or 90%, or whether we want to leave it open.
4 Those seem to be your three options.

5 MR. HERZ: Mr. Chairman. It seems to me that the
6 strategy that I was pursuing a few moments ago of laying
7 out the alternatives -- I mean, it sounds to me as if the
8 studies, the data necessary to back up recommending one of
9 those alternatives doesn't really exist yet. We're not
10 marine architects and what we can do is lay out the set of
11 alternatives that we've just heard presented to us and
12 suggest what steps should be taken in order to get the data
13 that would substantiate where the next step -- what the
14 next step would be.

15 MR. PARKER: Whose computer would be most accurate,
16 NASCO's (ph) or whose computer to simulate collisions
17 between two 250,000 ton tankers or between a 250 and the
18 Bartlett ferry, etc. to acquire that kind of data. I don't
19 particular want to go out and run the ships into each other
20 to get it, but --.....

21 MR. KEITH: I think NASA a good program up that we've
22 certainly worked with, called MASTRAN (ph), which is a
23 finite element program. Another one is called MAESTRO (ph)
23 that the Navy has up and it looks like after the Navy's
25 report this morning they'll be doing more of those, right?

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1 But that's a very effective program. A number of people
2 can -- a number of universities -- I'd like to see the
3 University of Alaska take a crack at that, looking at that.
4 It's a just standard structural program. Now what's
5 different on this, instead of the striking ship being a
6 20,000 ton vessel it is, of course, a 250,000 ton vessel.

7 MR. PARKER: Okay, Counsel, why don't you -- properly
8 our check info coordinator, I guess see what the cost of
9 such a program would be. Or possibly we can enthuse the
10 Coast Guard or someone to do such a program or pursue what
11 the cost of acquiring the data that Commissioner Herz
12 brought up would be.

13 MR. DOOLEY: Specifically what do you want to analyze
14 now? I've heard a wide range of discussion about -- now,
15 are you just preparing one.....

16 MR. HERZ: Well, I'm not -- I wasn't even sure that
17 in the one month or six weeks remaining that that can be
18 done. It seemed to me that what we could do is recommend
19 what we see as the studies that need to be done. I mean,
20 I don't know that we have the time or the money to
21 commission them.

22 MR. PARKER: Okay.

23 MR. DOOLEY: Does that mean that you're not gonna
23 recommend a specific double-hull, or you're gonna recommend
25 double-hulls, or you're not going to recommend double-

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1 hulls.

2 MR. HERZ: No, what it sounds to me is that we're
3 gonna recommend a generic double-hull and lay out these as
4 alternatives that have -- as they've been presented and
5 recommend the data that needs to be collected in order to
6 make a final decision.

7 MR. PARKER: Yeah, I think that is right in the ball
8 park. A recommendation which would recommend double-hulls
9 with studies to be pursued post.

10 MS. HAYES: The standards of double-hulls. Isn't that
11 what Esther was after?

12 MS. WUNNICKE: Uh huh. (Indiscernible - simultaneous
13 talking). I think that we should recommend this as the
14 criteria and for myself I would err on the side of the
15 higher percentage because I think we are trying to
16 recommend and encourage as nearly a fail-safe system as
17 possible.

18 MR. WENK: Mr. Chairman, could I suggest that Staff
19 look at the range of options available to the Commission
20 that have just been discussed because I think even a phrase
21 such as using "double-hulls as a standard," opens up all
22 kinds of options with regard to energy-absorbing capacity
23 in terms of a collision, what size ship at what speed and
23 so on, and I'm just a little bit concerned about getting
25 into too much detail and I think the staff might look at

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1 this and tell us how far they think we might safely go --
2 rather safely in the sense of credibility.

3 MR. PARKER: The Chair is sure getting confused
4 because a little earlier on in this discussion we weren't
5 having enough detail, but I guess we're getting into our
6 comfort zone somewhere here.

7 MR. DOOLEY: Commissioner Parker, the two days -- the
8 academy which has been formed -- committee to evaluate
9 double-hulls. That was punctuated frequently by the entire
10 concept that the tanker design issue has, because of the
11 techniques of construction and computer technology, has
12 been able to reduce to the nth degree the amount of steel
13 in tanker design necessary to carry an economic cargo in an
14 upright position. Tankers are not designed for anything
15 other than a routine port-to-port operation in an upright
16 condition without any condition or consideration for energy
17 absorption or anything else. It is an envelop for cargo
18 and nothing more. It does not have, as a science or as a
19 construction technique, considerations for energy
20 absorption or anything else. And the characterization was
21 made frequently by proponents on both sides that currently
22 that tanker is nothing more than saran wrap around a loaf
23 of bread.

23 MR. PARKER: The perception I've had forever since the
25 BLCC and ULCC was designed.

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1 MR. DOOLEY: So when you're asking for these energy
2 absorptive properties and that, we aren't gonna get that
3 kind of data. I mean, that's what they're groping with is
4 that kind of data that isn't available.

5 MR. PARKER: John.

6 MR. SUND: I want to go back to the point that, in
7 terms of prevention, double-hulls don't prevent an
8 accident. Double-hulls may slow down the leakage into the
9 ocean. And under that concept I would also, since we're
10 throwing findings issues and ideas up here, I would list
11 size of tanks as a consideration that we oughta look at
12 that -- that that's -- not only do you have a double-hull,
13 or even if you don't have a double-hull, the size of the
14 tank that can be ruptured also becomes a factor of how much
15 oil or fluid's gonna leak out. And I think the history has
16 shown that size of tanks has increased dramatically in the
17 last eight to ten years with very (indiscernible) tankers.

18 MR. PARKER: You want to hear on tank size and
19 bladders right now?

20 MR. SUND: No, my bladder is alright right now, Mr.
21 Chairman. I can go another half an hour here if you want
22 to.

23 MR. HERZ: Can we add to that discussion, somebody
23 gave Thor Christianson's article to us this morning, and
25 are we gonna -- can we hear something on that vacuum method

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1 as well?

2 MR. PARKER: Well, if you choose. I mean, I --.....

3 MR. HERZ: That should be at least be on our list I
4 think.

5 MR. PARKER: You guys come back. Let's talk tank
6 size, bladders and the vacuum pack.

7 MR. SUND: I just, again Mr. Chairman, want to just
8 put it down as an issue. What I would hope that, you know,
9 Staff could develop the arguments pro and against. We have
10 this little handout of an argument (indiscernible) used on
11 the floor of the House. And you've heard 'em and I've
12 heard 'em in various meetings, that if the Commission wants
13 to direct the Staff to say we want to make a double-hulled
14 recommendation, then I think they need to list out, okay
15 here are the major issues that have been under
16 consideration and here are the positions that you have to
17 take.

18 MR. PARKER: Okay, let's address briefly.....

19 MR. SUND: I don't know that we need to go through all
20 of them here.

21 MR. PARKER: We don't need to go through all of them
22 but I think we need to hear briefly -- is there an argument
23 for down-sizing tanks that need to be made?

