

*State Programs
Public Document Room*

UNITED STATES
NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF:

DOCKET NO:

SPENT NUCLEAR FUEL TRANSPORTATION SEMINAR

Sponsored by

UNITED STATES DEPARTMENT OF TRANSPORTATION
and
UNITED STATES NUCLEAR REGULATORY COMMISSION

LOCATION: CHICAGO, ILLINOIS

PAGES: 1 - 258

DATE: WEDNESDAY, JULY 31, 1985

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NATIONWIDE COVERAGE

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UNITED STATES OF AMERICA

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NUCLEAR REGULATORY COMMISSION

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U. S. DEPARTMENT OF TRANSPORTATION

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and

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U. S. NUCLEAR REGULATORY COMMISSION

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Sponsored

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SPENT NUCLEAR FUEL TRANSPORTATION SEMINAR

8

Wednesday, 31 July 1985

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Americana Congress Hotel

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Chicago, Illinois

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The seminar was called to order at 9:00 a.m.,

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Richard E. Cunningham presiding.

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*Proof read. Typographical and minor
technical corrections made.*

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MR. CUNNINGHAM: Good morning, ladies and gentlemen. I'm Dick Cunningham, a member of the Nuclear Regulatory Commission staff, and I will chair this first session on spent nuclear fuel transportation.

I do want to welcome you to this seminar. We do appreciate this very fine attendance we have and appreciate your coming here on a rainy Chicago morning.

We from Washington categorically deny any regulatory responsibility for Chicago weather, but I understand Terry Lash has ordered the weather to clear up by tomorrow afternoon for the visit to the G.E. Morris facility.

Incidentally, if you have not already made arrangements to participate in the field trip, I'd advise you to do so if you want to go, because tickets will be available and spaces on the buses will be available for attendees first and then participants as space is available. We do have a fair number of seats available on the buses; hopefully we can accommodate all that want to go on the trip.

Before beginning the scheduled program, I do want to introduce one or two people: one, Wayne Kerr, who is Director of our Office of State Programs, had the difficult task of trying to arrange this meeting. He

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1 started about six months ago and surveyed all the hotels in
2 Chicago, both on the North Side and out near the airport,
3 and none were available. We had to delay the meeting about
4 six weeks until we could find any space open to hold this
5 meeting.

6 I know it's a difficult and thankless task, but
7 we do want to thank Wayne and members of Region III for
8 what they have done.

9 I'm also pleased to see we have here with us a
10 past Commissioner of the former Atomic Energy Commission
11 who is presently, among his many other activities, the
12 President's representative on the Southern States Energy
13 Board, Mr. William ^{u b} ~~Dowe~~.

14 Without further comment, we do have a very tight
15 agenda, so without further comment I'll introduce Mr. John
16 Davis who is Director of the NRC's Office of Nuclear
17 Materials Safety and Safeguards. John will outline some of
18 the objective of the seminar.

19 John.

20 MR. DAVIS: Thank you, Dick.

21 I would like first, of course, to repeat Dick
22 Cunningham's welcome to you to this seminar on spent fuel
23 transportation.

24 To be frank, we at NRC were somewhat overwhelmed
25 when we learned that the total attendance would be about

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1 twice what we had originally thought. But the seminar
2 should be all the more productive because of this large
3 attendance and, of course, because of the presence of each
4 of you.

5 The seminar is composed mainly of public
6 officials with large responsibilities and busy schedules,
7 and we appreciate the response of all participants to our
8 invitation and the time you're taking to learn and
9 contribute to the understanding of how spent fuel transport
10 is regulated and the issues it entails.

11 Transportation of spent fuel is controversial;
12 if it were not, you wouldn't be here. Recent spent fuel
13 shipping campaigns, as well as government proposals to site
14 a large spent fuel storage facility and repositories for
15 the final disposal of spent fuel and high level waste has
16 fanned interest in this important issue.

17 Several government agencies are involved with
18 the management, the regulation and the transport of spent
19 fuel. This seminar, however, is directed at the regulatory
20 aspects of transportation. At the federal level this is
21 primarily the domain of the Department of Transportation
22 and the Nuclear Regulatory Commission.

23 We feel it is important to distinguish between
24 the roles of the federal agencies that have regulatory
25 responsibilities and those of other agencies, such as the

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1 Department of Energy and the Federal Emergency Management
2 Agency as well as the nuclear industry itself, which have
3 other responsibilities. All have important
4 responsibilities for safe transport of spent fuel.

