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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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SESSION 1: TOWN HALL MEETING ON PROPOSED RULEMAKING, PACKING AND TRANSPORTATION OF RADIOACTIVE MATERIALS

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TUESDAY

JUNE 4, 2002

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CHICAGO, ILLINOIS

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The Town Hall Meeting on Proposed Rulemaking, Packaging and Transportation of Radioactive Materials Session met at The Hyatt Regency Hotel, Regency Ballroom B, 151 E. Wacker Drive, at 1:00 p.m., PETER BONNER as facilitator.

PRESENT:

PETER BONNER, Facilitator, ICF

FRED FERATE, Health Physicist, Dept. of Transportation

DAVID PSTRAK, Transp. Specialist, NRC Spent Fuel Office

PATRICIA HOLAHAN, Chief, NRC Rulemaking & Guidance Branch

CHARLES MILLER, Director, NRC Spent Fuel Project Office

NANCY OSGOOD, Senior Project Manager, NAIEM TANIOUS, Project Manager for Rulemaking, NRC

JAN STRASMA

STUART TREBY

MEMBERS OF THE PUBLIC PRESENT:

DIANE D'ARRIGO

DAVID KRAFT

MARK DORUFF

SIDNEY BAIMAN

JOY REESE

MARGARET NAGEL

MANNY TUAZON

DEBBIE MUSIKER

PAUL GAYNOR

I N D E X

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

(1:00 P.M.)

MR. BONNER: Good afternoon, everybody. My name is Peter Bonner. I'm from ICF Consulting, and we're a contractor to the Nuclear Regulatory Commission. And I'm going to be handling the facilitation and moderator responsibilities for the meeting this afternoon and this evening. The purpose of today's meeting is to hear your ideas, opinions, comments, observations regarding the proposed rule on transportation of radioactive materials.

First of all, let me do some introductions here. Charlie Miller is, let me get this right, the Deputy Director for Special Projects of the Spent Fuels Project Office, and he's responsible for spent fuel storage and all issues related to transportation. Okay. Trish Holahan is the Chief of Rulemaking and Guidance Branch and is really responsible for writing the rule. Fred Ferate is from the Department of Transportation and is an expert on transportation issues. Stuart Treby is the Assistant General Counsel and responsible for the legal issues in the proposed rule.

Up front here we have Nancy Osgood, and Nancy is the Senior Project Manager for the Spent

Fuel's Office and an expert in packaging. Dave Pstrak is a Transportation Specialist, also for the Spent Fuel's Office of NRC. And Naiem Tanious is the Project Manager for Rulemaking and Project Manager for this rule. Okay, have I left anybody out? Oh, Jan Strasma who is the Senior Public Affairs Officer from Region 3.

Those are the representatives we have from the Nuclear Regulatory Commission and from DOT today. And they'll be going through some brief presentations on the process of making the rule and proposing the rule, and also handling some of the issues that have been raised.

The first thing to do is, does everybody have a packet from outside? You have that? Let's briefly review what's in there. On the left side of your packet is the federal register notice of the proposed rule. Also on the left side are a couple of index cards. What we're going to do is have you use the microphones to make your comments and observations. If you choose not to want to get up in public and make your statement, you can write it down on the index card and I can read it for you. Okay? That's what the index cards are for.

On the left side of your packet, we've got

the agendas. Right after the agenda is a summary of the NRC Part 71 proposed rule with the description of issue by issue. And that basically summarizes each issue raised in the rule. And they're structured by the IAEA compatibility changes and the NRC initiated changes.

After that, we've got the PowerPoint slides providing an overview of the proposed rule and the public meetings and the process for providing comment, contact information from NRC and DOT, another form for you to make comments on. If there is something that you want to further elaborate on for the group or again that you're not willing to make in public, that's an opportunity on that form to make your comments. The feedback form on the process of this meeting and the federal register notice for the Department of Transportation proposed rule.

Okay? Everybody understand what's in the packets? Okay, great. Let's take a look at the agenda in your packet for just a second. We're going to start out with an overview of the rulemaking process and then move in to the two issues of international harmonization and agreement state compatibility. We're then going to, we've taken the liberty of identifying a couple of issues up front

that the NRC saw as substantial.

First, radionuclide exemption values and grandfathering previously approved packages in the IAEA related issues. And then, on the NRC initiated issues, special packaging authorizations, change authority and double containment of plutonium. We're not restricted, and I want to encourage you not to be restricted to comments on those issues alone. We just saw this as an opportunity to tee those up because we saw those as the most substantial ones. But that other page you have in your packets that lists all the issues, they're open for comment and we are prepared to talk about those here at this meeting.

Make sense? And then, we'll adjourn by 4:00 o'clock. Everybody understand what we're going to do? Okay.

The last piece is, I've got a couple of discussion guidelines, discussion ground rules. One, I'd like us to speak one at a time. We're a small enough group, so I think that will be fairly easy. Use the microphones to make your comment. This meeting is a public meeting. We will be providing a transcript of this meeting and it's going to be part of the record of response, the record of public comment for this rule.

If you could state your name and affiliation; if you don't have an organizational affiliation, where you're from. If you could stay on topic, we've organized this topic by topic. As we say, we can range from that, but if we could stay issue by issue, that would be great. Focus on ideas, not personalities. If we could refrain from side conversations; I think the acoustics in here are pretty good, if you engage in side conversations, everybody is going to hear you. Keep comments concise and use the comment forms to expand on your ideas or expand on your observations.

Any questions about the process for today and how we're going to do it? Okay. Let me turn it over to Charlie and Trish and Fred who are going to start the first agenda item on the process of rulemaking, harmonization, et cetera.

MS. HOLAHAN: All right. My name is Trish Holahan. I'm responsible for the NRC rules and the nuclear material and waste events, I mean, areas. I would like to welcome you to this public meeting to discuss this proposed Part 71 to make it compatible with the IAEA safety standards as well as to make other changes. The Department of Transportation also published its proposed rule on the same date to make

its regulations compatible with the same IAEA standards.

We look forward to your participation and hearing your views on the NRC and DOT proposed rules. We have an open rulemaking process. We make all our comments available to the public on the NRC website, by regular mail and in the PDR. During the public comment period, we hold public meetings such as this one to seek face-to-face public participation, to obtain public comment, and answer any questions on the NRC proposed rule. Following the meeting, we'll provide a transcript of the meeting on our website.

Harmonizing Part 71 with the IAEA regulations will maintain safety, increase NRC regulatory efficiency and effectiveness and reduce unnecessary regulatory burden on licensees by eliminating the need to satisfy two different regulatory requirements, depending on whether the package is shipped domestically or internationally. Furthermore, public confidence will be increased by using the criticality safety index on packages, expansion of QA requirements to certificate holders and using more accurate dose model.

I mentioned that because I know that there was significant concern about the use of those models.

I will say a few words about the Part 71 proposed rule. The rule contains 11 IAEA compatibility changes. Of the 11, we are proposing to adopt nine. The two that we are not proposing to adopt is the use of SI units only and the type C package requirements.

Adoption of SI units only would be against Commission metrication policy and may also create situations that would compromise safety. As for the type C packages, the IAEA will conduct a further evaluation of the requirements for the type C package. Also, the staff believes that very few shipments will be affected by those requirements.

The rule also contains eight NRC initiated changes. These include a proposed petition for rulemaking PRM 71-12 which requested the elimination of the double containment requirements for plutonium shipments; a proposed position on the surface contamination standards as applied to high level waste and spent fuel shipments; and revisions of the fissile material exemptions and general license provisions to address the emergency rule on intended economic impact.

We prepared a draft RA and regulatory analysis to support the proposed rule. The draft RA indicates that there will be no significant cost

because of the proposed changes. However, the changes would result in that benefit in NRC regulatory efficiency as licensees and certificate holders will have one set of regulations to comply with.

We also prepared a draft environmental assessment to support the proposed rule. The draft EA indicates that there will be no significant environmental impact resulting from the proposed changes. We seek your comments on both of these documents.

Finally, I will reiterate our main message to you today which you will hear from various speakers, that the changes in Part 71 to make it compatible with the IAEA will maintain nuclear safety, i.e., it will maintain the level of protection to members of the public and the environment. The NRC initiated changes will also maintain the level of protection.

In closing, I would like to leave with this message: yes, the changes will streamline our regulations; it will affect international commerce, but it will not affect safety. Thank you very much. Fred?

MR. FERATE: Good afternoon. My name is Fred Ferate. I work in the radioactive materials

branch in the Office of Hazardous Materials Safety in the Research and Special Programs Administration of the Department of Transportation. It's our little group that deals with the regulations for the safe transport of radioactive material in the United States.

The Research and Special Programs Administration (RSPA), I guess I'll cheat a little bit by reading my notes here, is responsible among other things for establishing regulations for the safe transport of all hazardous materials, and that of course includes radioactive materials. And that's transport by all modes of transport: air, rail, car, vessel. And they even, in RSPA, consider pipelines to be a mode of transport; it's a mode of transport of petroleum and oil products. RSPA is also responsible for rapid federal response, coordinating rapid federal response to large emergencies and for applying research and technology to transportation needs.

One of the things I want to do today is just, I'm kind of interjecting myself right now into the NRC public meeting, but the very first thing is to introduce myself to you and to indicate that after the meeting, you know, in the future weeks, I am available. You can call me, you can send me email

messages as well as, of course, the fact that we have a formal process by which you can submit comments to DOT on the issues in the DOT notice of proposed rulemaking.

With respect to that, I would like to point out, I'm not sure that all of you are aware of this, but on the table as you came in, the table outside this room, I left a hard copy of these slides that we're showing now. And I suggest that you try to pick up a copy if you're interested at all in the DOT side, the DOT notice of proposed rulemaking because there, I give my contact information, phone number, email address, and also some information about how you can submit comments to DOT or RSPA on the DOT rulemaking.

Another reason why I'm here essentially is to try to indicate to you the relationship, describe a little bit the relationship between the Nuclear Regulatory Commission, the Department of Transportation, and to say a little bit about why we are trying to harmonize our sets of regulations with the international regulations for the safe transport of radioactive material.

So, the first thing we should mention is that for many, many years, the DOT and NRC have shared

in a memorandum of understanding (MOU) which was published in the federal registry, I believe, July 2nd, 1979. So, it's a long-standing memorandum of understanding and through that memorandum of understanding, the two agencies have agreed to take on different aspects of the regulation of the transport of radioactive materials.

Through that MOU, DOT regulates the safe, I guess that's a little bit above and beyond the MOU itself, regulates safe transport of all hazardous materials, but DOT sets communication requirements. It tells you what you're supposed to write on the shipping papers. It tells you what kind of labels and markings you're supposed to put on the packages. It tells you what kind of package you're supposed to use if and when you are required to use them.

It sets various other requirements during transport. It sets routing requirements. And DOT regulates both the shipper of radioactive material and the carriers. One thing which I didn't put down on the slide is that DOT also sets the standards for performance requirements.

Let's say for packages for transporting smaller quantities of radioactive material, if we go on to the slide for the Nuclear Regulatory Commission,

the NRC essentially has the lead in approving packages for larger quantities of radioactive material. It actually certifies the package designs and you're not allowed to ship radioactive material in those quantities in the United States without having a certificate from the NRC. NRC provides technical support to us, to DOT in some of our duties. They're the ones with the cadre of engineers and people with a lot of technical background, so they help us out in that respect.

NRC approves package quality assurance programs for their licensees, but their licensees are a large part of the regulated community. NRC works with DOT to assure consistency and it helps us out by conducting inspections against DOT requirements, inspections of its licensees. In other words, they check to be sure that the licensees are in fact following the DOT regulations for transporting radioactive material.

DOT is mandated by law, I give the citation here in the US Code, to help formulate international standards, to ensure that domestic regulations are consistent with international standards to the degree deemed appropriate. And I mention here that the law allows DOT flexibility to

accept or reject certain of the international standards.

Why do we need harmonization with the international standards? The two driving forces, the two principal driving forces, I believe, are that if we didn't have harmonized standards, it would be very hard to conduct business. So, for greater facilitation of commerce, it's kind of advisable that we have harmonious regulations, and I have down here, to improve safety.

Essentially, what I mean by that is if we have different regulations from another country that we're shipping radioactive material to or receiving radioactive material from, then chances are that the people who are sending it or receiving it are familiar with different sets of requirements and could more easily misinterpret or make some mistake. So, harmonization of our standards with international standards with respect to international commerce is very important in order to reduce the chances for error and to, in that way, improve safety.

The international regulations essentially are the responsibility of the International Atomic Energy Agency (IAEA) which is a United Nations agency given that task specifically. Of course, it's given

other tasks, too, and I mention some of them here. The IAEA promotes scientific and technical cooperation in nuclear matters. The IAEA is the international inspector for nuclear safeguards and verification of civilian nuclear programs. But most important for us, it establishes the international standards for the safe transport of radioactive material.

And the Department of Transportation is the official US representative before the IAEA. The term we use is that DOT and specifically the Office of Hazardous Material Safety within RSPA, within the Research and Special Programs Administration, is the US competent authority for the safe transport of radioactive material internationally, I guess I'll say.

These IAEA regulations, what we will most often probably be calling the international regulations for the safety transport of radioactive material had been issued several times in the past, starting in 1961, '64, I believe 1967, I believe but I am not certain. 1967 is the first year that they were actually called Safety Series Number 6. And then, again in 1973 and 1985, they were issued as Safety Series Number 6.

Each time the international regulations

were published, then the US domestic regulations for transporting radioactive material were harmonized with those international regulations, usually several years later, although I mention here that in the future, the IAEA has recently formally changed its revision process so that they're trying to do a review of the international regulations every two years now. So, we expect that our domestic attempt to keep pace with them will probably occur a little bit more often than it has in the past.

And the other point to make is that as we adopt the international regulations into our domestic regulations, there usually are a few points, there have always been a few points for, there is still some inconsistency because we decided that there are certain areas where we can do things a little bit differently without reducing safety and essentially functioning more efficiently.

I mentioned that 1985 was the last time that Safety Series 6 was issued, but there is a newer version of the international regulations, and that is what was first called ST-1 and now is called TS-R-1 in 1996. And the changes that were introduced in the TS-R-1 are the changes that both the NRC and DOT are proposing, some of those changes, most of those

changes are the changes that NRC and DOT are proposing to incorporate in our respective regulations in the United States.

Presently, today, you realize we're here to receive your comments on the NRC notice of proposed rulemaking. Now, what that means is that the present NRC regulations as well as the present DOT regulations are still based on the 1985 international regulations. Both of our regulations, if we're going to change them, it's advisable that we try to change them in a coordinated manner.