23 MR. WENK: Mr. Chairman, just a question here of
25 procedure. I think this really is worth listening to, but

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1 then that opens up several other things and I'm not sure
2 whether or not this is the category in which they should
3 come. One is size of vessel itself. Another consideration
4 are some of the technical details with regard to twin
5 versus single screw, bow-thruster or none, and finally this
6 question of stopping capacity. I didn't want to get into
7 these technical details but it seems to me they're being
8 opened up and they're all, it seems, in the category of
9 naval architecture and I -- all I'm doing is raising a
10 question as to whether or not you want to deal with these
11 questions.

12 MR. PARKER: That's why, you know, Commissioners have
13 me somewhat confused and I think only the flow of events
14 will lead the Chair to an understanding of how much you
15 want to be educated on these particular issues. So --
16

17 MS. WUNNICKE: Why are you looking at me?

18 MR. PARKER: Hmm? I wasn't. I was looking at Tim.

19 MS. WUNNICKE: Educate away. Educate away.

20 MR. PARKER: Well, the down-sizing of tanks -- how
21 valid an argument is it to carry forward.

22 MR. KEITH: Mr. Chairman, we did a couple things for
23 you. Again, just as a recommendation, we've looked at a
23 Cook Inlet 70,000 ton tanker and you'll see on the 70,000
25 ton tanker there have been double-side tankers out. I

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1 won't pick the company, but look at the bottom graph there,
2 the overview on the bottom. So you see the double-sides
3 running down there. Joe, just kinda point that out. And
4 on this particular one it's about 8'. Eight feet on side
5 by side. There have been these built and they're now
6 running off -- 30 miles south of Paskagoula (ph),
7 Mississippi, without that centerline bulkhead. Joe, point
8 that out. So it just has one big tank all the way across,
9 so if you do have an accident that whole tank comes out.
10 Now from an outflow point of view, or an oil spill point of
11 view, you obviously if you damage one tank what
12 Commissioner Sund said is exactly right on. You've got a
13 big problem on the outflow. In the ones that we've
14 designed here we've had put in that centerline bulkhead
15 mainly to limit the tank size. That is into the cost
16 figure. You notice on this particular design we only have
17 the port and starboard tanks, so the cargo tanks we only
18 have port and starboard. Every single tank is of equal
19 size. And that might be some limit. The current
20 international limit -- and Joe you have to help me on that
21 -- it's --

22 MR. PORRICELLI: Twenty thousand cubic meters on the
23 wing tanks and 40 on the center.

23 MR. KEITH: Cubic -- it's huge. It's just huge. So
25 we have arbitrarily put that in to add to the strength for

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1 the tankers operate in here and to reduce the outflow. And
2 now, Joe, just flip quickly to the Prince Williams
3 Sound.....

4 MR. PORRICELLI: And the other thing that's done in
5 here also, I might add, is that the number of transverse
6 bulkheads that we put in were more than you would normally
7 see in a tanker of this size. Each one of these tanks is
8 about 3600 tons, if my memory serves me right.

9 MR. KEITH: We tried to hold the tank size to the
10 smallest tank size, for instance on the Glacier Bay that's
11 now running in Cook Inlet. So for instance on the Glacier
12 Bay it would have a wing tank of equal to 3,000 tons, say.
13 And that centerline tank that's twice as big would be 6,000
14 tons. And then the opposite wing tank would be the same on
15 the other side. We tried to make that every tank in this,
16 quote, "improved" Cook Inlet tanker has a tank size equal
17 to the smallest tank size that's running down there now.
18 Mainly to reduce inflow, it helps structure, this type of
19 thing. But we want to point out that there's no regulation
20 to do this. Nor would the Type Two or Type One
21 requirements require that.

22 MR. HERZ: Is cost the principal reason for taking up
23 those bulkheads?

23 MR. KEITH: Yes sir. Abso -- because it not only
25 saves you the steel cost in the bulk, it saves you the pump

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1 cost, it saves you a lot of other things. It simplifies
2 the pumping and the cost the determination for doing that.

3 MR. HERZ: And I would imagine internal piping.

4 MR. KEITH: That's correct. The pumps itself as well
5 as the piping.

6 MR. PARKER: What would the incremental cost be
7 approximately to --

8 MR. KEITH: Remove a bulkhead? About 1%, sir. To
9 remove one longitudinal bulkhead. Now, if you notice, we
10 went up to the Cook Inlet -- and I think this was done.
11 Commissioner Sund help me, maybe after you came -- is
12 originally on our Cook -- I'm sorry, Prince William Sound
13 which is 250,000 tonner, again a double-hull, you notice
14 we've got two longitudinal bulkheads. You certainly could
15 build that like the other one with one longitudinal
16 bulkhead. We tried to hold the longitudinal bulkheads,
17 again to reduce tank size. And I guess we're showing you
18 this to say yes, tank size is very important. And the
19 other thing that came up, you have to recognize if we've
20 got a 250,000 ton vessel, or a 500,000 ton vessel, that
21 whole vessel could go down. So there is some rationale to
22 saying the largest vessel that operates in certain waters
23 should be of this size. Mainly because that's going to set
23 your upper limit -- you have to recognize you could lose
25 your whole vessel, but you've therefore limited the total

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1 loss of the ship. And again I point out, with the Exxon
2 Valdez, I mean, it was this close to being a 50,000,000
3 gallon spill as opposed to a 10,000,000 gallon spill. I
4 mean the -- it's just miraculous to me that we're not here
5 discussing a 50,000,000 gallon spill as opposed to the 10.

6 MR. PARKER: Okay, the -- we've heard a lot of, in the
7 hearings, people that brought up bladders a lot and I think
8 we should either dispose of it or open it up. Is there any
9 serious discussion about using bladders as a means of
10 limiting outflow?

11 MR. KEITH: I think again -- Joe and I will take the -
12 - Joe and I suggested bladders 20 years ago as an
13 alternative when tankers were allowed to use the same tanks
14 for cargo that they were for ballast. So there was a
15 bladder on the inside that one would then fill the cargo
16 with oil, the bladder would shove over to the right-hand
17 side and fill with oil, and when you filled the water you
18 filled the water on the other side of the bladder, the
19 bladder shifted back. So you basically -- you basically
20 had a clean tank. The bladder shifted back and forth. In
21 the event of a casualty, the bladder would be next to
22 useless. But the idea -- the bladders were one way to go
23 instead of the segregated ballast tanks, was you put a
23 bladder on the inside and then that bladder would shift
25 side to side depending on which side you load it, so you

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1 basically allowed the same tank to carry the two cargos and
2 yet maintained a clean ballast tank.

3 MR. PARKER: But your recommendation right now would
4 be to limit outflow through tank size rather than bladders.

5 MR. KEITH: Bladders are not effective in reducing
6 outflows. You know, they were effective in using the same
7 tank for two different commodities.

8 MS. WUNNICKE: Question. Have there been no
9 innovations in the structure of bladders or the kind of
10 materials used in them that would change your opinion.

11 MR. KEITH: Commissioner, everytime we've looked at
12 that, we've looked at new materials, we come up with a cost
13 that's more expensive than the double-hulls. We've looked
14 at it time and time again, so we come up with a technology
15 that costs us more money and less effective. We
16 continually look at that. We just have not been able to
17 find any.