5 However, in some recent public meetings we've
6 been impressed that the federal agencies are viewed by some
7 as all caring about the same general responsibility. This
8 is clearly not the case. And this is the reason why this
9 seminar is being sponsored by DOT and NRC: we are the
10 regulators.

11 The seminar is about the regulatory rules,
12 regulatory objectives and regulatory issues.

13 Understanding the difference between regulatory
14 functions and the responsibilities of others is important
15 for understanding how we achieve safety in transportation.
16 Enhancing that understanding is a major objective of this
17 seminar.

18 Regulatory responsibility for safety in the
19 transport of radioactive materials is shared by a number of
20 agencies at the federal, the state and the local level.
21 These responsibilities, as established by legislation, are
22 often broad and overlapping. They also have the potential
23 for being fragmented.

24 Perhaps the regulatory structure for
25 transportation can best be characterized as a complex

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1 mosaic of shared responsibility. This means that we all
2 must be concerned with the coordination of work among the
3 regulatory agencies at all levels, so that there is no
4 possibility that something important to safety will be
5 overlooked under the assumption that someone else is
6 addressing it.

7 The roles of the agencies must be clearly
8 defined so that the government officials, the regulated
9 industry, and members of the public understand who is
10 responsible for what.

11 Our speakers in this seminar will describe all
12 aspects of the DOT and NRC regulatory roles, particularly
13 in the areas of packaging, routing and emergency
14 procedures. In addition, the roles of NRC and state and
15 local law enforcement agencies in the protection of spent
16 fuel shipments against sabotage will be examined.

17 We hope to provide a better understanding of
18 what we do, why we do it, and what we expect to accomplish
19 in the future. Speakers from the state and local
20 governments and Indian tribes will help to identify the
21 interfaces between federal and other regulation of spent
22 fuel transport, and show how each participates to assure
23 public safety.

24 It must be our continued objective to assure
25 that all safety issues are covered while avoiding

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1 conflicting requirements; hence a more specific objective
2 of the seminar is to identify any gaps that may exist in
3 the regulatory structure of spent fuel transport.

4 Another important objective of our seminar will
5 be to clearly define and expore issues of greatest concern
6 to the regulatory agencies and to officials of states and
7 local jurisdictions through which spent fuel shipments will
8 pass. We will hear the views of those involved in
9 administering the routing rules and resolving routing
10 conflicts.

11 We will have reports from those who are
12 addressing the public concerns about emergency
13 preparedness, and those who are involved in making
14 inspections effective for assuring compliance with
15 transportation regulations.

16 While the seminar itself is not likely to be the
17 arena in which difficult issues can be resolved, it does
18 provide an opportunity for each of us to gain insight on
19 the issues from varying perspectives and thereby enhance
20 our ability to find acceptable solutions *Dr*

21 I therefore urge your very active participation
22 in discussion groups on tomorrow's agenda. The findings of
23 these discussion groups will be reported back to the entire
24 group in Friday morning's session. While we do not intend
25 to publish formal proceedings of the seminar, we have

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1 arranged for a court reporter to prepare a transcript of
2 the main sessions. The transcript will be available in the
3 Public Document Rooms of both the NRC and DOT.

4 Because the regulatory system is complex and
5 spans the nation, the involved organizations must devote
6 extra effort to working together on a regular basis to
7 assure that the activities, the decisions, and the policies
8 of each mesh realistically and wisely with those of the
9 others. Working together to meet common goals efficiently
10 and effectively is perhaps the greatest challenge for all
11 of us.

12 We hope that the seminar will provide a basis
13 for concluding that the federal agencies are responsive to
14 expressed concerns and are helpful in resolving problems
15 for which they share responsibility with state and local
16 governments and the Indian tribes. This gathering is a
17 step in our continuing effort to forge effective working
18 relationships in which all must play an active role.

19 Singularly, each regulatory agency such as the
20 NRC has limited jurisdiction, limited capability, and
21 limited resources, although each is committed to
22 maintaining the safety of the system. An objective
23 therefore is to consolidate our collective effort to be
24 sure spent fuel transport is properly regulated.

25 Perhaps the most important objective, and that

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1 of greatest value in this seminar, is the opportunity to
2 become better acquainted with each other on a more personal
3 basis. It is an opportunity to cement working
4 relationships. We have found that knowing the people
5 involved in decision-making often provides a foundation for
6 trust and is a valuable asset in problem-solving,
7 particularly in a time of crisis.