The regulations which are under discussion are essentially Part 71 of Title 10 of the Code of Federal Regulations, that's the NRC radioactive material packaging and transport regulations. And on the DOT side, Parts 171 through 180 of Title 49. And as you all know by now, the notices of proposed rulemaking were published simultaneously on April 30th of this year. You have the NRC proposal on the left side of your blue packet and the DOT proposal on the right-hand side.

A couple of comments with respect to the DOT rulemaking here, both NRC and DOT comment periods end the 29th of July. But with respect to the DOT rulemaking, all information in the DOT docket is

available at the website that's on this slide. And it's also on those handouts on the table in case you didn't get one before, you might try to pick one up after the meeting is over.

But I would like to particularly call attention to the fact that in this public meeting to give your comments to NRC on the NRC proposal, if any of those comments on the TS-R-1 related items are pertinent to items in the DOT rulemaking, we also will have a copy of the written transcript afterwards and we will comb that transcript carefully to take into account any comments you make here on the NRC rulemaking that are also pertinent to the DOT rulemaking.

However, in addition, I do call your attention on the last transparency there to a couple of ways that you can send us directly written comments, either by mail or over the internet, there's a way to do that. And those indications are listed there on the last slide. Again, if you are interested in doing so, I advise you to try to get a copy of the handout. And at any rate, you know, take down my phone number, my email address. Also, I do have cards here, if you want to come up and get a card from me later on, you're welcome to do so.

One final thing I'd like to say is on that table is also a separate single sheet on which I put down a few internet addresses. The first two probably are not all that useful to you because they're for locating on the internet the DOT notice and the NRC notice, and you already have hard copies of those in your folder. The other two addresses, one is a general address for the government printing office where you can find any part of any title of the Code of Federal Regulations or any, of course, it only goes back like ten years or something like that, but I think that's enough for the Code of Federal Regulations.

The harder part is you also have access there to Federal Register Notices, and I believe those probably only go back about six or seven years. But even that is sometimes pretty helpful. The final citation is to the website of the IAEA, and if you would like to see what TS-R-1 actually says, you can get to it on this website and you can print out as many pages of that as you want. So, that's the end of what I have to say right now.

I deem my role here as being kind of introducing myself, introducing a little bit the relationship between NRC-DOT and the international

regulations, and finally, indicating that I can be a channel, if you would like, to receive comments or to give you additional information about how to contact DOT if you have comments for the DOT notice. I would, again, like to call your attention to the fact, however, that the purpose of this meeting is for you to submit comments to the NRC on the NRC rulemaking. Thank you.

MR. BONNER: Thanks, Fred.

MS. D'ARRIGO: Excuse me. Could I ask a question?

MR. FERATE: Absolutely.

MS. D'ARRIGO: I didn't see the last page that had the IAEA address on it. It doesn't appear to be on the, I didn't see it on the screen or on here.

MR. FERATE: It's a separate sheet. It wasn't in the slides. It's a separate sheet that's on the table outside the room.

MS. D'ARRIGO: Oh, okay. Thanks. Thank you.

MR. MILLER: What I'd like to do briefly is to discuss the compatibility of the proposed regulation with the agreement state on policy that's been published by the NRC in the agreement state process. And for those of you that aren't familiar

with the agreement state process that the NRC has, it provides an opportunity for the NRC to delegate authority to states that are interested in taking that authority. And these states are delegated authority for the regulation in certain areas that the NRC normally regulates, if they choose to become an agreement state. They have to go through a formal process to apply and become an agreement state with the NRC.

The policy statement with regard to adequacy and compatibility of agreement state programs was published in 1997. And under that policy, NRC program elements are placed under four compatibility categories. Also, the NRC program elements are identified as having particular health and safety significance or as remaining solely under NRC jurisdiction. As a roadmap for you, the categorization of the proposed Part 71 revisions is listed on the tables in the Federal Registry Notice with the rulemaking that you got in your packets today starting on page 21435. And I'd just like to briefly run through each of the categories that are established for the compatibility.

The first category is Category A which contain basic radiation protection standards and

scientific terms and definitions that are necessary to understand radiation protection concepts. Agreement states should adopt Category A items to ensure nationwide uniformity. Category B are those program elements that apply to activities that have direct and significant effects in both NRC and agreement state jurisdictions. The agreement states should adopt Category B program elements also so that they're identical to the NRC requirements.

Category C are those program elements that do not meet Category A or B but should be adopted to avoid conflict or duplication of gaps or other conditions that could jeopardize an orderly pattern to a nationwide agreement state program. An agreement state should adopt those also. Category D are those that don't meet A, B or C and don't necessarily need to be adopted by the agreement states for compatibility.

In addition, in the table, you will see that there are bracketed categories. And in bracketed categories are sections that had been adopted elsewhere in our regulations and do not need to be adopted herein. The final category are what we call NRC category and those are those program elements that we do not relinquish authority to agreement states for

based on the Atomic Energy Act. And the NRC retains authority over those areas.

What we'd like to do now is for those things that we've discussed so far is just pause for a moment and through any questions or comments that you want to make on what you've heard so far this afternoon, feel free to come up and make those comments.

MR. BONNER: Especially at this point, if you have questions or comments, or questions about the, clarifying the process by which the NRC came to this proposed rule or clarifying questions on the international harmonization or agreement state issues. Any clarifying questions, first of all? Yes? Please state your name and affiliation.

MS. D'ARRIGO: Diane D'Arrigo with Nuclear Information and Resource Service. Charles, did you say what you're proposing that these regs would be? Category A, B, C or D?

MR. MILLER: I'm sorry, Diane. Could you repeat that? I didn't catch all --

MS. D'ARRIGO: I wanted to know what agreement state category this proposed rule is being proposed to be.

MR. MILLER: Okay. If you look on one

page, 21435, in your packet should be a bound version of the proposed rule of Federal Register Notice?

MS. D'ARRIGO: Yes.

MR. MILLER: If you look on page 21435, you'll see a table, starting on that page, and it shows you for each provision, each subsection of Part 71 as proposed in this rule what agreement state category it would fall under.

MS. D'ARRIGO: So, which one then is the adoption of, I see A_1 and A_2 are in here as compatibility B but also bracketed. What about the exemption tables where you said exempt quantities and concentrations?

MR. MILLER: Okay. We're looking it up for you.

MS. D'ARRIGO: I'm looking, too.

MR. PSTRAK: (Inaudible.)

MS. D'ARRIGO: But it's not A_1 and A_2 that I'm talking about. I'm talking about the exempt quantities and exempt concentrations.

MR. PSTRAK: (Inaudible.)

MS. D'ARRIGO: So, those are the same as saying determination of A_1 and A_2 is the same?

MR. BONNER: Dave, could you come to the microphone so everyone could hear you?

MR. PSTRAK: Since you're in the proposed rule already, we'll just go by page number here for a moment.

MS. D'ARRIGO: 21440.

MR. PSTRAK: Okay. And again, that's still explanatory information as far as what is being proposed to change, and this portion deals with the compatibility. But to specifically look at what is in Appendix A of the overall rule, if you would turn to page 21459? Appendix A, although it's entitled determination of A_1 and A_2, there is Table A-1 beginning on the next page that is just that, the A_1 and the A_2 values. And then, Table A-2 which begins on page 21472, Table A-2 in the lower portion of that page, the exempt material activity concentrations, that's tied to issue number 2, the removal of the 70 Bequerel per gram of the proposed adoption of these individual exemption values.

MS. D'ARRIGO: Yes, I see the chart. I wanted to see where it says the compatibility, is it B because --

MR. PSTRAK: It is B. That's the last item in that original table.

MS. D'ARRIGO: So, it's got to be the same as the NRC for the agreement states, they have to

adopt these?

MR. MILLER: That's correct.

MR. PSTRAK: Correct.

MS. D'ARRIGO: And if existing states have regulations that are more protective, they have to give those up to go along with these? They give up the opportunity to do greater regulatory control that they might already have on their books?

MR. PSTRAK: I don't know the exact answer to that. My previous background indicate that that would be a, I don't know if there are states that are currently doing that, that have values that are more restrictive than what is the federal value. They can do that for other things but it would seem to preclude any across the board or shipment from North Carolina to South Carolina, let's say, if I categorized something in South Carolina based on the South Carolina regulation but I can't ship it to North Carolina because I exceed the value that North Carolina has in place.

MS. D'ARRIGO: Well, I know that there are states that require continued regulatory control over radioactive materials even if they're deregulated. And what I'm asking is whether this is going to supersede that now, that the adoption of this is going

to threaten the state's right to have those rules. And it sounds like the answer is yes because it's compatibility B.

MR. PSTRAK: Based on the compatibility category, I would say it probably is a yes.

MR. BONNER: Other clarifying questions? Okay. Do you have comments, observations, opinions, ideas regarding what's been shared so far in terms of the process of creating the proposed rule or the international harmonization and agreement state? Name and affiliation please?

MR. KRAFT: My name is Dave Kraft with the Nuclear Energy Information Service, Evanston, Illinois. I just got my packet this past week from Chip Cameron, so I haven't read it all. But I do have just a very general question. Getting back to the, not so much the need but an explanation for need, and I won't put you on the spot, Mr. Ferate, because you've explained your situation here, but you pointed out the facilitation of commerce and the improvement safety is the rationale for the process.

Does either NRC or DOT or anyone else have any quantifiable data you can show that there has been a disruption in the facilitation of commerce or in safety? Or how many complaints in the international

community have been lodged saying that our standards are causing a disruption, you know, things like that in safety or commerce? In other words, what is the quantifiable data that justifies the need even for the harmonization? If nobody is complaining, if there aren't problems in commerce and safety, we're launching a very long, complex process, is there a need for it, I guess? And where can we find that data, I guess?

MR. FERATE: I think you have to keep in mind that this is kind of a dynamic process. Until about a year ago, essentially, the rest of the world, I guess I'm looking primarily at Europe when I say this, but Europe I think is probably the forerunner among countries in the international community, and it was just about a year ago that Europe adopted TS-R-1 as the two international modal organization, the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO), I guess, for shipments by air and by sea.

At the time that, or from the time that those had been adopted for the two international modes and by the countries in Europe, essentially then, any international movement of radioactive material between the United States and those countries, or

international shipments by sea, or even domestic shipments by air essentially must satisfy the requirements of TS-R-1.

However, through the issuance of the two-part plan and rule for Docket HM 215-D, the Department of Transportation has said that essentially it's kind of an authorization saying, yes, you can go ahead and use the ICAO technical instructions so the International Maritime Dangerous Goods Code both of which rely now on TS-R-1 to ship so long as also you abide by the present DOT definition of radioactive material which is material that has a concentration greater than 70 Bequerels per gram and that you abide by the DOT A_1 and A_2 values.

And you may ask, well, how can you abide by both of them? And our answer has been to people who ask us this, realizing that it's kind of a, obviously there are some inconsistencies there, our answer is to take the most conservative course for the time being. But to get back to your question, essentially, those who are doing international shipments are following the international regulations and that is essentially, I think, even though, you know, I can't give you numerical values for how much money would have been lost if they had not, I think in

a qualitative sense, it's pretty obvious that if our shippers, our receivers of packages of radioactive material had continued to insist on using only the Title 49 regulations, then some of those materials would not have been shippable in either one direction or the other.

So, I don't have numbers but it certainly would have been a big monkey wrench if DOT had not, for example, authorized use of those two codes and had not also, well, obviously, if we had not put any conditions, then there wouldn't have been any monkey wrench. But we put the conditions there to assure that for the time being until we resolve the question of are our proposals going to be finalized or not, that they must follow the more conservative of the two sets of regulations.

MR. KRAFT: Again, not to put you on the spot, and I didn't expect you to necessarily have the calculations, but is there any systematic process by which that cost benefit analysis either has been done or will be done? And the reason I ask that is the flip side of what could happen is that a lot of these changes may have grave implications for the shipment of our high-level radioactive waste. When the Yucca Mountain facility opens, that will also have financial

considerations and values which I don't know have been calculated.

If harmonization creates a problem domestically for us in the future when that happens, then the financial justification of using these kinds of shipments which are qualitatively different to put in place the harmonization needs to be weighed against what are the effects in the future for a vastly different category of waste in transport.

So, I don't know that, what I'm asking for is where in all of this model is this cost benefit analysis required or asked of somebody so that we can do a comparison?

MR. BONNER: Name and affiliation.

MR. DORUFF: My name is Mark Doruff. I'm here on behalf of the Council on Radionuclides and Radio-pharmaceuticals. I don't know that I can answer Mr. Kraft's question directly but I can provide a perspective from a shipper of radioactive materials used for diagnostic and therapeutic medical applications. Back about, as Mr. Ferate said, about a year or so ago, we were confronted with a situation where we wanted to ship domestically or internationally by air. As of July 1st, 2001, we would have had two different rulemaking frameworks

with which to be compliant.

Our materials that we manufacture and distribute are primarily short-lived radioactive products used in diagnosis of disease or in the treatment of various different diseases, many of which have half-lives on the order of, between let's say six hours and maybe 72 hours, which means in order for our products to be delivered effectively to patients, we have to ship these by air. And in some cases, you may manufacture something at 6:00 o'clock in the morning and it's out the door by noon and in the patient by very early the next morning.

We are very heavily dependent upon overnight air transport for the delivery of these medicines. And had the DOT not provided a proposed rule HM 250-D in, I believe it was May or June of 2001, effective on July 1st, if you wanted to ship by air in the US by air carriers who are abiding by ICAO IATA, we would have not had the ability to do so in compliance with both sets of the regulations. So, we, therefore, would have been prohibited from shipping legally radio pharmaceuticals by air.

Being able to ship by air accounts for a better part, I would say, not to be quoted on this, I'd say it would be on the order of about 80 percent

of the materials we ship. So, that's just to give you an idea of what the impact would be on the pharmaceutical industry.

MR. BONNER: Any comment back?

MS. D'ARRIGO: Diane D'Arrigo. I just want to follow up on what Mark, I believe, just said. Did it requiring adopting the whole rule in order for you to be able to do what you needed to do? I mean, specifically, I mean, it's my understanding from previous conversation with Fred Ferate that actually the exempt quantities and concentrations tables are not currently adopted for international. They're waiting on the decision on this domestic rule before finalizing that. So, it wasn't necessary to adopt the entire rule in order for your needs to be met.

MR. DORUFF: That's correct. We had to adopt essentially the most conservative of the conditions that apply to either TS-R-1 or to Title 49 CFR. But there are other aspects of compliance that had less to do with quantities and limits and had more to do with communication aspect such as proper shipping names. We had to use the ones that were recognized by both sets of regulations.