18 MR. WALLIS: Mr. Chairman.

19 MR. PARKER: Tim.

20 MR. WALLIS: Are we trying to come up with standards
21 and specifications for a double-hull?

22 MR. PARKER: No, we're think -- we're working at whole
23 particular areas to what we're going to focus our
23 recommendations on. Whether, you know, whether the add-
25 ons to a double-hull so-to-speak.

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1 MR. SUND: Mr. Chairman, if I could kinda outline my
2 concern in this area that through the hearing process I've
3 raised the issue of should we try to limit the size of
4 ships or down-size the size of ships that are in the trade.
5 And I think that's an issue on the table. There's the
6 ideal world and there's the real world. You know, if I
7 understand it right the size of ship that we have in the
8 trade now is not designated by any regulation, anything
9 other than its kind of mandated by the receiving quarter,
10 or by the discharge port, I'm not sure which. I personally
11 am not excited about seeing the Global Tokyo or something
12 come into Prince William Sound. It doesn't get me real
13 thrilled at all. And so I would like to, you know at least
14 as a minimum, say we don't want to see any larger sized
15 ships come into Prince William Sound. And that's why the
16 reason I brought up the tank size -- you know, I'm not real
17 excited about getting these size of ships with bigger tanks
18 in them. I'm not sure we can tell 'em to down-size the
19 tanks. I don't know what basis I would make a
20 recommendation on to say the tank gotta be half the size of
21 what it is now, except my inherent belief is that if you
22 have a smaller tank you have less risk of oil spilling. I
23 don't have any statistical analysis or theoretical work to
23 work on except my gut reaction, but I think at the most -
25 - or the least we could say, don't make it any worse than

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1 it is. Don't make the ships any bigger, don't make the
2 tanks any bigger.

3 MR. HERZ: Isn't the design limitation depth. Draft.

4 MR. KEITH: For any ports, certainly. So normally,
5 you know, the tankers going into the Gulf Coast would
6 typically be less than 40'. You certainly, Commissioner
7 Sund is right. I just got off from (indiscernible), which
8 was 500,000 tons, so we're looking at something that's over
9 twice the size of the Exxon Valdez, or five times the size
10 of an aircraft carrier. She certainly could come up to
11 Valdez and load up. There's no.....

12 MR. HERZ: What's her draft?

13 MR. KEITH: Ninety-two feet. See and we've got plenty
14 of water all the way up through right up next to the
15 terminal.

16 MR. PARKER: The problem, you know, the problem on
17 ship size is we're right back to Ray vs. Tooever (ph), you
18 know, the Washington case on limiting ship size and Federal
19 preemption, and I think, you know, as we get into
20 institutions I think we can bring up the ship size in our
21 discussion of Allison Reeser's article on Federal
22 preemption and see whether we want to recommend opening up
23 that particular area again, 'cause I would certainly care
23 to see it if it wasn't going to be a legal dead-end. John.

25 MR. SUND: The reason I bring it up, Mr. Chairman, is

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1 that -- the simple reason you would see that is if there
2 was -- our Prince William Sound or North Slope crude was
3 ever authorized to be shipped to Japan. I think you would
4 immediately see larger tankers.....

5 MR. PARKER: You bet you you would.

6 MR. SUND:involved. And I don't know how big a
7 reality that is now but it's something that -- you know,
8 it's an issue on the table and I guess, you know,
9 addressing Tim's question of how many of these issues do we
10 want to put down, how do we want to address them, I think
11 lessening the risk of exposure to oil getting in the water
12 is one of my goals in this Commission. And I think double-
13 hulls lessens the chance of oil getting in the water, I
14 think size of vessel has something to do with, and I think
15 size of tanks have something to do with it. And probably
16 sluicing of tanks together probably has something to do -
17 - if you want to get down further and further in the detail
18 of it.

19 MR. HERZ: It seems the other issue that we have
20 really sort of put on the side of the table is whether our
21 discussion is the Valdez trade, or whether we're thinking
22 more broadly, and I think that really hasn't been
23 addressed. I don't know what your thoughts were in terms
23 of when you started this where we were going on that.

25 MR. HAVELOCK: Well, I was starting at the broadest

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1 range and I guess I think the Congress is part of the
2 audience. So I'm not -- at this point I'm indifferent to
3 the limitation imposed by Federal preemption. We can talk
4 to the Congress about double-hulls and tank size. And I
5 guess just to summarize what I'm hearing, so far I don't
6 see a basis for your recommending other than double-hulls,
7 would letting other people put their own definitions on
8 them, but pointing out the mass of data that shows that
9 double-hulls, indeed, do have an effect in reducing the
10 amount of oil in the water and maybe the ship's safety too.
11 And there's enough in the ECO report as it would be
12 supplemented to emphasize this point, to sustain that kind
13 of a recommendation. But it seemed to me the issue is
14 otherwise. There are too many variables to fool with for
15 you to get into recommending a Type One, Two or Three, for
16 example, to take the first level of specification. With
17 respect to size of tank, you can make a recommendation to
18 the Congress that tank size is a variable that the Congress
19 should look at and that, indeed, smaller tanks mean less
20 oil is spilled. And I'm assuming that Mr. Keith will
21 provide us credible data to support that proposition. If
22 he can't then we're not gonna say it. But if he does then
23 I assume we are gonna -- you could say something. But
23 you're not gonna say, as Mr. Sund pointed out, you can't
25 say therefore you should reduce them by half, or whatever,

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1 you're just gonna tell the Congress that -- point out that
2 the size has gone way up over the last few years, or
3 whatever, and that a standard should be established which
4 is below what it is now and that the ship-building industry
5 should be pushed toward a standard of smaller tanks.
6 Assuming that the data supports this. I don't, frankly, I
7 don't know that tanker size is going to produce -- whether
8 you've got the same data -- that you are going to produce
9 a result that will say that reduction in the size of the
10 tanker is going to give you a safety or reduced-spill
11 characteristic other than in a very, what shall we say,
12 abstracted way, which is the common-sense way that Mr. Sund
13 was addressing it. I mean, if a big tanker goes down it's
14 more oil. But I don't think that -- I suspect that we
15 cannot sustain that although it may be Mr. Keith has an
16 opinion now as to whether we should say something about
17 tanker size. Did it with respect to screws, bow
18 structures, and stopping capacity -- I think that at least
19 the first two of those issues seem to me you're going to -
20 - they're peripheral in terms of the ability to measure
21 consequences in terms of spills and you are addressing them
22 otherwise because you've got tugs and escort vessels in
23 there which are alternative means of controlling, you know,
23 loss of power, etc. Maybe Mr. Keith could comment on those
25 observations about where you can go with this vessel design

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1 -- the vessel design issues that are on the table so far.
2 MR. WALLIS: Well, before we get into that, addressing
3 John's question on limiting vessel size, as to what we want
4 to see in port or come into port and try to eliminate the
5 super tankers. I don't know when we say we want to limit
6 the size as to what dead-weight ton we put onto it, and our
7 reason being to reduce the size of spill. And whether we
8 wanta do it in that manner or whether we wanta do it in
9 terms of compartmentizing -- more into that.