8 Key members of the NRC and DOT staffs will be
9 here during the seminar. In addition to participating with
10 them in the scheduled discussion sessions, I hope you will
11 have a chance to meet and become acquainted with them on a
12 more personal basis.

13 Let me close by emphasizing our determination
14 that the expected increase in radioactive material
15 transportation will be accommodated without compromising
16 the primary objective of protecting public health, safety
17 and the environment. We all share this common objective.

18 We also expect that the state, local and Indian
19 authorities will continue to play important roles in
20 reaching this goal and that after this conference, we will
21 be able to work together with a clear picture of the
22 mechanisms of the requirements involved in carrying out the
23 responsibilities that all can share between federal, state,
24 local and Indian jurisdictions.

25 Gathering together in this seminar to discuss

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1 issues, to recognize common goals, to understand individual
2 responsibilities and to share information on new
3 developments as well as cementing relationships is a step
4 in the right direction. We hope it will strengthen the
5 foundation upon which continued progress can be based.

6 Again it is a pleasure to be here. It is a
7 pleasure to have you here at this seminar.

8 MR. CUNNINGHAM: Thank you very much, John.

9 Rather than take questions, at least in this
10 session, after each speaker, I would prefer to wait until
11 the end of the show after all speakers have had a chance to
12 speak, and then take questions from the audience as time is
13 available. I know many of you will have very detailed
14 questions, technical questions, and please bear in mind
15 that we will go into much greater depth as the seminar goes
16 on in some of the technical areas of specific interest to
17 you.

18 It is indeed a pleasure to have with us Ms.
19 Cynthia Douglass, who is administrator of the DOT's
20 Research and Special Programs Administration. I know Cindy
21 had to work very hard to make this seminar because of some
22 things that are happening in Washington, and she finally
23 did manage to do it.

24 So Cindy, it is a particular pleasure to have
25 you here with us.

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1 MS. DOUGLASS: Thank you, Dick.

2 I'll tell you something. I am very glad to be
3 here today because I feel very strongly about this
4 meeting. I first want to say that I see this as a real
5 opportunity for all of us to really commit to working
6 together on this major issue that is facing our country,
7 this nuclear transportation issue. Not only do we need,
8 the federal government, need to work with you-all and you-
9 all need to work together on this problem, but we at the
10 federal level need to recommit to working together in
11 coordinating our efforts in not creating any sort of
12 confusion at the state level or local level with regard to
13 the federal rules and regulations on nuclear
14 transportation.

15 I think this seminar and this type of activity
16 give us a great opportunity to really start working
17 together on nuclear transportation.

18 What Dick said, I did make a big effort to get
19 to this meeting today, and I intend to stay for the full
20 two and a half days. That is how important this meeting is
21 to me. Let me demonstrate my commitment. You don't have
22 an opportunity very often to demonstrate this kind of a
23 commitment, but let me tell you about what happened in
24 Washington.

25 A little over a week ago, a week and a half ago,

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1 I got a phone call from Congressman Florio's staff. He
2 decided to have a hearing on nuclear transportation, and we
3 were discussing dates when we could have the hearing. We
4 thought about settling on Monday, July 30th, and I said,
5 well, you know, that's a fine date; in fact, I will testify
6 any day between now and July 30th, or I will testify on
7 Friday-- I will testify on Monday, the 29th, Tuesday, the
8 30th, or Friday, the 2nd of August, on nuclear
9 transportation.

10 A few days later I got a phone call. The
11 hearing was set for Thursday morning, August 1st. I was
12 really upset over this because I felt very strongly that I
13 should be at a Congressional hearing on nuclear
14 transportation. The Department of Transportation has a
15 story to tell, and we should be there.

16 At the same time I also felt that I had a
17 longstanding commitment to the states of this nation, and
18 to the Tribal Nations, and I felt that I had to be here.

19 So anyway we worked and worked on how we could
20 work this out. What I have ended up doing is George
21 Tenley, who is the chief counsel of the Research and
22 Special Programs Administration, is going to be there at
23 Congressman Florio's hearing tomorrow morning, and he is
24 going to testify on DOT's role in nuclear transportation.
25 He will do an absolutely outstanding job, and I have full

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1 confidence in that.

2 And I get to be here, and I'm glad that I am
3 going to be here, and I look forward to getting to meet all
4 of you and begin working with you. I think that this is
5 going to provide a good opportunity for all of us.