MS. D'ARRIGO: So, I think what I'd like to make clear, our organization and people that we are

affiliated with and general public, opposition to portions of this rule have been expressed. And on one hand, DOT denies that there is a reduction in protection of public health and safety for some of the things that we're challenging including the exemption quantities and concentrations. But on the other hand, we're continuing to push to say don't adopt those exemptions because they're not necessary or at least the ones that weaken or increase the allowable concentrations and quantities and those that weaken existing cask conditions.

I mean, we can debate over whether or not the immersion test or the crush or the other changes that are proposed here are weakening or strengthening. But what we're pushing for is something that is keeping it at least as protective as it currently is. And if we're going to bother to make changes, we should be dramatically increasing the amount of protection, at least for the irradiated fuel, if we're talking about moving tens of thousands of shipments in the next several years.

And I also want to know what countries have adopted this.

MR. BONNER: Response?

MR. FERATE: I don't know what countries

have adopted TS-R-1, but essentially, whoever the 15 countries are that make up the European Union are part of that group. I'd also like, pardon?

MS. D'ARRIGO: The European Union has adopted it?

MR. BONNER: The question is has the EU adopted it?

MR. FERATE: I believe that it has through its model organizations, yes.

MS. D'ARRIGO: But you don't know for --

MR. FERATE: Highway and rail.

MS. D'ARRIGO: (Inaudible.)

MR. FERATE: Well, airplanes fly in Europe, too, and those air companies are also members of IATA and the IATA regulations are a rewriting of the ICAO technical instructions. So, essentially, anybody that ships radioactive material by air is following TS-R-1. It possibly is also following some greater restrictions such as the restrictions that DOT has placed on domestic air shipments.

I'd also like to point out, to change the subject a little bit, that the discussions about increase or decrease of safety related to the use of new exemption values has just about nothing to do with high level radioactive waste shipments because we're

talking about where do you start to regulate, at what activities do you start to regulate, do we try to go all the way down to zero and regulate everything in this room or do we try to select some numerical values so that we concentrate our resources on those things that seem to pose more dangers to human health.

Radioactive waste, spent nuclear fuel has activities that is many, many orders of magnitude above the exemption values and the A_1 and A_2 values. And so, changes in these are not going to affect in any way the increase or decrease in the safety of shipping of high activity shipments.

MS. D'ARRIGO: I was just mentioning two separate things that we have concerns about that probably have nothing to do with what the radio-pharmaceutical people cared about and needed. And when Mr. Kraft was asking about the overall need to adopt this change for harmonization, what's the economic value or less or whatever of that, I was listening to separate areas, the exemption levels that would allow radioactive materials to be moving unlabeled and unregulated as if not radioactive, and also referring to other changes that will affect the type B containers that hold the irradiated fuel.

So, it's two separate parts, or possibly

more parts of the rule that I was referring to. I wasn't trying to say that they were the same. But I was trying to say that because they're distinct and different, we don't need to adopt all that in order to make radio-pharmaceutical people happy.

MR. KRAFT: And actually, this dialogue is clarifying somewhat where my question was heading. We had a situation here in Illinois where years ago the Low Level Radioactive Waste Compact Law was urging states to form compacts which as it turns out was largely an issue for the nuclear power industry. Yet it was the medical and the smaller producers of low-level rad waste that were really driving the process because of their unique needs.

You had a very small tail ragging the large dog in this case and in the industry that really needed to be addressed most urgently was not. It was coming from other uses as you just pointed out a moment ago. I wanted to make sure that this process wasn't falling in the same trap where the economic value was skewed because we are talking about one particular segment or part of the industry, yet the real hazard lays somewhere else. That's what I was getting at.

So, that's why we need some kind of

mechanism to do those analyses of cost and benefit. So, I'll stop there.

MR. BONNER: Let me invite others to make comment at this point on international harmonization or agreement state issues. Others? Please, name and affiliation, if you will?

MS. BAIMAN: Sidney Baiman with Nuclear Energy Information Service. What bothers me is it's a known fact that the Department of Energy and some commercial nuclear facilities are notoriously negligent in keeping radiation exposure and radiation release records. I mean, how do you know what's going on half the time? Who is keeping the records? How do you know when the casks are leaking?

We have so many examples like Paducha, Kentucky, the workers were there working there for 25 years and didn't even know they were working with plutonium. I mean, and plutonium is all through the soil and all through the whole place. And even congressmen don't even know what plutonium is. So, I was just wondering, how are you going to keep record of all this stuff?

MR. MILLER: For those licensees that are regulated by the Nuclear Regulatory Commission, the Nuclear Regulatory Commission requires them to keep

records. We the NRC can't speak for those that are not regulated either by us or the agreement states with regard to record requirements. But to reiterate, for our licensees, we do require records to be kept so they know what's there for the full term of the license and for the full disposition of any radioactive materials at the time that they want to terminate their license.

MS. BAIMAN: There was a plant called Ship --shipping port where they had zero release of records becaus they didn't measure the right stack, okay. The records were coming out another pipe. The radiation was coming out another pipe. This is all verified by Dr. Sternglass because the cancers and leukemia increased around this plant and these people who were keeping records said there was zero release of radiation. So, I mean, I don't know who you're supposed to trust around here.

MR. BONNER: Okay. Yes?

MS. REESE: I'd like to know how the needs of commerce are balanced against the public health and safety. And another question is has your planning included the potentials of terrorists' use of your shipments and will the public be notified when accidents occur? And they will because the nature of

-- is the unexpected happens with all your planning. And also, will workers be protected and notified what they're handling and protected from as it says in Number C in the type C packages and other containment of plutonium that there will be increased hazards?

MR. BONNER: Let me get all your questions. One was regarding the cost benefit analysis in health and safety.

MS. REESE: Yes.

MR. BONNER: Second was the issue around terrorism?

MS. REESE: Right.

MR. BONNER: And then, the third, fourth was worker safety but what was the third?

MS. REESE: Right, and public, will the public be informed when there's leaks and will be protected and warned? And is there enough money to pay for all the lawsuits that are going to occur when there's a massive accident?

MR. BONNER: Okay.

MS. REESE: That's the fifth.

MR. BONNER: The first is cost benefit, health and safety and commerce.

MS. HOLAHAN: Okay. Well, in terms of the cost benefit as I think that's one of the reasons that

we're here looking for your input is in terms of what is the effect of the regulation versus the cost benefit, and so that is one of the reasons that we're here. But I would say that, do you want to follow up on the security?

MR. MILLER: Could you reiterate your security concern again so maybe I can --

MS. REESE: About terrorism, you mean?

MR. MILLER: Yes, please.

MS. REESE: Well, you know, you were talking about very unregulated possible situation where people would be loading and unloading, there might be terrorists doing that. And all you need is one person who, you know, there's possibilities, many possibilities of that.

MR. MILLER: Right.

MS. REESE: And of course, in terms of your transporting across to Nevada, there's tremendous possibilities.

MR. MILLER: Okay. Are you talking about -- radioactive material or spent fuel?

MS. REESE: I'm talking about possible workers, people who are employed in any of these transportation industries.

MR. MILLER: Okay. There's various

categories of radioactive material that are transported all the way from spent fuel down to very low levels of radioactive materials that are used for a variety of industrial uses. With regard to spent fuel shipments, spent fuel shipments in the United States are all safeguarded, every shipment. Okay. There are security provisions that are put on every safeguards or has safeguards provisions. And these include such things as constant communication mechanisms that includes the use of armed personnel that accompany the shipments.

It includes not advertising when exactly shipments will be made. It includes the use of very robust shipping casks to ship them in. And lots of the specific details of that, I can't go into in this forum because it is safeguarded information for public health and safety to protect the terrorists from getting to that. The NRC is also undergoing a complete evaluation of all our security requirements as a result of the September 11th activities. And those areas where we conclude that we would need to enhance our regulations to further safeguard shipments, we will do so.

During this period since September 11th, we have, we the NRC have done a variety of things.

The first step that we took was to issue what we call security advisories to various shipping organizations, people that are doing radioactive shipments. And those security advisories gave them specific things that we would like them to do to safeguard the shipment of those materials.

Subsequent to that, we have actually, in the process of, we'd issued some orders or in the process of issuing more orders and we started with areas that we thought were the highest with regard to risk significance like nuclear power plants and radioactive materials. And orders have been issued, security orders have been issued to those facilities and to those shippers with regard to protection of shipments themselves. And we're continuing to go through and issue orders. And as I said, we're doing a complete analysis of all our regulations and all of our security requirements to determine if we need to do even more.

So, I guess in summary, what I'm saying is that we do feel that we try to take appropriate action with regard to protecting shipments where we feel it's necessary to do that depending upon the overall hazard that's being shipped for protection of public health and safety. Can I assure you that a terrorist would

never be able to successfully attack any of these? No. Nor could anyone else no matter what safeguards measures we would put on.

What we were trying to do is to make a balance between risk, safety and the probability that a terrorist would be able to do such a thing and use other mechanisms independent of what the NRC does, other government mechanisms to try to use intelligence information so that we can stifle any attempts the terrorists might use to try to get in and get at these kinds of shipments.

MS. REESE: It just occurred to me there could be a double whammy in terms of if you label the material for protection, people knowing about it. But then, of course, the wrong people might know about it, too.

MR. MILLER: Yes, I mean, that's, you know, that's a valid concern in some people's parts. You have to balance, you have to count, what we have to do is balance the need for public health and safety. Terrorism is only one small aspect of public health and safety. I mean, there can be industrial accidents that cause public health and safety concerns that have nothing to do with terrorism. And what we, so the balancing of the placarding versus not

placarding is something that, you know, we tried to look at.

And in the balance, part of the reason for placarding is so that God forbid if there ever was an accident of any kind, of not only radioactive material but any kind of hazardous material, that the emergency personnel who are coming on the scene to have to deal with that kind of an accident would know what it is that they're dealing with up front and not be trying to shooting in blind with regard to trying to alleviate the consequences of an accident or to reduce the consequences of an accident.

So, we have to strike a balance from a public health and safety perspective of all these kinds of things. And we've determined that at this point in time, we think it's important that they be placarded. And it's also, you know, not to sound philosophical, but it's also somewhat of a, consequences isn't really the right use of the word, but we live in a free and open society in the United States and with that, certain things happen. We're not going to do things in secret. So, we try to make an appropriate health and safety balance and terrorism is only one small piece of that.

MS. REESE: I know commerce is so

important in this country and it seems to overshadow the concerns for public health and safety a lot of the time. And I'm hoping it doesn't happen in this particular case in the nuclear, it's unfortunate that you have to transport nuclear anything because there should be a hundred percent guarantee that there's no, there's no room for accidents. It should be zero.

MR. MILLER: Well, that's impractical but we're not here to debate --

MS. REESE: Maybe if it's impractical, then it shouldn't be done.

MR. MILLER: We're not here to debate that issue. What we're to do is if you have a concern and a comment with regard to the rule, in that regard we'd like to receive that so we can evaluate that on its merits.

MS. REESE: Well, what about this C thing, that it says that there will be, by changing it, this is on 12, maybe we're not at that point but about the packages, that they're going, it's incident 3 doses are expected to be slightly reduced. That one and then the double containment, it could result in a slight increase in the probability and consequences of accidental releases. So, why do it? That's if it's liquid form.

MR. MILLER: Okay. What you're moving into now is some of the specific issues that we're going to get to next on the agenda.

MS. REESE: All right. Right.

MR. MILLER: And we'll have an opportunity to discuss those in more detail as we go on. And if your issue isn't addressed by what we talk about, why don't we revisit it at that point in time and we'll try to address it.

MS. REESE: Okay. But what about the public being notified if there are accidents which has not happened in the past? And also workers being protected and notified.

MR. MILLER: Workers do receive adequate protection. I mean, some of the situations that were cited, over the many years, we've learned a lot of lessons with regard to protection of workers. There aren't workers today that I'm aware of that are working in situations with radioactive material that are not aware of what they're dealing with. I grant you that in the earlier days of some of the things that were cited earlier in this meeting that that was the case.

MS. REESE: Okay.

MR. BONNER: Could I have your name and

affiliation?

MS. REESE: I have no affiliation. My name is Joy Reese.

MR. BONNER: Thank you. Okay. Part of my job is to try to keep us on time and I want to get to some of the specific issues. Do you have general comments on the international agreement or agreement state compatibility? Okay, please.

MS. NAGEL: First of all, my name is Margaret Nagel and I'm with the a variety of Chicago organizations including Chicago Media Watch and Chicago Peace Response which is a coalition of peace organizations.

I'd like to know, is there a specific docket number when we communicate with the government about this issue? Usually, when the public is invited to comment, they have to target a particular docket number.

MR. TANIOUS: If I remember correctly, I think we have in the packet, my name is Naiem Tanious. I'm the project manager on this rule. We have on our packet a website address. Inside the FRA, there is a work site address where you can make a comment there.

MS. NAGEL: I saw the contact information but I didn't see any specific docket number when we

make our comment.

MR. TANIOUS: As soon as you click on that NRC rule llnl.ruleforum website, that connects you to that site.

MS. NAGEL: All right.

MR. TANIOUS: And there you would see a page where you can make a comment.

MS. NAGEL: All right, okay. My second very brief comment is simply that we seem to be discussing facilitating an industry which, with the exception of the medical pharmaceutical sector, should not be facilitated. It shouldn't even be an industry. There should be no traffic in this material. I don't know if you've ever seen pictures of the Iraqi children who are dying of leukemia or who have been born hideously malformed because of the byproduct of this industry depleted uranium that is used.

The last thing I will simply say is that you know and we all know that here is an industry that is producing an intractable waste product that nobody really knows what to do with. And there are discussions of, well, letting it seep out into the public sector and the -- zippers, frying pans, because of course, it is safe, or using it in the form of, using depleted uranium in the form of warheads or what

have you.

So, we shouldn't be easing the traffic in this hideous stuff. We should be putting up more and more barriers. Thank you.

MR. BONNER: Can I get a couple of final comments in this section and then let's get to the specific issues? Okay, please. Name and affiliation?

MR. TUAZON: Yes. My name is Manny Tuazon. I am the RSO for Consumers Energy, Jackson, Michigan. I took a long ride this morning coming here with two hopes. One, to determine the official proposal of the NRC on the changes in packaging and transporting of radioactive materials that would affect our industrial radiography. And second, if that is known, I hope that I will be able to participate this afternoon in this discussion because tonight I'm really heading back to Michigan.

MR. TANIOUS: We have your request. If you look in your package, you will see the FRN that has all the changes we are proposing to make on all the 19 issues. And of course, the DOT has theirs, too. And as far as participating, Peter, I think will get into these specific issues in a moment.