10 MR. SUND: You know, I think the logical way to
11 approach it is say that the size of your tanker should not
12 exceed your ability to clean up your mess if it spills.
13 But we would have very small tankers, I think about
14 (indiscernible) size, fishing boat size. We've already
15 gone past that threshold. There is no ability to clean up
16 the mess with what we have spills now, so once you go over
17 the limit then I guess it's more of a theoretical argument
18 whether it's 250,000 dead-weight ton or 450,000 dead-
19 weight ton, you can't clean up either one of them anyhow.
20 So.....

21 MR. PARKER: How many ports do we have (indiscernible)
22 ULCC's operating route to now?

23 MR. KEITH: Well, I think what Commissioner Sund said
23 earlier, the only -- because of the U.S. shipyards we're
25 limited on what we can build in the U.S. So as long as the

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1 Jones Act stays in effect, you're not gonna see the ULCCs
2 which are typically defined as something over 350,000.
3 However, the Commission in strictly an institutional
4 question may want to say just in case this oil goes to
5 Japan, set that upper limit at 300 or something that Valdez
6 is not seeing now, to lock out those Globtec Tokyo, the
7 Nanny (ph) which is the one I was on, those type of 500,000
8 dead-weight ton tankers. The argument for that is
9 strictly, we're going to accept the risk of a 250,000 dead-
10 weight ton spill, or 250,000 tons of oil being spilled. We
11 do not want to accept the risk of 500,000. And that's not
12 there now and it would lock out that if that oil ever went
13 foreign, i.e. to Japan.

14 MR. PARKER: So how many ports are they operating into
15 now.....

16 MR. KEITH: Well, those normally, Mr. Chairman,
17 operate as a single-point mooring, and there's about 180
18 single-point moorings throughout the world. Those tankers
19 typically never see the sho.....

20 MR. PARKER: How many in the U.S.?

21 MR. KEITH: Single-point moorings. We have Loop (ph)
22 and Seadock, two down in the Gulf. Right now, because of
23 economics, they're lightering the ships off, going to
23 different vessels, and they're not using Loop (ph) or
25 Seadock, the offshore court, strictly because of cost.

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1 MR. HERZ: Mr. Chairman, I (indiscernible -
2 simultaneous talking).

3 MR. SUND: (Indiscernible - simultaneous talking) on
4 one other point that I think Tim brought up and that -- at
5 least came up earlier that I want to throw on the table now
6 -- is that we either have to face it at this meeting or at
7 the next meeting, and that's whether we feel strongly
8 enough about some of these recommendations to limit them to
9 the Alaska trade or overall. And I can just say that the
10 Governor's position and the State's position has been, for
11 years, is that we do not like being singled out as a
12 weirdo. You know, as some extraneous extra ding up there
13 on the Northwest corner of the United States. And so I
14 think the Commission has to say, well, do we want to bite
15 the bullet for extra safety or whatever, even though it
16 means that it'll only be applied to the Alaska trade.

17 MR. PARKER: Well -- the other side of that which, you
18 know, because the Governor's office and Washington didn't
19 research the issue, was that the Valdez West Coast trade is
20 the only one that's limited -- and Panama -- is the only
21 one that's limited by the Jones Act. And, of course, we
22 have this stuff going around to the Virgin Islands. But -
23 - the -- that's -- which could go into larger tankers if
23 they cared to buy them, but --

25 MR. SUND: I would, at this time, just ask the Staff

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1 to take a serious look at that issue and the ramifications
2 one way or the other, and let's get their report back or
3 recommendation back at the next meeting. We have to face
4 it. I'm not sure we have to face it in November.

5 MR. WALLIS: Mr. Chairman, one (indiscernible) John,
6 is, you know, how you view yourself as whether you're a
7 weirdo or a trend-setter.

8 MS. HAYES: Yeah. Or special. Yes.

9 MS. WUNNICKE: Depends on -- Alaska views it every
10 way. We like to say we're unique, and I was just sitting
11 here mentally composing the arguments for limiting the size
12 of tankers going into Prince William Sound on the grounds
13 of its uniqueness, but we like to use that argument too
14 that we're unique and weird.

15 MR. HERZ: But it seems to me that one of the
16 questions that's going through my mind is, I though the
17 charge to the Commission was today Alaska, tomorrow the
18 world. And we're trying to do world -- I mean, it seems to
19 me that we were charged with coming up with recommendations
20 to the Alaska Legislature and the stuff that we're talking
21 about has U.S. Congressional implications and world-wide
22 implications, is somewhat beyond our charge. That doesn't
23 mean we shouldn't think about it, but it seems to me that
23 our first order of business is the legislative package for
25 here.

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1 MR. PARKER: Yeah. The other point I was making, as
2 long as Jones Act pertains, why the Jones Act itself sets
3 the Alaska/West Coast trade outside the mainstream of great
4 tanker concerns. That is an institutional factor that's
5 already operating.

6 MR. HAVELOCK: It came to me that that -- I think
7 we've done enough on these design issues for the moment,
8 and you've sort of set the stage for moving, it seems to
9 me, to this issue of what vessels we are going to apply
10 these design-criteria/recommendations to. Are we gonna
11 restrict it to the Alaska trade, or are we saying all
12 vessels that come into U.S. waters should be subject to
13 some level of regimen with respect to their design.

14 MR. PARKER: The Chair would hold that we're not
15 limited to just that. The Chair would hold that we can
16 make recommendations for the total trade. We can also
17 (indiscernible - simultaneous talking).....

18 MR. HAVELOCK: World trade. Yeah.

19 MR. PARKER: a re-write of SB 406 attacked our
20 own trade by challenging, you know, what tankers can enter
21 Valdez and Cook Inlet.

22 MS. WUNNICKE: Mr. Chairman, just to clean up one
23 thing on the thrusters and the other methods of control of
23 the vehicles, it seems to me that -- vehicle. Tanker. I
25 mean, it still is part of your control of the vessel and I

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1 think it's legitimate to make those recommendations just as
2 we would make recommendations in terms of traffic
3 control.....

4 MR. SUND: If you have twin-engines you don't need
5 escort vessels?

6 MS. WUNNICKE: No, no. But that's an -- that's a
7 method of controlling the vessel, keeping it under control.

8 MR. HAVELOCK: Well, that is sort of the trade-off
9 that he's pointing out. That is the thrusters and twin-
10 screws relate directly to the need for escort vessels in
11 the absence of them.

12 MR. PARKER: As do (indiscernible) and so forth.

13 MR. SUND: What's the rationale for having an escort
14 vessel?

15 MS. WUNNICKE: Oh, so where do you have that in your
16 list? Escort vessels? Is it part of your traffic control?

17 MR. DOOLEY: I think we sort of thought that might be
18 a part of your response mechanism, but it could fall in
19 either category I think.