MR. BONNER: Okay. Please, name and affiliation?

MS. MUSIKER: Debbie Musiker with the Lake Michigan Federation. I just had a general question for now. And that is, how has the possible approval of the Yucca Mountain repository been factored into your rulemaking?

MR. MILLER: The rulemaking that's proposed is not targeted specifically for Yucca Mountain, but it's targeted for the safe shipment of all radioactive materials. And materials that would be shipped to Yucca Mountain would have to meet these standards that are in the rule where they apply to the kinds of shipments that are shipped to Yucca Mountain.

MS. MUSIKER: Well, I asked the question because obviously the approval of the Yucca Mountain site will dramatically increase the number of shipments across the United States. So, it seems that it might have an impact on the way you make your decisions on the packaging and transport.

MR. MILLER: The decisions that we make are aimed at, from the NRC's perspective, okay, we are primarily concerned with the packaging of the materials that are shipped and the safeguarding of those packages where they need to be safeguarded. And the packaging requirements that we have in our regulations are aimed at assuring that each package is

safe to be shipped, okay, in that package. The number of shipments doesn't change the requirement that each package itself has to meet the regulations and be safe within itself.

And the number, you're right, if Yucca Mountain were to be approved by the Congress and were to get a license from the NRC, there would be a large increase over many years of the total number of radioactive shipments of spent fuel to the mountain. But they would have to be, each of those would have to be shipped in an NRC approved container that meets all of our regulations. So, we don't see from a packaging standpoint that the risk is improved.

Now, a separate issue with regard to whether or not there's an increase risk because of the number of shipments, is that what the nature of comment was really into?

MS. MUSIKER: That's one.

MR. MILLER: Okay. The regulation itself is not based on the total number of shipments.

MR. TANIOUS: Could I make one comment?

MR. MILLER: Sure.

MR. TANIOUS: Because we work on these regulations, for someone on the outside, you might think there is some kind of a connection between, say,

the impending discussions on Yucca Mountain and this rule, there is no connection. There is a schedule to proceed with this rule for two, three years now and they just happened to coincide. The other factor is there's many issues here. Yucca Mountain is, if there's any shipments of high level waste or spent fuel would be covered only by maybe one or two issues under this rule, regardless of how many shipments would be shipped. Thank you.

MR. BONNER: Quick comment? Please.

MR. GAYNOR: Paul Gaynor from the Environmental Law and Policy Center of the Midwest. Did you just say the regulations are not based on the number of shipments?

MR. MILLER: The regulations were not promulgated based upon Yucca Mountain or total number of shipments that would go to Yucca Mountain. But in the promulgation of our regulations and what we look at when we do risk analysis and cost benefit analysis, we factor in the history of the transportation to determine what the overall risk of transportation is. That is factored into the thinking of the regulations.

MR. GAYNOR: The history and only the history, not the future?

MR. MILLER: Well, the history provides us

a good basis for the future. In other words, if the history had shown they do a radical problem with radioactive transportation, then we certainly would have to look at that to see if we need to change the future of the regulations.

MR. GAYNOR: Let me ask you this, is it true that if, let's put aside Yucca Mountain. Let's assume that sometime in the future, there is some decision that is made that will increase the amount of shipments. Has that been taken into consideration or has there only been an analysis of past number of shipments to predict the future in making these rules?

MR. MILLER: Okay. The regulations themselves are not taking into account that there will be a certain number of shipments in the future. As I said, we use our historical information on the risk of shipments. Over the course of many years, there have been many shipments of radioactive material and spent fuel. And with the exception of a few accidents none of which resulted in the release of any radioactive material, many shipments over the years have been made safely. And based upon that, we feel that the shipment in the future can be made safely if they meet the provisions of our regulations for packaging.

MR. GAYNOR: When somebody drives their

car once a week versus ten times a week, is it more likely that they'll get in an accident if they drive their car one day a week or ten times a week?

MR. MILLER: Possibly if they drive their car once a week, I could either side, okay, because maybe if they drive their car once a week, they're not adept at driving so they're not as good a driver. And now, the balance of that, if they drive their car multiple times a week, they're on the highways and exposing themselves to the possibility of more accidents. So, you have to balance both situations when you make a risk argument, and I think we're getting off the main subject on what we're trying to accomplish in this meeting.

MR. GAYNOR: How about the distance of travel of those car trips? Would that impact risk analysis?

MR. BONNER: Rather than pose a hypothetical, I mean, one of the things that I would, in addition to asking questions of the NRC, I would encourage the participants to make statements, too, in terms of agreement, this agreement observation.

MR. MILLER: What we're looking for is statements to be made with regard to the rule so we get your views in factoring in those statements into

the, remember this is a draft rule. It's not a final rule, it's a proposed rule. And we're trying to -- public concerns and comments before we finalize the rule.

MR. GAYNOR: And in order to make our comments, one of the things that we need is to know exactly what considerations went into the rulemaking process.

MR. MILLER: Okay.

MR. GAYNOR: And it seems to us, or I wouldn't speak, it seems to me that it is significant whether the amount of future shipments was a consideration in the rulemaking, that it just seems inconceivable that that is not something that could be considered in this analysis.

MS. OSGOOD: I think you have a very good point. And although there is --

MR. BONNER: Name?

MS. OSGOOD: Oh, sorry. Nancy Osgood and I work for the Spent Fuel Project Office. And I think you have an excellent point and we think of it kind of in a little of the reverse. In other words, we have performance standards for transportation packages. NRC has periodically, starting from the early 70's, looked at the risk of transporting radioactive

materials knowing that those regulations exist so that they have a basis for judging the performance of packages and judging the risks in transport.

I think starting in 1977, we've done both surveys of actual numbers of shipments as well as projections of future shipments including numbers of shipments and types of materials to be shipped. So, for example, in the first environmental impact statement that was issued in 1977, they looked at historical data from 1975 as well as projected data that was taken for 1985. Throughout the course of our review of risks, we look at projected information on shipments.

The Yucca Mountain environment impact statement must look at transportation risks. It's their job to try to define numbers of shipments, routes and that sort of thing, potentially exposed populations. So, although we're not basing our regulations on those risks, calculating the risks and determining risks rely on how the packages perform in actual transportation. So, the two are connected but this rulemaking, although we look at risks, it's really the, you know, and we look at risks on a continuous basis. We're changing modes of transportation and changes in shipping campaigns.

MR. GAYNOR: Well, then, is there, I appreciate the detail you've given. Is there a coordination between the two?

MS. OSGOOD: Yes, yes. Very much so. In other words, those risks will look at actual package standards, the packaging standards that exist at the time and make predictions about the performance of a package, for example, in normal conditions or incident-free transportation as well as under accident conditions. Thank you.

MR. GAYNOR: Thank you.

MR. BONNER: Okay. Let's move to the issues piece. And this is not to close out this conversation. We can come back to this issue again, but let's at least start to look at some of the specific issues raised in the proposed rule. And then, if we need to circle back to this conversation, we can. Okay.

What we've done is teed up a couple of the issues in discussion of the IAEA related issues. The first on radionuclide exemption values, and issue 8 on grandfathering previously approved packages. And Dave Pstrak is going to lead us through that conversation. Dave?

MR. PSTRAK: This first issue is issue

number 2, the radionuclide exemption values. IAEA's previous regulations used a single activity concentration of 70 Bequerels per gram for all radionuclides in exempting materials from the transportation regulations. Although a convenient number, the 70 Bequerels per gram was an empirically-based number.

In its current regulations, IAEA adopted a dose-based approach for material exemptions. In this approach, the activity concentration exemption value for each radionuclide is set so that a dose of one millirem per year is not likely for a worker or a member of the public. Similarly, an exempt activity value was also set for each radionuclide.

One other aspect of this proposed change is that for national material and ores that contain naturally occurring radionuclides that are not intended to be processed for use of those radionuclides are exempt from the regulations provided that the activity concentration does not exceed ten times the value specified within IAEA regulations. Without this exemption, significant quantities of minimally radioactive material might be regulated only when transported. However, this provision results in different treatment for regulated non-ore materials.

As a means of maintaining compatibility with IAEA, NRC proposes to adopt these provisions. Further, DOT regulates the definition of radioactive material in transport and DOT also intends to propose adoption of these provisions. So, basically, this would change from a single value of 70 Bequerels per gram to a listing as we had already addressed in Appendix A of our Part 71 proposed rule, individual exemption values or exempt quantity values for each individual radionuclide. Thank you.

MR. BONNER: Questions, comments on this issue?

MS. D'ARRIGO: Who is the IAEA that made up these numbers? Why should we take these numbers?

MR. PSTRAK: I'll defer this question to Fred Ferate. I'll fill in just a little bit from what I understand, and that is, that IAEA along with other international bodies had looked at --

MS. D'ARRIGO: What input did the American public have on this? Or if there were representation from the United States in the development of these numbers, where were the people representing the United States when we have actually rejected the exemption concept? Congress revoked the policy, the BRC policy, in 1992, and this is coming in through the side door.

We're going to continue to say no to it and I want to know who it is that we should be accepting, who is this IAEA that we should accept their numbers to allow something that we in the United States have said no to numerous times.

MR. PSTRAK: Once again, as you heard in the introduction, the IAEA is a United Nations body and we have the competent authority here of the Department of Transportation that is the United States representative to that body.

MS. D'ARRIGO: Technically advised by the NRC?

MR. PSTRAK: Correct statement. And so, therefore, your input to that is really through DOT and though the process that --

MS. D'ARRIGO: Is it too late then for us to say no?

MR. PSTRAK: If I could just finish here?

MS. D'ARRIGO: I'm sorry.

MR. PSTRAK: And through the process of what we're going through today which is a public meeting such as this. So, again, really DOT may have some additional response to this. Fred?

MR. FERATE: I agree with you, Diane, that I think that it would be nice if we could find a way

to open up a little bit more, to have a more direct channel to the public for our participation at the early stages in ideas such as this. However, I would point out that the reason we're having the meeting here today is precisely to give you and other people who have misgivings about this to tell us about their misgivings. And yes, we do have the possibility of rejecting. We have not yet issued final rules.

MS. D'ARRIGO: Is there any possibility that the NRC would simply reject this exemption section of this rulemaking?

MR. FERATE: I think there's a possibility. I think the probability is small but it depends on how much opposition there is. So, please feel free to --

MS. D'ARRIGO: Isn't it true that these numbers --

MR. FERATE: To give us arguments, give us as many numbers as you can and other people that have misgivings about that, we want to hear from you. Not only NRC but DOT.

MR. PSTRAK: Just to elaborate for just a moment on what Fred just said, within our proposed rule beginning on page 21393, we have added here a specific section that we are requesting input from

basically all players, whether it's industry, whether it's public citizen's groups, et cetera, to provide numbers, impact, improvements, whatever the case might be for several issues. And if you look on the next page, page 394, the issue number 2 exemption values is in here as a trigger for, we want to get impact as to what, we want to get information as to what the impact would be.

So, again, here is an opportunity for input to be provided, meaning the proposed rule, it's not set in stone yet. And so, here is the opportunity again to voice your thoughts and we will certainly consider them as a comment.

MS. D'ARRIGO: Well, my comment is to not adopt these exemption values. If you are going to adopt these new supposedly risk-based, dose-based exempt, unenforceable I would say, new risk scheme, new exemption, which happens to be the exact same numbers that were chosen to allow recycling of radioactive waste and materials into everyday consumer items. And these are the numbers that DOT and NRC are now adopting into regulations in the United States, numbers that allow radioactive materials and waste to be treated as if they're not radioactive.

And the numbers that these are based on

are ones that would allow for that stuff to be recycled into anything. Hip replacement joints, braces, toothbrushes. And we're talking about anything, not just metals, concrete, plastic, asphalt, soil. We no longer have, we're changing the DOT regs simply to allow other exempted materials and waste to go unregulated on the roads and rails and barges. And we have clearly spoken over and over again in opposing this and if we need to do it through this technical venue, you will be hearing from us.

You've heard some from us before. The specific suggestion was made when the DOT adopted internationally that if you need to adopt risk-based standards, then just adopt the ones that would reduce the allowable exemptions from 70 Bequerels per gram to another because more than half, positively more than two-thirds of the isotopes increase. What you're doing and saying you're being more protective is increasing the allowable contamination in materials that are now going to be exempt.

And what I'm saying is that we don't necessarily like the 70 Bequerel-per-gram limit but that's the one that we're living with now. If you're going to make a change, then only change to be more protective for the isotopes whose allowable

concentrations, exempt concentrations go down. And I saw in the DOT response to comments that that was too complex, that the new rule, the new way of doing this, having several hundred specific isotope numbers, that's more complex. But it's too complex to have more than half of them stay at 70 and have the ones that are more protective go down.

So, that's the beginning of my comment on this item. It's just the beginning and I want to be clear that it's right within the documentation that's been provided that these are the same numbers that are being used for recycling radioactive material, for dispersing radioactive material into everyday consumer items. And I'm opposed to it.

MR. BONNER: Thank you. Let me get your name and affiliation one more time.

MS. D'ARRIGO: Diane D'Arrigo. I'm with the Nuclear Information and Resource Service.

MR. BONNER: And the reason I keep asking that is because we are creating a transcript for the public record. So, that's why I keep asking for name and affiliation. Please.

MR. KRAFT: Dave Kraft, NEIS, Evanston, Illinois. A question was raised in my mind in the last exchange concerning the fact, if I heard

correctly, DOT is our representative to IAEA on these standards, and also NRC acts in an advisory capacity to DOT. So, the question that got raised in my mind is over the last decade in three separate types of hearings on this issue of, well, what has become called below regulatory concern issues, the American public including governors of Illinois, the Illinois Department of Nuclear Safety and many others around the country, have soundly rejected the concept.

So, my question is, was DOT informed by its advisors at NRC that in three times in the last decade, the American public has rejected these standards and has DOT brought that information to the IAEA that three times in the last decade, the American public has rejected that standard? And if not, third piece, I ask you to do it as a member of the public now, next time.

MR. BONNER: Okay. Any comment? Okay. Let's turn to the next issue. Okay. Let me open it up. Any others who would like to comment on this issue?

MS. BAIMAN: -- Dave Kraft. I mean, are you aware that, oh, I'm Sidney Baiman with Nuclear Energy Information Service here, NEIS. Are you aware that Chicago Mayor Richard M. Daley with 17 other

mayors signed a February 23rd, 2002 letter to President Bush expressing grave concerns regarding the transportation of nuclear waste? Are you aware of the fact that there was an accident in the Baltimore tunnel in which a truck/train caught on fire and it was five days, the heat was so high, it was five days before they could even go in to put the fire out?

Now, if that had been a radioactive train or truck, I mean, aren't you aware that these accidents do occur no matter how many regulations you have? And which are, seem to be always mismanaged, that we will have very, very serious accidents if we put more radioactive nuclides on the roads?

MR. MILLER: You cited the Baltimore tunnel fire as an example and asked if we were aware of things like that. Yes, we are aware of that. Right now, the NRC is taking the information that is being gained from the NTSB and trying to evaluate all the parameters of the Baltimore tunnel fire and evaluate how radioactive shipments of spent nuclear fuel would stand up to the conditions that were experienced in that fire.

We exposed our requirements, our requirements dictate that several different kinds of tests are done on these casks, and these tests have to

be done at certain conditions. And to reiterate, we're evaluating the conditions from the fire. We're working NTSB. We're working with the NIST. And we're working with other government agencies to try to get as much information as we can as they gain it in their studies of the fire to determine if we need to make any changes to our requirements as a result of the conditions experienced in that fire and how shipments of radioactive material, specially spent fuel, would stand up to the conditions in the Baltimore tunnel fire.

We look at several accidents. We follow severe accidents that happen around the United States and a variety of things, and look at the conditions that happened in those accidents to see how fuel shipments would stand up to it. And that goes into our thinking with regard to the requirements that we have on the packages.

You had some more parts to your question that maybe I didn't address?

MS. BAIMAN: 17 mayors, you have this letter.

MR. MILLER: Oh, you asked if we were aware that 17 mayors had signed a letter to President Bush.

MS. BAIMAN: We're all very worried.

MR. MILLER: Yes.

MS. BAIMAN: And we feel like we're being bogged down with bureaucratic numbers here, it's really very, very confusing. I mean, I don't even know half the time what you're talking about.

MR. MILLER: And I understand that because the field that we're dealing with is a very highly technical field. Right. Well, that's our goal. Our goal is to use science and technology to try to keep the American public safe. That's what we are charted to do as the Nuclear Regulatory Commission.

MS. BAIMAN: My Congressman Danny Davis voted the wrong way and he was told by you people that there had been no accidents. Now, wasn't this tunnel an accident? There have been a lot of terrible accidents. So, don't go around telling your congressmen that there have been no accidents in the past, therefore, it's going to be safe to ship these --

MR. MILLER: Okay. There was no radioactive --

MS. BAIMAN: What was the accident in the tunnel, for goodness sakes?

MR. MILLER: Thank you for your comment,

ma'am.

MS. BAIMAN: You're welcome.

MR. BONNER: Okay. Any further comments on this issue?

MS. D'ARRIGO: Yes.

MR. BONNER: Diane, can I ask you to keep your comments concise?

MS. D'ARRIGO: You wanted numbers and you wanted specifics.

MR. BONNER: Please.

MR. MILLER: Before you start, Diane, I think what she's trying to get to is we've asked for comments as part of this proposed rule and as part of the comments, it helps us if we have the basis for the comments. And I think that's what you're trying to get to? Did I make myself clear, Diane? I mean, if you're trying to make a comment, we don't want any nuclear shipments, okay, or --

MS. D'ARRIGO: And we don't want radioactive materials to be treated as if not radioactive for the terms of DOT and NRC transport regs.

MR. MILLER: Right. And helping us to evaluate the comments from all commentors that we're going to get, it also helps us a lot when we consider

what if anything has changed from the proposed rule to the final rule, to evaluate the basis for the comments, so that if we see a basis that we haven't considered, we can consider that.

MS. D'ARRIGO: All right. I'm saying, we commented on DOT's before NRC has made a decision on this yet, DOT has, DOT said in its response to the comment that I just gave about not raising the allowable Bequerels per gram, -- Curies per whatever, that that would be too technical, that you can't just keep two-thirds of them at 70 and if they happen to in this new risk informed thing go down to ten or one Bequerel per gram, I'm saying I'm okay with that if you're going to reduce the amount of contamination. But don't raise it higher than we've already been.

That was the backup to saying don't change it. I'm saying if you're going to change it, then only change it in a way that makes it more protective. If you've been able to live with the 70 Bequerel-per-gram exemption number which once I get into what that means, and I'm not going to do that right now but if I explore that further which I am in the process of doing, I may not like that either. Maybe you ought to change that and make the whole thing be less. But if you want to do it on an isotope by isotope basis and

reduce the, I mean, and make it an isotopic concentration, then make it only, change it only if you're making it more protective.

Okay. That's what I was saying. But that's not what I got up here for. Oh, go ahead.

MR. FERATE: I think, if I may paraphrase what I think Diane is talking about right now are the activity concentration exemption values some of which went up from 70 Bequerels per gram and some of which went down. And I think, correct me if I'm wrong, Diane, that you are saying that for those that went down, you'd like to adopt the new values, but for those that went up, you want to keep those values at 70 Bequerels per gram?

MS. D'ARRIGO: My first comment and my comment that I made to DOT International and that I think you heard from many people is don't increase. I mean, just simply don't increase above 70 for any isotope. And yes, I mean, what you're saying is correct, if you're going to make changes to the exemption levels, exemption concentrations, then only do it in a way that reduces the Bequerels per gram that are exempt for the concentration tables.

For the quantity tables which I don't know what the precedent is, it looks to me like there is no

exempt quantity already on the books, simply don't adopt that table. I mean, ideally, don't adopt the new chart A_2 or whatever you're calling it. Not the A_1, A_2 values but --

MR. FERATE: The exemption values.

MS. D'ARRIGO: The exemption concentrations and quantities.

MR. BONNER: Table 2.

MS. D'ARRIGO: Table 2, simply don't adopt that. And as what you've said to me on the phone is that this is currently not adopted internationally, is that right, Fred? I mean by the US for DOT international regs at this point, that you're waiting until this rulemaking to make the decision on DOT's international regs on exempt quantities and concentrations.

MR. FERATE: DOT's regulations are actually national, not international. They are for the United States. However, we authorize, as I mentioned earlier, we authorize shippers and receivers to follow the, for example, the ICAO technical instructions. If they're shipping or receiving material by air, so long as they add the additional conditions that they also have to not ship anything that's over 70 Bequerels per gram, for example, and if

a quantity has a certain A_2 value in Title 49 and, say a higher A_2 value in TS-R-1, recall that the A_2 values, the maximum amount that you can put in a type A package, we would say you can only put in a Title 49 amount in a type A package. And if you're above that, you'd better use a type B package.

In other words, you take the more conservative approach. That is our present situation until we resolve whether or not we are in fact going to adopt, in this case, the new A_2 values or A_1, A_2 values.

MS. D'ARRIGO: But how does that relate to the exempt tables?

MR. FERATE: Pardon?

MS. D'ARRIGO: How does that relate to the exempt concentration and quantity tables?

MR. FERATE: Well, that is part of our proposal. We are asking that you look at that, that you give us your arguments, your views on this.

MS. D'ARRIGO: But what's the current status of the DOT's international or the DOT's regulation for international shipments with regard to exempt quantities and concentrations? I thought those tables were not, I thought you told me those tables were not adopted yet?

MR. FERATE: Well, they're not adopted in our domestic regulations. They're not adopted either in Title 49 or in 10 CFR 71.

MS. D'ARRIGO: Okay. Well, what I came up here this time to talk about is a little different, but it's on this issue.

MR. FERATE: All right. I think I better stop and let you go ahead.

MR. BONNER: Can I step in here for just a second? We have at least four other, I think, substantial issues to talk about, in about an hour and ten minutes left.

MS. D'ARRIGO: I'm not letting this one go.

MR. BONNER: Okay. I understand. I think what, to paraphrase what NRC and DOT are looking for, I think they're looking for why do you have the opinion you have.

MS. D'ARRIGO: Because I don't want to be exposed to radiation daily without knowledge. And I heard here earlier that there was a millirem, this is a made-up amount of damage to tissue that is calculated depending on what computer model written by whatever radiation bureaucracy you choose decides, and this is a certain amount of dose. It can change

depending which model you use.

Regardless of that, I'm hearing that these numbers, that these charts that we're being asked to comment on and that I'm saying don't adopt, that these would lead to a one millirem per year dose to people. But within the evaluation of these numbers, within the description of the rulemaking, I'm seeing that choosing just 20 of these elements, that the average dose was more like 23 millirems. I'm trying to square the one millirem claim with the 23 millirem average, and then the average for all 70, the current one is supposedly 50 millirems a year.

I honestly don't really believe that there's going to be any control over the number of millirems which is why I would push for no additional radioactive contamination being exempted. But if you are claiming that it's only a millirem and a certain amount of risk, then what's the deal with all these 23, 42, 50 millirem evaluations of the numbers? And that's what this meeting is about. I'm sorry.

And this is an issue that shouldn't be in this rulemaking in the first place. You tried to sneak it in and if we take up half your meeting on it, get ready because this is not something the American public is going to accept. And we're blowing the

whistle on the DOT and NRC trying to sneak this in.

MR. PSTRAK: I think Fred was going to make a comment.

MR. BONNER: What's that?

MR. PSTRAK: Fred?

MR. FERATE: I think the important thing is to know what your views are. That's what the meeting is for, to try to get comments. I have been open to you in the past, Diane, and will be open in the future to try to go through in more detail what I know about the issue.

Actually, the one millirem per year, for example, that was used with the, how do we say that, that was the criterion that was used to try to determine initially the exemption activity concentrations and the exemption consignment activities. The story is somewhat long and complex. However, it is described in the preamble in the DOT notice.

One of the things that I mention there is that these were first used as criteria to determine exemption values for fixed facilities. And after they had done that and found that they had some several hundreds, I guess, of numbers, they decided, well, let's try to simplify the situation a little bit by

putting these numbers in powers of ten. So, by doing that, it got away from the one millirem, and in some cases, the exemption value that they decided on might have led to five millirem or eight millirem or sometimes a tenth of a millirem per year.

So, the numbers became fuzzy by trying to reduce the number of different exemption values. You'll notice in the table that they're all in powers of ten, you know, ten or a hundred or a thousand and so on. Another thing is that they had decided to look at these 20 particular radionuclides under transport scenarios, and if the numbers that they got were not more than one to two orders of magnitude different than the numbers that were obtained for the fixed facilities, that then they would stay with the numbers for the fixed facilities. And that, again, made the numbers a little bit more, a little wider in range of final doses that one would get.

What they did with those 20 radionuclides, the first thing they did was under the scenarios that they looked at was to see if we transported those at 70 Bequerels per gram, what kind of annual doses would we get? Therefore, those 20 radionuclides, they got an average of 50 millirem per year for the 20 that are most commonly transported. With the new exemption

values in TS-R-1, they looked at those same 20 radionuclides and said, what dose would we get with those exemption values? And the average turned out to be 23 millirem per year.

So, globally, by accepting the new values, the average dose for those 20 most commonly transported radionuclides has been lowered by a little over 50 percent.

MR. BONNER: Okay. There are four other issues that we have identified as well as the 19 that are in the rule. We can continue with this one or we can move through the others and then circle back to this. I guess, I want to open up rather than having this issue dominate the entire conversation, open it up to others to talk about some of the other issues that may be of import to them.

So, what I'd like to do is close this one off for now and come back to it, okay? Let's work through the other issues, get some public comment on the other issues and come back to the exemption values one. I also want to point out that you've got other opportunity to comment in addition to commenting verbally in this meeting through your response forms.

MS. D'ARRIGO: I would just comment then on ending this at this point, that even though I don't

think millirems is, this is evidence that millirems is a very fluid term. It's not a real enforceable, verifiable term, that we're being told not to worry about exempt quantities, exempt concentrations of radioactive materials because it's only going to give us a millirem. But it's going to, the 20 most commonly shipped ones with the new values supposedly are at 23 millirems. What is this? Per year, per month, per day, per hour, per person, per shipment, per practice?

What I'm saying is that probably, I bet there is not anyone in this room that can fully defend this issue. And you do better off just taking it right out of this rulemaking. And if you're going to try to defend it, then you'd better defend the people that made up the numbers that lead to these 23's and 5's and those were the IAEA and the other agency people that dreamt this up in the first place to simply justify letting nuclear materials be unregulated and released into commerce and recycled.

And don't try to deny it. And if you want to talk numbers, I'll talk numbers. But that doesn't seem to be what we want to talk right now.

MR. BONNER: Thank you. Dave, grandfathered packages.

MR. PSTRAK: The next issue is issue number 8, grandfathering previously approved packages. And in this issue, TS-R-1, the latest version of IAEA regulations, it is more restrictive in this area of grandfathering than in previous versions of the IAEA regulations. Improvements in IAEA regulations support that newer post-1973 packages have improved safety features that were lacking in other types of packages. And within our proposed rule, we have specified that there are six areas where some of the packages that were approved to the 1967 standards of Safety Series Number 6 did not have the additional improvements that were in place for the post-1973 Safety Series 6 type packages.

Overall, the overall impact of adopting the TS-R-1 into Part 71 is the discontinued use of Safety Series 6 1967 packagings, the discontinued fabrication of Safety Series 6 1973 packagings but continued use would be allowed for those packages, the discontinuance of the fabrication of Safety Series 6 packages based on the 1985 IAEA regulations. That discontinued fabrication would end as of December 31st, 2006. Continued use would be allowed, however.

Packages that were previously approved for use by the pre-1996 requirements can, on a case by

case basis, be submitted to the NRC for consideration, for approval to the current standard. So, those people that are in the industry of using type B packages that are what is identified in the industry as being an open parenthesis package, that's the identification to indicate that that package was approved under the 1967 standard, the NRC is proposing to eliminate those, not allow them to be used. We would phase that in over a three-year period once this final rule is adopted.

Those packages could, however, if industry holders would want to bring that package in and let it be analyzed by the NRC packaging group that certifies the packages, those packages could be re-certified, but they would have to meet the current requirements found in the 1996 version of TS-R-1. So, we're, again, looking to eliminate a group of packages. DOT in their rule has a very similar proposed rule. You can certainly read that in the information you have from DOT.

MR. BONNER: Comments, questions on the issue of the grandfathering of the packages? Any? It looks like, what's your name again?

MS. REESE: Joy Reese. That proposed three-year transition period, this seems like it's

very loose and it would allow a lot of things happening that shouldn't be happening.

MR. PSTRAK: There are many types of packages that are out being used in the industry. Some are 1967 approved, some are 1973, some are 1985. So, I'm not quite sure what percentage might be directly impacted by this. Again, that's one of the areas we're looking for, direct input from industry and from stakeholders as far as what the overall impact would be by eliminating that particular category of package.