20 MR. KEITH: I think you'd have to remember, too, the
21 escort vessel serves a dual function. Number one, if that
22 tanker has an accident, and then number two, with the
23 pollution control equipment on board you have that very
23 short response which we come out. So the response
25 equipment, the pollution control equipment is automatically

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1 there. So, you've gotta kind of -- when you talk about
2 that escort vessels -- you've gotta kind of look at the
3 contingency planning and the power failure in the same
4 mode. And those two have to remain coupled, I think.

5 MR. PARKER: Yeah. Well, where I.....

6 MS. WUNNICKE: Well, why -- yeah. Why are they
7 either/or?

8 MR. SUND: Well, I think an escort vessel should be on
9 this list. If your goal is to prevent.....

10 MS. WUNNICKE: If (indiscernible - simultaneous
11 talking) right there. It's there. Yeah.

12 MR. SUND:prevent an accident. It's up there
13 someplace.....

14 MS. WUNNICKE: But why is it either/or? We talk about
15 redundancy all the time. Why is it either/or? Why
16 couldn't you.....

17 MR. HAVELOCK: Well, it's either/or depending upon on
18 how high a standard you're going to establish. And, you
19 know, under what conditions.

20 MR. PARKER: See, we're getting recommendations to do
21 both, in fact we're getting recommendations to have tug
22 escort all the way from Valdez to Nikisky, so -- you know,
23 that's coming from the public.

23 MR. SUND: Basically no tankers have twin-screws, do
25 they? Is there any tankers around -- at least in the

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1 Alaska trade none of 'em have twin-screws.

2 MR. KEITH: That's correct. Some of 'em do. But, you
3 know, some tankers do. The ones that I -- in the Alaskan
4 trade, I don't know of any that do.

5 MR. SUND: Yeah. And I think the guy from Chevron
6 testified here that none of the Chevron fleet have twin-
7 screws, you know, so it's kind of a moot question. I mean
8 you can pose it and say, if you have a twin-screw tanker
9 you don't need an escort vessel. I mean, say that -- it
10 doesn't seem to mean much.

11 MR. DOOLEY: With your recommendation for double-
12 hulls you're talking about a new fleet anyway. You're
13 talking about replacement of fleet. So that question needs
14 to be put in the context of what characteristics you're
15 looking for in your replacement fleet, not on the existing
16 fleet.

17 MR. SUND: And then if you get into Virgil's
18 recommendation there, he has a twin-engine -- a twin-
19 engine vessel with a single screw. You know, I mean how -
20 - there's all kinds of variations on the theme, but I think
21 the point is if you lose power, if you lose your main power
22 system can you maneuver within Prince William Sound and
23 avoid going on the rocks. If you can, fine. If you can't
23 you have to have an escort vessel.

25 MR. HERZ: But there are two other reasons for having

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1 that escort vessel. One is for navigation, at least it's
2 been proposed as a mechanism, redundant mechanism, for
3 keeping the guy at the wheel alert and telling him he's out
4 of the lanes, and number two, is the response capabilities.
5 So you've really got three functions that that escort is
6 performing and just because you put in thrusters doesn't
7 mean that you want to eliminate -- have it either/or.

8 MR. DOOLEY: Response is this afternoon.

9 MR. PARKER: That one is the escort vessel is the lead
10 dog. When Alyeska brought that up that really bothered me,
11 I just -- oh, well.

12 MR. DOOLEY: There also we're dealing with -- a major
13 part of our focus has been on two principal bodies, Cook
14 Inlet and Prince William Sound. The actions of the escort
15 vessel in Prince William Sound are different than those
16 proposed by the industry for Cook Inlet. Those are
17 stationary vessels with a performance standard in mind of
18 being able to reach a vessel in distress within a certain
19 time limit -- as I understand it. But it is not going to
20 be escorting vessels up and down Cook Inlet.

21 MR. PARKER: Yeah. Well, Cook Inlet is the time-
22 honored way of tug response to disaster and -- Prince
23 William Sound is a special way we developed for Prince
23 William Sound. So.....

25 MR. DOOLEY: I was just trying to amplify on

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1 Commissioner Herz's, you know -- we sort of have a view
2 that there was that independent set of eyes for redundancy
3 for navigational safety, but that characteristic doesn't
4 carry over in the industry proposals for Cook Inlet.

5 MR. PARKER: Virgil.

6 MR. KEITH: Mr. Chairman, too, I think Commissioner
7 Hayes brought this up yesterday. One of the big
8 differences in Prince William Sound, you lose that option
9 of anchorage. So if you have a power failure there you're
10 doomed where in Cook Inlet at least you have the chance to
11 drop the hook and make it fetch-up. So that -- there's a
12 difference on that too.

13 MR. PARKER: Yeah, and I think that was probably the
14 strongest factor and the difference between the two.

15 MR. KEITH: Yes, sir.

16 MR. PARKER: Okay. You ready to go to traffic control
17 or do you want to take a five-minute stretch, or do you
18 want to go..... Okay. Do you want to eat at 12:00 or do
19 you want to break for lunch. Which we can change
20 traditions anytime. We're supposed to be on the cutting
21 edge.

22 (Off Record)

23 (On Record)

23 MR. PARKER: We are back in session. We're gonna deal
25 with.....

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1 MR. HAVELOCK: Mr. Chairman.

2 MR. PARKER: Yes.

3 MR. HAVELOCK: Just (indiscernible) so I can just have
4 my last parting shot before you move on to traffic control
5 systems, I'll tell you what I think that the Staff is going
6 to be doing with respect to some of these subsidiary
7 questions. I would assume that we will see whether it fits
8 to apply any of these recommendations with respect to
9 vessels to total international trade, and if it is so we
10 will recommend to the Congress that they adopt such
11 positions for presentation before international tribunals.
12 Secondly, we will be -- if they fit -- unless there's some
13 sort of structural problem -- we will also be recommending
14 that the vessel design features apply at an earlier date to
15 all vessels that enter in American waters. That is it will
16 be a national recommendation and that only a few of them,
17 perhaps, are gonna end up being local in their
18 configuration. That is a lot of these are, indeed,
19 national and international recommendations and if the shoe
20 fits that's what we'll do. It seems to me that that also
21 helps to answer, you know, one of the issues around which
22 is the -- which you're familiar with, which is the economic
23 argument that we were going to price American vessels out
23 of the trade. And the way it seemed to me that by adopting
25 a national standard for all vessels you may be loading

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1 those costs onto the American economy, you're spreading
2 them over the whole American economy and putting them all
3 on the tanker trade. And I would assume that that's --
4 that those costs are not gonna be that excessive, although
5 no doubt people will argue that it's an excessive cost on
6 the American economy.