MR. BONNER: In your packet, you have a table that breaks down the issues by the IAEA compatibility changes and the NRC initiated changes. It's in the blue packet. Okay. No, just a single sheet that just summarizes the issues.

I'd like to open up now, because we did not tee up the other IAEA issues. We do have transparencies, and are ready to do that, if you would like us to talk about those and give an opportunity to comment on them. Are there other issues that you see, 1 through 11, that you would like to either comment or see discussed more fully? You do? What would you like?

MS. D'ARRIGO: Discussion of the deep

immersion test, the crush test and --

MR. BONNER: So, number 7, number 10?

MS. D'ARRIGO: Yes.

MR. BONNER: Nancy?

MS. OSGOOD: We have a little explanatory --

MS. D'ARRIGO: Now, these pertain to the type B containers? Is that right?

MS. OSGOOD: Yes. Yes.

MS. D'ARRIGO: So, this would irradiated fuel shipment containers that we were talking about before for shipping like to Yucca and so forth?

MS. OSGOOD: Right. Let me, we have little bullets for each of these issues, so I'll just read the prepared bullet and then you can ask questions and we can discuss it.

Issue number 7 is the deep immersion test. Previous IAEA regulations required an additional immersion testing for packages of irradiated fuel containing greater than 10^6 Curies. TS-R-1 expanded the applicability of the test to any type B package and type C package with contents greater than 10^5 A_2. The expansion and scope of the deep immersion test was due to the fact that radioactive materials such as plutonium and high level waste are increasingly being

transported by sea in large quantities.

And the NRC proposes to adopt this provision, and basically, the bottom line of adoption would be to subject this deep immersion test, the 200-meter immersion test to another additional group of packagings. Currently in the regulations, only spent fuel packages are required to be subjected to this test. The new TS-R-1 expands this test to another group of packages.

Okay. I think if the, are there any comments about that?

MR. BONNER: Comments, questions on the deep immersion test?

MS. OSGOOD: I think the other test was the crush test which is issue number 10. Both Safety Series 6 and the current 10 CFR 71 and 73 require the crush test for packages having a mass not greater than 1,001 pounds and an overall density of 62.4 pounds per cubic feet or the density of water. Basically, this test applies to what we call small, light packages. And radioactive contents greater than 1,000 times an A_2, that's transported not as special form.

Under TS-R-1, the criterion for radioactive contents greater than 1,000 A_2 has been eliminated for packages containing fissile material.

The 1,000 times an A_2 criterion continues to apply to all type B non-fissile and newly created type C package designs. This broadened application was created in recognition that the crush test environment was a potential accident force that should be protected against for both radiological safety concerns, for example, packages containing more than 1,000 times an A_2 in normal form and for criticality safety purposes.

The current test requirements in 10 CFR 71, 73 differ from those in TS-R-1 and Safety Series 6. Specifically, TS-R-1 and Safety Series 6 both require performance of the nine-meter free drop test or the crush test but not both. And our regulations, 10 CFR Part 71 require both the crush test and the nine-meter free drop.

This is very complicated language but the basic bottom line of this as with the immersion is that this crush test for small, light packages would now be required for an additional set of packages. Right now, the crush test is only required for small, light packages that have a very high radioactivity content. Now, that crush test will be required for both those packages as well as fissile material packages regardless of the quantity of radioactivity,

as long as they're carrying fissile material.

So, basically, we were expanding the number of packages that would be required to be able to withstand this test condition. Are there any questions about that?

MR. BONNER: Are there any questions about these issues first? And second, what are your opinions and comment on them? None? Okay. Let's turn to --

MS. OSGOOD: Oh, I think there was one additional one. The fissile packages by air.

MR. BONNER: Was that another one, Diane, that you have?

MS. OSGOOD: The number 11, did you want a little discussion of that issue as well? Basically, that's also an additional test. It's for fissile packages that may be transported by air and the idea was that perhaps the air crush conditions would exceed those that a package might be subjected to in highway or rail accidents, and that the test should show that there would be sub-criticality of the fissile material even in a severe air crash. So, again, that's an additional test that would be imposed consistent with the new TS-R-1 requirements.

MR. BONNER: Again, the opportunity for

comments or questions on the packaging and the tests. No? Okay.

Let's turn back to the discussion of the NRC related issues which are on the bottom half of that page on that table. We started with the discussion of issue 12, special package authorizations, issue 15, change authority, and issue 17, double containment of plutonium. And then, again, I'm going to broaden out the conversation to say if there are other issues on the bottom half of that table that you would like to talk about, we can do that. Nancy?

MS. OSGOOD: Okay. The first one that we wanted to highlight of the NRC issues was issue number 12 which is called special package authorization. This issue, issue number 12 is based on lessons learned from the shipment of the Trojan reactor vessel that took place in 1998. The basic situation with the Trojan reactor vessel was that shipment was necessary for disposal and decommissioning of their facility, but it was too massive to satisfy all the performance requirements of the package standards in 10 CFR Part 71.

Since there was no Part 71 regulatory provision for dealing with packages that were that

massive, the staff used the 10 CFR Part 71 exemption provisions, and that in turn led to an additional application processing including a special review team and reviewed by the Commission itself. Indications from the industry are that such requests will likely continue. In other words, there are many large components from decommissioning plants that must be shipped for final disposal.

The proposed special package authorization would preclude the use of exemptions for what appears would become recurring casework. This provision would also help integrate the review of unusual packages with other Part 71 casework and help standardize the reviews as well. The proposed rule makes clear that the threshold for acceptance for special package authorization is set high in that the provision would typically apply to one time disposal shipments. And then, that special package authorizations would be subject to a case by case review similar to that used for other packages.

Basically, this provision would be consistent with IAEA. IAEA has what they call a special approval process that they can look at special shipment and consider operational controls as well as package performance standards.

MR. BONNER: Do you have comments and questions in the special packaging authorizations? Questions for Nancy? We should move on. Issue 15, change authority.

MS. OSGOOD: This issue concerns the Commission direction to conform 10 CFR Part 71 which, as you know, concerns transportation of radioactive material to recent change to Part 72 regarding the authority for making minor design changes. Part 72 governs spent fuel storage facilities and the licensing by NRC of these facilities. A factor here is that IAEA regulations call for changes to type B transport package designs to be reviewed by the competent authority and not certificate holders.

Designs changed by certificate holders without NRC review might not be accepted internationally. Also, Part 71 and Part 72 cask approval processes differ such that some Part 72 change requirements have no counterpart in Part 71. For example, Part 72 calls for all changes to be updated in the final safety analysis report for the facility. But in 10 CFR Part 71, there is no FSAR requirement for packages.

To respond to these issues, NRC is proposing that two methods be provided for minor

changes to 10 CFR Part 71 designs, in other words, transportation casks that are certified by NRC to 10 CFR Part 71. First, continue the current Part 71 amendment process for minor design changes. Currently, any change to a package design must be reviewed and approved by NRC prior to use by a licensee. These amendments require NRC staff review and amended certificates are accepted internationally. And this method maintains compatibility with the IAEA.

Second, however, NRC is proposing a new Subpart I to 10 CFR Part 71 that would permit certificate holders of dual purpose spent nuclear fuel casks intended for domestic use to make minor design changes without NRC prior approval. Also, Subpart I provides for 7248 type changes in a matter that is consistent with part 71. And the basic outcome of this proposal is that there will be a new package type that recognizes the way the nuclear industry is dealing with storing spent fuel at their facilities for future shipment to a final repository in dual purpose casks.

In other words, the cask can serve as a storage cask at a facility and then be transported for final disposal. And this would allow certificate holders for those cask designs to make some changes to

their designs without NRC approval prior to use.

MR. BONNER: Comments or questions on this one? On change authority? Is everybody waiting to circle back? Is that what we're doing? Okay.

MS. OSGOOD: And I know these issues are complicated and I'm happy to try to clarify anything.

MR. BONNER: Okay. Issue 17, double containment of Plutonium.

MS. OSGOOD: This issue resulted from a petition to NRC to eliminate the current Part 71 requirement that plutonium in amounts exceeding 23 be shipped in a package with separate inner and outer containers. IAEA regulations have no double containment provisions. Staff has reviewed the petition and believes that NRC's type B packaging standards provide adequate containment for all radionuclides including plutonium without the need for double containment. Part 71 already excludes common solid forms of plutonium from double containment provisions including spent fuel, metal and glass --

The staff has proposed granting the petition, noting that the solid form requirement would be retained, in other words, large quantities of plutonium would continue in transport only in solid form and liquids would not be allowed. The proposed

rule treats plutonium on the same transport risk basis as all other radionuclides based on IAEA's Q System which is a dose-based system. The reduction and redundant packaging barriers might reduce shipper doses by simplifying loading operations and reduce shipper costs through a resultant increase in package payload.

MR. BONNER: Any comments and questions on this one? On double containment? Anyone?

Let me go back again to the sheet and ask, the issues on the bottom part of this table, the NRC initiated changes, are there additional issues that you would like us to talk about at this point or on which you have comments or questions? Anyone? Yes, please. Bottom part, yes.

MR. KRAFT: And then where are you going --

MR. BONNER: I'm going to circle back to other issues that were brought up earlier. Okay. Name again.

MR. KRAFT: Dave Kraft, NEIS, Evanston, Illinois. I guess it's more of an observation and opportunity for DOT to convey some information to the internationals as well, but I understand the purpose of today's meeting is to discuss harmonization of

regulations.

Somewhere along the line though, I guess the question comes up for me whether there are real world rationales for either of your standards, the IAEA's or NRC's. For example, all of the different test standards, the cask standards that already exist are fairly arbitrary from the way I look at it, you know. So, you boil a cask for an hour at a certain temperature, what happens if it's a 50-minute fire or an hour and ten-minute fire.

I mean, I understand there's a need for some cutoff, but increasingly, given the discussion earlier about the Baltimore fire, we could add into it the bridge accident on the Arkansas River and many other accidents that have just been in the news recently. The real question is not, for us, whether your standards are met, whether they're international or domestic. What's of real concern is whether these standards reflect real world and whether you can protect us in the real world.

Now, clearly you can't in terms of the terrorist threat. That's been demonstrated twice already. So, I guess what it comes down to for me is at some point a discussion needs to take place whether both sets of standards are reflective of the real

world of transportation on either American or international highways, bridges, barges, roads, whatever, given what we're seeing as a changing transportation sector, changing traffic volumes, urban sprawl, those kinds of things. I think that at some point needs to be a much more productive kind of discussion than how many Curies, you know, dance on the head of a fuel rod.

MR. BONNER: Response, comment?

MS. OSGOOD: Do you want me to respond? I think that's an excellent observation, and because basically, bottom line, that's what we're interested in is really how these packages are protective in real world transportation. And I think you have a good observation to that. A lot of testing standards seem a bit arbitrary. I mean, where did 30 feet come from? Where did the half-an-hour fire come from?

And I think that, but there is a good answer to it, and it's a two-part answer really.

The standards were set and have been used for many, many years, and NRC as well as international organizations and other domestic agencies and other countries review their histories of transportation including severe transportation, what you might call beyond regulatory basis kinds of accidents. And they

postulate how actual packages would perform under those conditions. And that's part of the feedback process, I think, we were talking about earlier with looking at risk and transportation and these standards that are seemingly a bit arbitrary.

The NRC has over the years periodically revisited actual accidents to look at the forces and the challenges that would be presented to these casks in actual transportation accidents. And you mentioned the Baltimore tunnel fire, I think that's a good example. We, I think it was in 1987, published what we called a modal study which was we actually had a contractor look at severe highway and rail accidents and to evaluate the actual physical conditions that would be present in those accidents and then postulate their effect on spent fuel cask that would be possibly in that accident.

And one of the accidents that they looked at, you know, this beyond kind of a regulatory basis accident was the Livingston tunnel fire, and I'm not sure when it happened but it was in California, I believe, and that train fire included several hazardous materials that actually exploded after five days of fire and that fire was so intense that, again, firefighters couldn't go in to put it out. And so,

the NRC's contractor evaluated how the spent fuel cask would perform in that fire, in that accident condition even though it's what we would call beyond the regulatory basis accident.

And the conclusion was that although the physical challenges would actually exceed the regulatory tests, that the performance of the package, although it wouldn't meet our strict regulatory acceptance standards, that the package would not have what I would call gross failures. There would not be gross releases of radioactivity or gross increases in the radiation environment for the fire fighters and for the emergency response personnel.

So, I think it's a very good point and one of the projects that we're currently involved in which is called the package performance study is revisiting those earlier works as far as reviewing actual accidents and the conditions in the actual accidents. And we expect this to be about a five to six-year project and we hope that the project will culminate in the actual physical testing of a large spent fuel cask. But again, I think that the agency views your comment very seriously and we have tried to be very proactive in reviewing our regulations on a continuing basis.

And I might add that this periodic revision by the IAEA is intended to do that as well. What new information has become available in the last few years that would warrant us revisiting the adequacy of our regulations in making that judgment. And that's what we, you know, that's the intent of these rather frequent and maybe rulemaking processes.

MR. KRAFT: Just a short followup question. The casks that are currently licensed are undergoing that six-year review? Is that what you're suggesting?

MS. OSGOOD: The package performance study, is that what you were talking to?

MR. KRAFT: Yes.

MS. OSGOOD: The package performance, okay.

MR. MILLER: The package performance study is aimed at actually doing physical testing of a real cask, not just analysis.

MR. KRAFT: Okay. And that cask is already licensed, correct?

MR. MILLER: That cask will be amongst the, you know, there are several designs of casks that are licensed.

MR. KRAFT: Right.

MR. MILLER: We picked one, we're going to pick one typical design, okay, that's licensed, and undergo a whole battery of tests, use the results of those tests, and those tests will be over and above what our regulations require, and that battery of tests is going to be used to determine how well the analytical tools that are used to predict what would happen in certain accident scenarios are.

In other words, we'll use actual physical testing of a full cask to determine if the analytical tools are predicting properly what would really happen. We believe that they are, from tests that had been done in the past, or from smaller component testing or prototype testing. We're going to do a full-size cask. And what we're seeking is as part of the whole process of, and Nancy mentioned five or six years, part of that process is we're seeking public input into a public participating process in how we are conducting those tests and what those tests are and what the full nature of those tests are.

MR. KRAFT: One final request along those lines. It's sort of a personal pet peeve of mine that the Nuclear Energy Institute uses the Sandia crash films as demonstrations of cask safety tests. My understanding is what they were was exactly what you

just described. Those are simulations designed to confirm computer models. Would you please order the NEI to refrain from that misleading language? You're the regulators.