7 MR. WENK: Mr. Chairman. Just a quick footnote to
8 your point, John. It seems to me that the double-bottom
9 issue has itself been around a long time with a lot of
10 conviction by some highly respected naval architects, only
11 to find that their initiatives were defeated. The same
12 objections we've heard recently, from the same sources --
13 my point is this, that in your drafting of the report, it
14 might not hurt to take cognizance of those readers who need
15 to be really convinced. And those are the ones who have
16 been so effective in blocking this initiative for a good 20
17 years. I'm not sure what those arguments are, I'm just
18 saying that from the point of view of defending our
19 position, that we oughta be mindful of what the opposition
20 looks like. This is an old military strategy -- and to try
21 to buttress our position, not just in general terms, but
22 specifically in terms of what we think has been the
23 rationale in the past. This is where we come once more to
23 the belief that this issue was settled in board rooms of
25 some major oil -- multi-national oil companies. That's

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1 where the issue was settled. It wasn't settled at IMO. It
2 wasn't -- and it isn't even gonna be settled by the U.S.
3 Congress.

4 MR. PARKER: I think both the safety and the economic
5 issues have to be strongly outlined and -- you know, a lot
6 of that we've already done this morning in one way or
7 another. But it needs.....

8 MS. WUNNICKE: Mr. Chairman, just one further thing to
9 follow Counsel's outline, and certainly to consider whether
10 you're prejudicing the Alaska trade. The State of Alaska's
11 a major stake-holder, to borrow a phrase.

12 MR. PARKER: Yeah, I think we can back to pick that up
13 again when we get to institutions and..... The -- are we
14 ready for traffic -- mandatory traffic control?

15 MR. HAVELOCK: I've set out half a dozen subsidiary
16 questions which need to be addressed. I assume that you
17 are going to a mandatory traffic control. There's an
18 analogy here to your discussion over double-bottoms, that
19 is how far do you want to get into specific technology.
20 Maybe here you're prepared to go a little further, that is
21 with respect with to the utilization of LORAN sea-based
22 coverage and whether you want to say anything about the
23 reach or articulation of radar or the alarm systems that
23 might be attached to it. But again, you're -- the same
25 issue that Commissioner Wunnicke has raised before, you

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1 don't want to freeze a state-of-the-art as if it had some
2 magic quality to it.

3 MR. PARKER: Yeah. Especially on this one because the
4 state-of-the-art is developing very rapidly, and I think we
5 need to think in terms of system because the input to the
6 system is -- there's, you know, we've -- just in this
7 meeting there've been three different technologies been
8 brought around by visitors and so forth on things which the
9 system can be inputted. LORAN Sea and -- there are two
10 different satellite modes that you could input to the
11 system. So the main thing is the concept of the system,
12 the basic concepts that we want to see in the system, and
13 not particularly how those concepts are tied together. I
14 have reservations for 20 people at the Sea Galley at Noon.

15 So the -- so proceeding on that basis do you want to
16 hear from Virgil, now, who's been working on those basic
17 concepts, or do you want to discuss it some more?

18 MR. SUND: Well, do you want a motion, Mr. Chairman,
19 to -- that the Commission should recommend some type of a
20 mandatory control system for Prince William Sound and Cook
21 Inlet?

22 MR. PARKER: Yes.

23 MR. SUND: You got it.

23 MR. PARKER: Okay.

25 MR. WENK: Second.

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1 MR. PARKER: Alright, are there any -- does everybody
2 understand the motion? Are there any objections?

3 MR. HAVELOCK: I'm just gonna say the amplification on
4 that that comes immediately to mind is that you are -- want
5 a system at the technological level that includes an equal
6 access to the information on shore and vessel with respect
7 to instantaneous ship location in relation to the hazards
8 of the sea and traffic of a larger vessel traffic. And I
9 think you can sort of -- there is sort of an objective
10 standard, it seemed to me, of some kind that you can
11 articulate there and maybe Virgil could talk about that.

12 MR. PARKER: Yeah, just give us a brief run-down on
13 what your discussions have been with.....

14 MR. HAVELOCK: And there's also the redundancy issue,
15 as whether you want at least - not less than two systems
16 that provide substantially that level of information.

17 MR. WENK: I'm not sure whether the consultants are
18 prepared to address these questions or not, but let me lay
19 them out anyway in terms of I think the relevance they've
20 been mentioned before. I think we have to ask ourselves
21 will the Staff have to provide answers to the Commission as
22 to what are the consequences of going mandatory with regard
23 to this matter of responsibility, with regard to the matter
23 of standards for new operators, and also by implication the
25 question of what size vessels are exempt from mandatory

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1 operation.

2 MR. PARKER: Yeah, I think that's what we're gonna get
3 into as we go through these.....

4 MR. WENK: This first one is one where I'm concerned
5 but I don't know enough to know what this really means
6 (indiscernible) these responsibilities. And whether there
7 is legal precedent here from the air traffic control, or
8 whatever, so that -- the main thing is to know what the
9 implications are.

10 MR. SUND: Mr. Chairman, I just explained my motion
11 was to get the issue on the table. Now I think Staff has
12 got some instruction to come back with it, and they've got
13 to run into all of these issues and come back and write a
14 more detailed finding or proposal, or word it in some
15 fashion that one had gathered here, but maybe they can just
16 pick up a little bit of our conversation for a few minutes
17 and then they'll have to flush it out.

18 MR. PARKER: Well, the issue's on the table but it
19 hasn't been voted on yet.

20 MR. DOOLEY: I'd like some help on the word
21 "mandatory."

22 MR. PARKER: Well, you'll get it.

23 MR. DOOLEY: Hmm?

23 MR. PARKER: I'm sure you're gonna get it.

25 MR. SUND: I guess one of the people explained that

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1 the term of art what does mandatory mean.

2 MR. DOOLEY: Well, I guess the question I'm asking is
3 are you requiring that every -- it's mandatory that every
4 vessel be able to display this? Are you also suggesting
5 that in terms of traffic control that there is a controller
6 using this same equipment to give advice, preferred advice
7 to the master in terms of direction.

8 MR. PARKER: That's what we're gonna talk about if
9 everybody will stop short-cutting through to the end.

10 MR. WILLIS: The traffic control system we're talking
11 about, throwing this group thing back up again, basically
12 consists of the three components. The vessel-monitoring
13 system which is the active system that we're sort of
14 talking about positioning, etc. But it also includes the
15 traffic separation lanes and the one-way traffic and the
16 designated anchorage areas so that you have some standard
17 from which to judge where the ship is itself within some
18 pre-defined passage lanes. In a fairly generic way we're
19 suggesting that there's two modules of this system -- the
20 vessel-monitoring system, the first part. One, a shipboard
21 model, and the second shore-side module that's really doing
22 management of the system itself. Both of them -- the basic
23 components of it is that the ship is receiving land/sea
23 information or other type of positioning information,
25 perhaps satellite, as the systems go forward. And taking

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1 that not only into their own system but then transmitting
2 it to the shore-side management center. We're suggesting
3 that both the ship and the shore-side management center
4 have computer graphics displays to show the masters and the
5 shore-side controllers exactly where that ship is vis-a-
6 vis where it should be. That communication can be either
7 satellite, radio, depending on where you happen to be and
8 the type of information that you're putting. I guess the
9 most important part sits over here -- and how are we gonna
10 give that advice to the master himself. You don't -- you
11 know, once you start giving advice you have that great
12 responsibility of taking over some control of the ship
13 itself. You don't want to get in the position where you're
14 inducing an accident by your advice. We're suggesting that
15 this shore-side type of operation has to be run by very
16 experienced mariners. It can't be done by rookies or, you
17 know, third-class people when you are trying to protect the
18 system. That system has to be protected at the highest
19 level so you do need a mariner that is experienced in deep
20 draft, for instance in the systems we're talking about, in
21 deep draft ship operation. So that becomes a key. The
22 basic technology used is secondary to the advice that
23 you're able to give from that technology.

23 MR. KEITH: And I think that you add to that, Mr.
25 Chairman, the word mandatory's come up. All the

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1 improvements are based that it's not an advisory system
2 that's out now, it would be mandatory. And by that we mean
3 the vessels calling on Valdez and on the terminals would be
4 required, they would have to participate in the system,
5 they would have to stay in the traffic lanes, and there's
6 none of this deviating out if they want to cut the corner
7 that they call the Coast Guard and say, we wanta come left
8 to 185 because, for whatever reason. If they stay in it -
9 - I think we heard that last night from Mr. Williams.
10 Indeed, it seems that that's what Alyeska's now doing. So
11 the improvement is based on the fact that the system is not
12 an advisory system or something they can use if they
13 choose, but indeed is a control system very similar to FAA
14 with the Anchorage International.

15 MR. PARKER: Okay. Do you want to go on to the
16 traffic lanes, or does everybody understand the basic
17 system. I think -- the critical thing to me on what's
18 possible now is having the bridge displayed where you have
19 computer graphics to back up the radar display and to back
20 up the classic chart plotting. I mean, that's relatively
21 new. And I think it's something, you know -- to reminisce
22 a minute, it's a battle I lost in the National Air System
23 in 1966 in getting the same thing in the cockpit of
23 aircraft and maybe if we can get it on the bridge of ships
25 we can lead the air traffic system into the next generation

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1 from where it's lagging. So the -- to me, you know, it
2 provides a kind of redundancy I like to see in systems.
3 So -- John.

4 MR. SUND: How does the shore-to-ship communication
5 take place here. We've got 100 miles, I guess, from
6 Hinchinbrook in, a little bit beyond a single-source VHF
7 radio.

8 MR. KEITH: I think we're recommending this afternoon
9 you're going to see a system at the Clarion. So we're
10 gonna see that. Prior to that there's a short tape, too.
11 There's a video tape on using a system similar to this.
12 And we have Mr. Walter Cod (ph) with us over there to,
13 who's the developer of the system. Basically, they can use
14 the same channel. Alyeska -- it's a good opportunity right
15 now 'cause Alyeska's changing the entire UHF/VHF channel so
16 they'll have complete coverage from the outside in. And on
17 the particular system that Mr. Cod (ph) has -- is it's a
18 micro-burst system, so it can use the same channel as
19 Channel 13 and even though you're on that channel you're
20 not even -- you don't even aware that that signal is being
21 transmitted. So it could go to the Coast Guard's VTF, be
22 displayed on the display board, very similar like this,
23 using UHF/VHF within Prince William Sound or Cook Inlet.
23 Then if you wanted to carry it to -- off 100 miles off
25 Ketchikan, the type of thing that you're talking about, you

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1 can switch over and display that by what the Commission's
2 gonna see this afternoon through the satellites.

3 MR. SUND: I was just concerned from Hinchinbrook in.

4 MR. PARKER: Yeah. Hopefully the FCC gets off the
5 dime finally, which it appears to on mobile satellites, why
6 in addition to the MARSAT (ph) satellites why we'll have
7 the regular mobile satellite coverage too. So I think --
8 but you're right, you know, they ran into that in the oil
9 spill. The State spent \$1.7 million on a VHF system for
10 the outer islands which doesn't serve the general traffic
11 system.

12 MR. KEITH: I think the interesting thing is, too,
13 this very system that is before the Commission is now in
14 operation down in Prince William Sound. It's also in
15 operation in the vessel that Mr. Dooley's trying to get up
16 here tomorrow on the Sepata (ph) Gulf Trader. So not only
17 are we talking technology that's available elsewhere, it's
18 available right here in Alaska. And it's strictly the
19 question does one want to then make that system mandatory.

20 MR. PARKER: John.

21 MR. SUND: Well, the way we posed the motion of
22 mandatory control and a little bit of system we didn't rule
23 out radar coverage which is also one of the options, I
23 guess, to put Prince William Sound under full radar
25 coverage. The Coast Guard has indicated it's quite an

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1 expense to do that, but I'm not quite sure where we are in
2 terms of our recommendations. It's not recommending
3 specific technology but recommending general concepts here.

4 MR. PARKER: Yeah. If you want to recommend, oh radar
5 coverage to Hinchinbrook and/or full radar coverage for
6 Cook Inlet it would be an extremely expensive system, but
7 I think the needs to, you know -- we need to be prepared to
8 discuss, if we don't recommend it, why we didn't and if we
9 do recommend it why we did, of course, so.....

10 MR. HERZ: Mr. Chairman. I wanted to ask the three
11 guys whether the -- is a radar -- covering the whole Prince
12 William Sound with radar is redundant to this system, is it
13 not?

14 MR. PORRICELLI: Yes, it would be.

15 MR. KEITH: One of the things.....

16 UNIDENTIFIED SPEAKER: Well, it's not is it? I
17 mean.....

18 MR. KEITH: One of the things that Mr. Sund brought up
19 that I think is very important. For Prince William Sound
20 when you get in the Narrows where we have a LORAN/Sea
21 signal that's very weak and because of the noise in the
22 background, is you need a hybrid system. I think the
23 Admiral Nelson presented to us the idea of using their
24 system from Bligh Reef all the way into the port, and then
25 use this other system below Bligh Reef to give you total

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1 coverage within Prince William Sound, using kind of the
2 best of both worlds.

3 MR. HERZ: And is the current technology with global
4 positioning such that you don't have frequent enough passes
5 to get.....

6 MR. KEITH: Every 90 minutes. That's the problem.
7 It's not often enough. So you get an update or a fix every
8 90 minutes, well that just doesn't give us an update
9 frequently enough as opposed to LORAN/Sea where we can get
10 it in microseconds.

11 MR. HAVELOCK: As I understand it, maybe you can
12 correct me, it's not redundant because this system depends
13 upon broadcasting beacons. A radar system will pick up
14 non-participating vessels, icebergs and the like, which
15 your system will not. Is that correct?

16 MR. PARKER: It will pick up some -- participating
17 vessels, non-participating vessels.....

18 MR. HAVELOCK: Depending upon the quality of the radar
19 it'll pick up some.

20 MR. HERZ: But in terms of the navigational component
21 is what I was talking about as redundant. What you're
22 saying is true. But the navigation you have two totally
23 separate systems, one with LORAN and one with radar.

23 MR. KEITH: To give you some idea of cost, this cost
25 is probably 1/100th of full radar. The down-side is you

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1 have to mark those vessels and the Commission would have to
2 decide what vessels that you want to monitor because it's
3 going to need this particular system on board. Where,
4 quote, radar could pick up any -- in a passive sense it
5 could pick up other vessels. There are limitations to that
6 too. And I'll have to say from a number of years on ship,
7 I've missed an awful lot of icebergs on radar. So I don't
8 think it's gonna help you much on picking up icebergs -- a
9 radar system.