MR. MILLER: Okay. We can't order them to refrain from that. I mean, they are --

MR. KRAFT: Okay. You can't order them. Would you please correct --

MR. MILLER: They're an industry group. They have free speech.

MR. KRAFT: Would you please correct them in public then so that they don't continue misleading the public?

MR. MILLER: Yes. I think in every public forum where the NRC is asked those questions, the NRC discounts any endorsement from a regulatory perspective of those tests. Those tests were done a number of years ago.

MR. KRAFT: Right.

MR. MILLER: They had a purpose. They were not done to all the standards that are required in the NRC regulations. And what we're trying to do is --

MR. KRAFT: What I'm asking here is that the federal regulator that holds this industry

accountable needs to promote a certain level of respectability among the public and credibility. And if you allow the industry that you regulate to continue to disseminate misleading information, I think it affects your credibility, too. So, I'm asking you to take that seriously, to ask them to simply refrain from misleading the public.

You don't have to order them, and you can't. I understand that. I'm merely asking for a change in the way information is described in public. That's all.

MR. MILLER: Okay. What we can certainly do is in dialoguing with the industry, tell them the public's views and perceptions and concerns. But that's the extent at which we can do that with the industry in that regard, okay, and with regard to statements that they are making publicly.

MR. BONNER: Name again?

MS. MUSIKER: Debbie Musiker, Lake Michigan Federation. I have one comment and then one question. My comment is I hope that this package performance study is going to be completed before you finalize this rulemaking so that you can be educated by the study in determining whether it's appropriate to make changes to harmonize the rules. And my

question --

MR. MILLER: Can I respond to that before you go on to the next question?

MS. MUSIKER: Sure.

MR. MILLER: In all likelihood, that study will not be completed before this rulemaking is finalized. But if the results of that study cause us to have to modify the rules further based upon the knowledge we gain on that study, we will do so.

MS. MUSIKER: Okay. That seems like that could leave us at risk in that interim period. My question relates to the last topic we were on about double containment. And I was wondering if there is any basis to eliminate the double containment requirement other than the need or the desire to harmonize the rules?

MR. BONNER: Nancy?

MS. OSGOOD: The double containment provision has a very long history. I think it was first put into the regulations in 1974, I believe. Before, it was put into the rule before there was what I would call quantified type B package standards. In other words, it was singled out for special consideration because the nuclear industry was just kind of getting started and there were possibly plans

to ship large quantities of plutonium nitrates in liquid form.

The NRC decided that that was not a good idea for public safety and that large quantities of high radioactivity, of high content liquids was not a prudent way for the industry to evolve. And so, they instituted this requirement for plutonium to be shipped only in solid form. In other words, they prevented plutonium liquids from being shipped, you know, plutonium in large quantities from being shipped in liquid form.

And that was the main thrust of that rulemaking at that time in the early 70's. But then, the agency said, well, if it's not being shipped, if we're going to stop it being shipped in liquid form, we should also consider that it may be shipped in other forms that are equally -- or equally dispersable in the environment. And there had been experiences at that time with human error in operating radioactive material packages. So, that's why those two provisions were introduced into the regulation.

Since that time, there have been a number of what I would call significant safety enhancements to the packaging standards for type B packages. And they're applied universally to all radioactive

isotopes including plutonium. And that includes the type B standards that limit the allowable releases to basically no release under normal conditions and a very limited release under hypothetical accident conditions. Because those rules now are in effect, I think the agency believed that there was no, it was no longer necessary to single out that plutonium as a special case when we had the type B standards that would limit releases from packages.

The other thing was that there are risks involved with just normal transportation accidents. In other words, trucks have collisions with cars and things like that, and there are just accident risks that don't have anything to do with the radioactive property of the cargo. And having the double containment provision actually limited the amount of material that could go in a single package. And if you have a given volume that you have to ship, that would increase the total number of shipments, and you would be then incurring some risk due to just the additional number of shipments.

And so, there was a balance. And basically, I think the agency believed that there was adequate protection with the type B standards that were used for other radioactive isotopes that should

be also adequate for the plutonium isotopes, and that there was a benefit in reducing the total number of shipments.

MR. BONNER: Thank you. Yes?

MR. DORUFF: Mark Doruff, Council on Radionuclides and Radio-pharmaceuticals. One comment regarding NRC initiated changes, this isn't part of the docket but I just wanted to elaborate a little bit on a comment made earlier regarding security. My comment is NRC and DOT should be commended for at least coming up with a concurrent rulemaking, I think the way these traffic rules or -- rules are promulgated was much better than the way it was done the last time when 1985 Safety Series 6 was promulgated. And I think both agencies should be given credit for that.

Having said that, I think that if there is any initiative under way by the NRC to enhance security of radioactive materials in transportation, I strongly urge the agency to work with the DOT in an effort to come up with a concurrent rulemaking. DOT has already issued their proposed rule, HM 232, which is, as proposed, is focused on using the registration program as a vehicle for affecting enhancement and security of radioactive materials in transport.

I think the NRC should consider two things. Number one, working closely with the DOT in any subsequent rulemaking initiative that they may undertake regarding transportation, security of materials in transport. And also to consider another mechanism other than using registration as the driver of this. Our recommendation would be to use, to focus on the type of shipment rather than the type of shipper in this effort to enhance security.

MS. HOLAHAN: Okay. Thank you. Well, that rule is in existence but it's not, I mean, what it is is this rule is not part of this rule. And so, there is a separate rulemaking going on that's partaking in that.

MR. BONNER: One thing I'd like to point out in the proposed rule is in Section 3 at the very beginning. The NRC is looking for more information, more research identifying more information sources that have cost benefit information, especially health and safety and exposure information. So, that's one of the things that either in the meeting or in your comment, if you know of additional sources that the NRC should be considering, bring those forward please. Okay, please.

MS. BAIMAN: I want to talk about the dry

cask. I don't know, have you changed the model? Because there's a VSC-24, this was dry cask. Are these same, or multiple purpose casks are the ones that are going to be shipping, now, the point is, is this Yucca Mountain a done deal? Because I hope it isn't. Although casks that have been, there was an accident in May 28th, 1996 on Point Beach Nuclear Plant in Wisconsin. Are you aware of that accident? That dry cask, okay.

Due to the fact that when they welded the shield, what happened was the zinc combined with the borated water and the hydrogen, I'm sorry, I'm not, it's all very chemically, they didn't have very much knowledge of chemicals and metals and the combustion which happened when the lid was welded. And the cask almost exploded to the point that the whole lid was lifted up. And then, there were other accidents with these dry casks. But my point, this is a very ambivalent situation, but at least if you have the cask out, you can fix them. I mean, you can inspect them, you can monitor them.

But what bothers me is if we're going to ship all these high level -- nuclides to Yucca Mountain and they're buried, there's nothing you can do because once something is buried, you can't take it

up again and inspect it and monitor it. So, I just wondered whether we're choosing the right course in the first place and I just wondered how safe these casks are.

And I understand, on a train, the weight is much, much heavier. Each cask has an equivalent of 240 Hiroshima bombs of radiation compacted inside it. And on a train, it would be much, much more. And I live right next to rail tracks in Oak Park where this waste will be traveling and I don't really want the gamma rays to come because they do emit gamma rays, you do understand that? That these are mobile X-ray machines.

I mean, you cannot prevent that. So, all of us in 43 states, 20 million people will be exposed to this. So, my best get is to keep it onsite as long as possible and improve the casks. And there's no real solution.

MR. MILLER: Thank you. And I mean, I think your comment reflects many comments that the NRC gets from across the United States in that regard. It's an interesting topic. You know, you finished your statement with keep it onsite. What the NRC is doing is making sure that if it's stored onsite, it's stored in what we consider to be safe containers. If

it's going to be shipped, we have to assure that it's going to be shipped in safe containers.

We have no, NRC takes no position on whether the fuel should be stored on site or whether it should be shipped to a repository. The Congress of the United States has dictated that a permanent repository should be the long-term solution for radioactive waste. And it's our statutory responsibility at the NRC that if that's the case, to assure that it's shipped safely in safe packages.

Other areas of the United States where we hold public meetings, and it's a very geographical issue, the American public is not unified on what they want done. If you live in a state that has a nuclear power plant, many of the people in that state want the stuff shipped out of their state, so they'd be very happy to see it shipped out west to a place like Yucca Mountain. If you live in the State of Nevada, many of the people don't want it coming there.

And we take no position with regard to, you know, permanent storage or storage on site or transportation. But again, it's our obligation to assure that if either is done, that it's done safely.

MR. BONNER: Additional comments? And then, I'd like to circle back to some of the other

issues that we brought up earlier. Yes?

MR. GAYNOR: Paul Gaynor, the Environmental Law and Policy Center of the Midwest. I'm glad to hear you're acknowledging the Department of Transportation's job to assure the safe shipment of the spent nuclear fuel. I think that Chicago is an especially appropriate location for this NRC public meeting.

According to the Department of Energy, recent final environmental impact statement on Yucca Mountain, the State of Illinois will be heavily impacted by transportation of spent nuclear fuel and high-level radioactive waste to Yucca Mountain. In addition to shipments from Illinois reactors, the state would be traversed by shipments from almost all of the commercial reactors east of the Mississippi River, plus shipments from Department of Energy facilities in New York and South Carolina.

During the first 24 years of operations, the Department of Energy would make either 8,000 rail and truck shipments or 39,000 truck shipments through Illinois. Over 38 years, the Department of Energy could make either 16,000 rail and truck shipments or more than 69,000 truck shipments through Illinois. If the Department of Energy ships mostly by rail, 68

percent of all shipments to Yucca Mountain would travel through the state of Illinois compared to 64 percent under the mostly trucks scenario.

The Department of Energy's proposal to ship spent fuel by barge on Lake Michigan would also affect Illinois, Michigan and Wisconsin. Because the Kewaunee, Point Beach and Palisades reactor sites lack rail access, the Department of Energy has proposed shipping large rail casks by barge from these sites into the ports of Milwaukee and Muskegan. After being transferred to rail cars, these casks would travel through Illinois by rail. The Department of Energy could make up to 431 barge shipments on Lake Michigan over 38 years. Nationally, the Department of Energy could make more than 3,000 barge shipments into 15 US ports over the same period.

So, it's a great concern to us that there be coordination between what appears to be happening with regard to Yucca Mountain and this rulemaking. I don't believe that it is reasonable to frankly bury our heads in the sand when we know an event that might be happening in the future which is going to greatly increase the number of shipments, and that not be a large part of this rulemaking process, and that it really is the cart before the horse to approve that

repository without there being serious consideration with regard to the transportation of that spent nuclear fuel. Thank you.

MR. BONNER: Please.

MS. MUSIKER: Debbie Musiker, Lake Michigan Federation. And to give some background, the Lake Michigan Federation is a not-for-profit environmental group that works to restore fish and wildlife habitat, conserves land and water, and eliminate pollution from the watershed of the large lake. And so, obviously, I come here concerned about how your decisions affect the lake.

And I'm wondering if you've considered how these proposed changes would affect the safety of transporting nuclear waste or radioactive materials across the lake.

MR. MILLER: Obviously, our considerations did not focus on Lake Michigan itself. But our considerations and the tests that Nancy talked about earlier that we require that the packages be subjected consider water transportation including ocean-going vessels which you could compare. A vessel in Lake Michigan is going to be different, for example, than taking it down the river. It's going to be more like an open water shipment, okay.

So, the point is that while we did not focus on Lake Michigan specifically, we did focus on transportation by water with regard to the safety of shipment by those means and assuring that the packages, if they're going to be shipped by those means, have been safely evaluated and are robust enough.

MR. BONNER: Let me try to clarify something. Nancy, were you done, Charlie?

MR. MILLER: Yes.

MR. BONNER: Okay. I think one of the things you said earlier was if Yucca Mountain gets approved, that the volume of traffic of transportation would be considered under those legal authorities and regulations, not under this rule. Am I stating that accurately?

MS. OSGOOD: Right. I think that the Yucca Mountain environmental impact statement would look at possible, and I'm sure that's where you got your statistics from, the number of shipments by different modes. And basically, in general, I would say most of our packaging standards particularly for spent fuel are modal independent and they apply for package approvals that, for a package to be shipped by any mode.

But there are certain tests and I think that the deep water immersion test is a good example. An additional population of packages that now would be subjected to the deep water immersion test which was really designed for ocean-going vessels that could potentially be sunk on the continental shelf, and it's equivalent to a 200-meter immersion in water. And the new rule would require that, not only spent fuel packages but, for example, high-level waste packages or other packages of high radioactivity, you know, radio-toxic materials would be tested to that additional test.

MR. BONNER: I do want to give the opportunity to come back to the exemptions values piece but, please.

MR. GAYNOR: All right, thank you. I just had a followup on the deep water immersion test. Paul Gaynor, the Environmental Law and Policy Center.

Could you explain that test to me? Is it a pressure test? What is it? How does it work?

MS. OSGOOD: That's a good question. It's a little bit of an oddity in the regulations in that it's not considered part of what we call the hypothetical accident test sequence. The hypothetical accident test sequence is the impact test, the 30-foot

drop test, then a puncture test followed by a fire test, and then an immersion test. That's the four tests in the sequence.

This test is separate from that and it was devised to consider that there are transports of spent fuel in ocean-going vessels and that if there was a vessel sunk, that you would want that package to have the structural robustness so that it could be recovered from deep water. So, the test is a special test. And the way that NRC judges it and the way the IAEA judges acceptability is a little bit different. There are a little bit differences in that rule.

Our rule is a little more strict with respect to our acceptance standards. But basically, the idea is that a package that has spent fuel or now, if our proposed rule is accepted, a new population of packages that just have a high-level of radioactivity would withstand a 200-meter immersion test without the containment system buckling or collapsing or, you know, without water and leakage.

MR. GAYNOR: And what about, with regard to that test, what about extracting that from the water?

MS. OSGOOD: Right. Right, that was the idea.

MR. GAYNOR: The weight of the --

MS. OSGOOD: Well, yes, that was the idea of the test and that actually was why the test was originally proposed many, many years ago to IAEA was that there was a desire that if an ocean-going vessel was sunk, that you would want the package to retain sufficient structural integrity that recovery operations would be practical. And that was why that test was introduced into the regulations.

MR. GAYNOR: Thank you.

MS. MUSIKER: Does that test apply to all packages that are to be shipped --

MS. OSGOOD: Now, that's a good question because --

MR. BONNER: -- to the microphone.

MS. OSGOOD: Oh, sorry.

MR. BONNER: Does that test apply to all packages?

MS. MUSIKER: Debbie Musiker, Lake Michigan Federation. Does that test, the deep immersion test, apply to all packages that would be shipped across Lake Michigan?

MS. OSGOOD: That's a good question. You know, I don't know what all radioactive materials are shipped across Lake Michigan. I'm not really sure

about that but usually only very large, heavy packages are shipped by vessel just because there are more efficient ways to ship smaller packages like regular pharmaceuticals, it's not really a practical way to ship them domestically by waterway. But there's no restriction on that. But it's just a sense of, you know, a practical judgment.

For right now, currently in our regulations, when we approve a spent fuel package, that package must be able to withstand the deep water, the 200-meter immersion test. So, any package that ships spent fuel, and there is a Curie level cutoff, but basically, all commercial spent fuel would fall within that cutoff. Any package that is approved for spent fuel transport is able to withstand that test, is judged against that test.

And the new rule would require an additional set of packages to be able to withstand that test. For example, plutonium packages. Currently, plutonium packages don't need to be able to withstand that test. If this new rule is adopted, then packages that transport very large quantities of plutonium would also be judged against that test. So, the change in the rule adds a whole another population of packages that would have to be able to withstand

that test.

MS. MUSIKER: Okay. I just have one last followup. And I guess this exchange is helpful and it makes me feel even stronger that your rulemaking should not be done in isolation. It should consider the transportation issues associated with the approval of the Yucca, the possible approval of the Yucca Mountain site because there are going to be these questions that are relevant to whether we want more material shipped across the lake.

MR. BONNER: Okay. Time available, let's turn back to the exemption values.

MS. D'ARRIGO: This is still immersion.

MR. BONNER: Okay.

MS. D'ARRIGO: When you're saying test requirement, I have a couple of things and I'll say them all and then you can pick how you want to deal with them. One is it's not actually a physical test that's required, right? And so, I wanted to understand what you're meaning when you say test. And then, what it applies to, you mentioned 10^5 A_2 values. I don't really want to get bogged down in details but probably most of us don't really know what the A_2 values are now, what they're going to be in the future and what that means. And if we're changing from 10^6

Curie or however many it was before to 10^5 A_2 value, are we actually expanding the number of containers that actually have to meet the test.

Third has to do with the depth and the time. It's my understanding that it's only required for an hour, and is that realistic? Why is that hour chosen when it's probably not possible that something could get pulled up from the bottom of Lake Michigan in an hour. And then, the last on this immersion thing is there was some discussion in the rulemaking documents about language that currently the NRC has stricter language that doesn't allow rupture, no, that doesn't allow collapse, buckling or any leakage of water, and the IAEA had what could be interpreted as weaker language, and NRC is apparently going to redefine rupture to be more protective but look like they're in compliance or I don't know. I wanted to hit those four, if you could?

MR. BONNER: Nancy?

MS. OSGOOD: Okay. I'm going to go through them one by one. I tried to write them down but if I've missed something --

MS. D'ARRIGO: I can say it again.

MS. OSGOOD: Okay. First of all, you said is this a test, and I think that's a good point, too,

because if you read the regulations, they talk about tests and test conditions. But if you look at what the regulations allow, the regulations require the cask designer or the applicant to demonstrate that a package meets our performance standards. And that can be done by test of a full scale specimen, it can be done of a test of a prototype, or it can be component test or scale model test or analysis or comparison to other designs or any combination of those. The regulations allow for that.

And it's up to an applicant, as approved by NRC, to choose the types of methods that they use to do that package evaluation. So, I say test, it's like the 30-foot drop test, there are, an applicant has a number of alternatives. They can go out and physically test something, drop it from 30 feet or they can do a computer analysis and subject the package to the same forces that would be imposed on that package by that test.

So, do we require somebody to go out and find some place that's 200 meters deep and submerge the package? No. And it really is to show a structural stability of the cask under an external pressure, a very high external pressure. So, for spent fuel casks, that would normally be by analysis.

And if it's done by analysis that time is not what I would call an important factor, and I'm going to give you an example.

When somebody designs a building, they design it for a certain loading. So, a certain number of people or a certain number of equipment or something like that, and it's not a time dependent thing. It's just you must design that to withstand that force. And that's the same thing with this deep water submersion test, you must show that the package is capable of withstanding that external pressure on that cask boundary.

Let's see. And the language, the language in the two regulations differ in what I would call a subtle way. And our regulations, our acceptance criterion is stricter than the IAEA acceptance standards. And I believe the proposal would retain that stricter acceptance standard for the deep water immersion test. So, we're a little bit stricter than the IAEA in our acceptance standard although the physical test, the 200-meter test, the pressure would be the same.

MS. D'ARRIGO: You're comparing the standards --

MS. OSGOOD: Oh, right. And that is, the

idea was that this test, the 200-meter immersion test that was considered to represent possible sinking of a vessel with the package landing on the continental shelf should apply to packages that have a degree, you know, a quantity of radioactivity that could be released, that could affect, you know, that could be harmful to the environment and that smaller activities would not be harmful and would not be taken up in, say, food chain and things like that. And so that the test should be focused on packages that have a higher quantity of radioactivity.

And I might add that if you look at the transportation regulations as a whole, the whole structure of the regulatory framework is the less hazardous material, the material that's being transported, the lower the packaging standards, the less requirements there are for operational controls and transport. And it's a continuum, and the more dangerous or the larger the radioactivity, the more radio-toxic the material that's being transported, the more stringent the packaging standards as well as additional infrastructure as far as labeling and placarding vehicles and other operational controls.

So, it's a continuum, and I would say that this deep water immersion test then is at the end of

the continuum. The very high radio-toxic materials, the very, you know, the spent fuel or the 10^5 A_2 in other forms besides, you know, beside special form and spent fuel. So, I think of it as a continuum and this certainly would be a test that you would want for the most, you know, dangerous radioactive materials that are shipped.

MR. BONNER: I have us approaching 4:00 o'clock. Let's get to some final comments, please.

MR. KRAFT: A quick followup question on this particular test. The test as you've pointed out is designed primarily to talk about force on the cask from being submerged. I don't see it as a real unreasonable situation or scenario that the cask would be undamaged, however. In the sinking of a ship, a lot of things can happen including boilers exploding, the thing will get torn apart in any event.

Where I'm heading with this is, getting back to your description earlier of the six-year study on possibilities in terms of transport, first, shouldn't that be considered as well? A partially damaged, partially even ruptured cask for future consideration at that depth. The deepest point of Lake Michigan is about 220 meters. Lake Superior, I think, is even deeper.

And then, secondly, has there been an analysis at those depths, at those pressures, the dissemination of the radionuclides, and by what forces for a ruptured, partially or completely ruptured cask. I think these are things that are, not only in the United States domestically on the barge issue, to be considered, but you're describing international transport. The Russians are really getting excited about importing radioactive waste from elsewhere. There have been shipments back and forth between Japan and France.

This is something that perhaps we ought to be raising some issues with the IAEA about the kinds of tests and standards that ought to be in place. So, did you want to respond to that, Nan? I just had a quick question for a resource.

MS. OSGOOD: I'm not sure if there was a question in there, but I guess I think it's important that the US is proactive in bringing up new issues at the IAEA. And I think that everybody here is receptive to that.

MR. KRAFT: Just a quick question. A colleague had asked whether NRC, or in this case perhaps DOT even, maintains records on annual shipments by vendors, by Curies. Where is this

inventory kept? Where can the public access those records as to numbers of shipments, Curie content, type of vendor, that sort of thing? Is there a database somewhere that handles this?

MR. MILLER: The NRC keeps records on all spent fuel shipments because we're required to be notified any time when it's been --

MR. KRAFT: Spent fuel, but what about other --

MR. MILLER: You mean, on all radioactive material shipments?

MR. KRAFT: Yes, all radioactive shipments.

MR. MILLER: I can't speak, do you know if, I don't think we keep records on all radioactive shipments. Of course, as you know, some of them shipments have been delegated to the authority of the agreement states. And those records would not even be submitted to us but we do not require notification of every shipment of radioactive material because in small quantities, there are hundreds of thousands of shipments every year. And no, we don't. Spent fuel, yes, we do.

MR. KRAFT: I guess that gets to an unforeseen question because NRC and the industry

itself has been claiming there are hundreds of thousands of shipments per year and they have all been done safely. But if there aren't records kept on them, how can you make that claim?

MR. MILLER: For two reasons. Our requirements, and of course, the requirements that are adopted by the states under compatibility require that if shipments are all, you know, if shipments have a problem or something is not done safely, it's required to be reported to the state and reported to the NRC. And we do have records of any time that it's reported to the NRC.

MR. KRAFT: So, you have records of mishaps.

MR. MILLER: Yes.

MR. KRAFT: But you don't have records of total shipments?

MR. MILLER: Right.

MR. KRAFT: It seemed like that would be a useful piece of data to have, if you want to make a case. So, never mind, thanks.

MR. BONNER: Okay. Quick comment, Fred?

MR. FERATE: I just wanted to say that essentially there is a similar situation with respect to the records or lack of records that the Department

of Transportation has. We do receive, and it's a regulatory requirement that we be sent reports on accidents that have fairly major consequences such as the necessity, for example, to close a highway for an hour because you have radioactive material involved in an accident, things like that.

However, we don't have nor have we really, to directly keep track of all of the shipments of radioactive material which are made except through mechanisms as spot checks. Now, I do believe that the Vulpe Center which is a DOT kind of research institute, is working on a project actually for the Nuclear Regulatory Commission. But of course, we're going to take, and DOT, as much advantage of that as we can to, precisely to try to do a statistical study doing spot checks at points which are felt to be appropriate to try to estimate the volume and types of shipments of radioactive material which occur in the United States.

MR. KRAFT: If I accept that, then I have a real serious issue in terms of diversion of materials. If you don't have records of shipments going out, if something is missing, then quite possibly you wouldn't even know it was gone, if I hear you correctly.

MR. FERATE: The majority of radioactive material is licensed.

MR. KRAFT: Okay.

MR. FERATE: So, presumably --

MR. KRAFT: But you turn it over to a carrier but you don't have a record or manifest of a shipment that anyone keeps in a database, that disappears, who knows it's gone?

MR. FERATE: But if it does disappear, then presumably the licensing authority will learn about it.

MR. PSTRAK: Dave, that's exactly right.

MR. KRAFT: How?

MR. PSTRAK: The licensing provision for 10 CFR Part 30, 40 or 50 or 70 licensees, they have to, any time they transfer inventory from Point A to Point B, that is a tracked system. The transportation of that you make a shipment is not necessarily tracked unless it's a spent fuel shipment for NRC in NRC space.

But the actual inventory, what did you send from Point A to Point B, when did you send it, when was it received, was it received by an authorized licensee, there's a connection there that's --

MR. KRAFT: Well, that was my first

question and I was told that that wasn't done in all cases so I'm kind of confused now.

MR. PSTRAK: Okay. I think part of the confusion may be transportation versus licensed material. There is, again, a tracking system in place for all licensed facilities, but the actual transportation is not necessarily tracked. Again, I'm moving inventory. How am I moving it? I'm transporting it. The movement from Point A to Point B is a tracked system, but the actual transportation of when are you shipping, when is it going to be received is not done for every single shipment. For spent fuel shipment, those controls are very tight.

MR. KRAFT: And you do have then a record of what is shipped?

MR. PSTRAK: We do have on record of what was transferred from one licensee to another licensee.

MR. MILLER: We, the NRC, don't necessarily have that on record but we require --

MS. D'ARRIGO: Excuse me. Could you come closer?

MR. MILLER: Yes, is that better?

MR. BONNER: Yes, that's better.

MR. MILLER: We, the NRC, don't necessarily keep all those records. But the

requirements of the license, however, are to keep those records. And we use various mechanisms to be able to assure that that's done. One, periodic inspections, we look at the records to see if the records are complete. So, they have to have a record that said they transferred that material either to or from where they are and did it arrive safely and who currently holds that material, and if it's not currently in their possession.

And if there is a mishap, okay, of our licensees, then that is reported to the NRC. And we've had instances where we've had various situations where there were mishaps or the transportation was confused and it was thought to be missing for a period of time. When that's reported to us, well, then, we engage with the other federal and state agencies to try to track what actually happened to that.

And then, usually, over a short period of time, we're able to determine where it is by tracking what carrier took it, where the carrier took it. And sometimes, it's just a case that it's on a federal express truck or something like that, and the manifest somehow got misplaced in the transfer. But ultimately it's turned up. But we require the licensees to keep those records. We don't require them to submit those

records to the NRC. They're there for our inspection by our requirements.

MR. BONNER: We're at ten after --

MR. MILLER: And that's a practical way. I mean, you know, if I could just summarize your comment. There were several comments today about different things that we should do. What we have to do is, you know, we're mandated, we're given a budget by the Congress of the United States every year and we have to try to use that budget to best focus on the health and safety for the public. And there's many things that we would like to do that we simply don't have the budget to be able to do.

So, in instances where the NRC itself can't do that and we think it's an important thing to do for public health and safety, we do from a practical perspective put those requirements on licensees where it's reasonable and track, as I've talked about, through inspection activities periodically that it's being done safely.

MR. KRAFT: I do understand that and it reflects back to the very first comment I was getting back today. If you don't have a database or an inventory of all shipments, then we don't know if these harmonizations are economically justifiable,

because there may actually be many, many, many more shipments or whatever that until something goes wrong, you might not have a good handle on or you don't know what proportion is being done by what types of industries which would give you, I think, a better indication of what kind of harmonizations are more important.

Clearly, if you're just going to talk Curie content, the game is going to be high-level radioactive waste and spent fuel --. I mean, that's a no-brainer, in the next ten years. But in the meantime, it gets back to the issue of just how much of this kind of stuff do you want to engage in for what proportion of your available, if you want to call them shipments or just inventory out there. And that's why I was asking. What's the economic driver for this if there is one and that was one of the two criteria for doing it in the first place.

MR. BONNER: Okay. I've got us at ten after 4:00 and I'm going to have to start to bring this session to a close. We have another evening session today, but I want to reiterate something I've said and others have said throughout. This is not your, just your public comments are not your final comments. We've got the comment forms in the packets.

Please use those to expand on what you've said today or add to what you've said today.

We've got the availability of making your comments through the web and the URL's for those. So, please take advantage of those. Let me turn it over to Trish to conclude.

MS. HOLAHAN: Okay. All right. I would just like to say thank you very much for all your comments. We will certainly take those into consideration and I would just like to welcome you to provide any comments in addition in writing.

MR. BONNER: Thank you very much.

(Whereupon the meeting was adjourned at 4:15 p.m.)