10 MR. SUND: Chairman, I'd just like to explore the idea
11 of the experience of the monitor on shore. I understand,
12 you know, Captain Nelson John's testimony about -- his
13 story about going into a European port under a zero-zero
14 fog situation and kind of giving up control of his vessel
15 to a master on the shore who told him what to do. We're
16 not exactly here -- without radar you're not in that
17 situation here. Here you're just purely monitoring a
18 transmitting ship. Either the ship's turned on or off. If
19 it's off you haven't a thing to do about it anyway so what
20 is expected from the shore-base controller or monitor that
21 requires a high-degree of experience. What is that person
22 supposed to do?

23 MR. PORRICELLI: Any sort of recommendation that he
23 would make is gonna have to based on his experience as a
25 ship controller. A problem you have, Commissioner, is it's

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1 not a technical one, but maybe one of perception. Any
2 monitor that you put in there, if you do it, I think, in
3 the mode that's been done in the past, at least in the
4 United States, where you have some Coast Guard officer to
5 be very specific in there, the master on the ship is gonna
6 take umbrage at any kind of recommendation or comment from
7 this sort of person. To give him any confidence of any
8 recommendation that might be coming from the monitoring
9 station, you're gonna have to have someone who he feels is
10 at least, you know, equal to him in controlling the ship.
11 And in that contingency situation where he is gonna be
12 giving him some guidelines to feed in on, that's what
13 you're gonna need this high-level of.....

14 MR. SUND: But the only thing the monitor's gonna be
15 able to see is this guys dot and anybody else who's in the
16 system. He's not gonna be able to see anything that is
17 there that's not transmitting.

18 MR. PORRICELLI: Well, you gotta remember what you're
19 trying to show on the system. You've got two things,
20 you've got collision, you're trying to get a collision
21 avoidance, that's one. And the other one is just plain,
22 you know, piloting. Is he staying within the prescribed
23 traffic lane and where is he relative to any navigational
23 hazards, such as a reef. I would -- you can't look at
25 these two systems I don't think independently. The traffic

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1 monitoring system and the traffic lane. The traffic lanes
2 are trying to provide separation and minimization of
3 collisions. You're just physically keeping them separated.
4 But if there's nobody else to hit you can't collide. So
5 what you're trying to do is provide this separation, and in
6 extremely hazardous areas you might even have more than
7 separation, have vessels only going in one direction. So
8 that is your primary collision avoidance portion of the
9 system. The other part of it, the monitoring of vessel
10 position relative to, you know, geography, what you're
11 looking for there is, is he A. staying within the lanes,
12 and B. for whatever reason if he starts to drift off what
13 will steer out, you want to warn him in ample time that he
14 is going toward a hazard.

15 MR. KEITH: We're gonna have a tape that describes
16 this after lunch. And it's a short 5 or 10 minute tape.

17 MR. PORRICELLI: But Commissioner Sund's point is
18 well-taken. Obviously if you've got two participating ship
19 approaching one another and they both have their buttons
20 on, it certainly gives you another level of monitoring for
21 collision avoidance. But that's not it's primary intent.

22 MR. KEITH: I think one other thing. The intent is to
23 always transmit that. The minute he's in the water there's
23 no on and off. That -- this system is passive to the
25 operators. So the minute he's in that, that position is

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1 going to be going out continually. So the quality of that
2 information that you're getting back in the vessel-
3 monitoring system is far superior to anything you would get
4 back from the radar. You don't have to interpret it, it
5 comes up on the electronic chart. And Mr. Cod's (ph)
6 system you can also transmit rudder angle, RPM, a whole
7 host of other things that could come down the line later.
8 We're only talking about, in this system, retransmitting
9 the position, a vessel identification in the
10 (indiscernible), so you could look at all the vessels
11 participating in the system.

12 MR. WALLIS: Mr. Chairman, who are these people on the
13 ships communicating with?

14 MR. PORRICELLI: Today, sir?

15 MR. WALLIS: Pardon?

16 MR. PORRICELLI: Are you talking about today or in the
17 proposed system?

18 MR. WALLIS: No, under the proposed.

19 MR. PORRICELLI: You would have the shore side, we
20 call it the monitoring module. There you would have
21 somebody on a 24-hour basis monitoring all the ships coming
22 in. That would be the same person you're communicating
23 with.

23 MR. WALLIS: Who does that person work for?

25 MR. PORRICELLI: That's a good question. I.....

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1 MR. SUND: That's under institutions this afternoon.

2 MR. PORRICELLI:but I don't know that I have an
3 answer for you here this morning, but it would be somebody
4 in the -- right now it could be the Coast Guard, it could
5 be the State. That's an issue that I think you folks are
6 gonna have to address. But the ideal would be this is a
7 harbor or port area traffic control not unlike an aircraft
8 coming into any airport where you have air controllers.

9 MR. SUND: To answer your question, Tim, you brought
10 up earlier -- you could put all of the Cook Inlet stuff,
11 all of the Prince William Sound stuff into one place. I
12 mean, it's just a matter of phone lines. They don't have
13 to be two separate places.

14 MR. PARKER: Mike.

15 MR. HERZ: I just wanted to speak to Mr. Sund's
16 concern about other shipping that might not be a party to
17 this system. And number one, you could have other major
18 shipping required to participate with a transponder, at
19 least, without the ancillary receiving equipment. That's
20 not very expensive and would even -- even light planes are
21 required in the FAA system to carry those. But from what
22 you said earlier, there aren't many risks in the shipping -
23 - other shipping, to these large 250,000 ton vessels that
23 you have to worry about. So, it may be that the redundancy
25 in what you're worried about not being able to pick up with

/cf

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1 the radar may not be necessary, you know.

2 MR. KEITH: (Nodding affirmatively) And I think this
3 Commission has heard testimony if the tankers were in the
4 lanes at least the fishing vessels -- and Commissioner Sund
5 can address -- would know where not to be. So if they're
6 sure that the tankers are in the traffic lanes, which came
7 up 12 years ago, at least they would be sure if they're
8 outside of the lanes that they're not going to be cut in
9 half. I would be more worried about -- if I were a
10 fisherman -- the other end of the scale, being cut by one
11 of these. So the idea is that they would primarily, which
12 is why the lanes were put where they were, they were out of
13 the fishing areas as much as we could do it, so then they
14 would know if they're out of those areas they have a fairly
15 safe chance that they're not gonna be cut in half, or their
16 nets aren't gonna be damaged or anything like that.

17 MR. PARKER: We'll pick up on this after lunch.
18 Counsel do you want to make your announcement about lunch
19 that -- you know, the working meeting lunch.

20 MR. HAVELOCK: We have a -- if anybody wants to stand
21 around that's all right although I intend to concentrate on
22 my food. But since we are eating at one place, it's the
23 only convenient way. I'm not gonna order taxis to send
23 each Commissioner to a different part of the town, so we
25 will all eat together over at Sea Galley, and anybody who

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