6 RSPA -- that's the agency that I am the
7 administrator of -- is with the Department of
8 Transportation. It is what we call a modal administration
9 within the Department. I report to Secretary Dole. And my
10 agency has responsibility for hazardous materials
11 transportation and pipeline safety, and for a number of
12 other interesting issues.

13 We have recently decided to reorganize the
14 Research and Special Programs Administration. A number of
15 you might be familiar with the Materials Transportation
16 Bureau within the Research and Special Programs
17 Administration. We have decided that we will abolish the
18 Materials Transportation Bureau. That Bureau was
19 responsible for both pipeline safety and hazardous
20 materials transportation.

21 In its stead we are going to create two offices,
22 an Office of Hazardous Materials Transportation, and an
23 Office of Pipeline Safety. Both of those office directors
24 will report directly to me, and I believe that that will
25 enhance both the pipeline safety area and the hazardous

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1 materials transportation area. And I feel that that is
2 going to have a significant impact on our program.

3 Al Roberts, who is here today, -- and I want all
4 of you to get to know Al. He is going to be the director
5 of our Office of Hazardous Materials Transportation. Allan
6 and I are in the process of reorganizing that office
7 entirely, and one thing that we intend to do is to create a
8 new office within Al's office which would be responsible
9 for a number of coordinating and liaison functions for the
10 states and for the federal government and for our Research
11 and Special Programs Administration, and for the whole
12 Department of Transportation.

13 We are not sure what we're going to call this
14 office yet; we haven't settled on a name. But it will be
15 something like the Government and Private Sector Initiatives
16 Office. And the idea will be to enhance our relationships
17 internally within the Department of Transportation, to
18 enhance our relationships to the other federal agencies
19 responsible for hazardous materials transportation, and
20 also to enhance our relationships with the states.

21 We intend to-- We think and we would like to
22 increase our staff in that office and really show that we
23 do have a commitment to working with the states and others
24 on hazardous materials transportation. I see this seminar
25 as another important step in this partnership program.

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1 Some of the activities that the Department of
2 Transportation has sponsored in furthering this partnership
3 in hazardous materials transportation have included the
4 State Hazardous Materials Enforcement Development Program,
5 the SHMED program, and several demonstration projects in
6 fostering emergency preparedness planning at a number of
7 locations around the country.

8 We have also been heavily involved in the
9 specific area of this seminar, namely transportation of
10 spent nuclear fuel. We have been in close touch with some
11 of the states individually as well as with organizations
12 which represent the views of groups of states, for example,
13 the Western Interstate Energy Board and the National
14 Conference of State Legislatures, the National Association
15 of Towns and Townships.

16 We have also been working with the National
17 Congress of American Indians and have participated at their
18 last ^{year} ~~ann~~ ^m ~~meeting~~ in Spokane, Washington. And I'm glad
19 to see that so many people that we have worked with are
20 able to be here today.

21 Now, let me also say that I see this workshop,
22 again, as just the beginning. Because what I would like to
23 do is -- and we've been talking about this; I would like to
24 see us now, after this workshop, go out and expand this
25 effort and do some regional workshops. This is a great

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1 starting point, but I think we're going to have to get down
2 and have some regional meetings and get to know the people
3 even better than we would be able to at a national kind of
4 workshop.

5 I have an advantage in the Research and Special
6 Programs Administration because I do have a variety of
7 different programs. One of the programs that I have
8 responsibility for is pipeline safety.

9 In the pipeline safety program we do have
10 regional pipeline safety offices and inspectors, and we
11 have about -- I think it is about seventeen people out in
12 the states, and those people are divided into regions and
13 they work with a group of state and the state inspectors in
14 those states.

15 That relationship has worked out so well; we
16 have regional meetings every year, we have national
17 meetings once a year, and our regional inspectors get to
18 know all of the people in the state that work on pipeline
19 safety and they know the problems and they know the
20 politics; they really do gain an understanding. And I
21 think that enhances our federal pipeline safety program.

22 When I was on Capitol Hill as a staffer, I used
23 to sit and listen to testimony, and everyone would come up -
24 - the industry, the states, and the federal government
25 would all come up and say that this pipeline program is a

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1 model on how the federal-state relationship should be and
2 how a program can work very well.

3 While I don't think it's possible to have the
4 exact same kind of framework in the hazardous materials
5 area, I would like to see us move -- you know, expand our
6 federal-state relationship. I think it is going to be very
7 key.

8 As Dick Cunningham mentioned, DOT and NRC
9 together are really the federal regulatory agencies
10 concerned with safe transportation of spent nuclear fuel.
11 The Department of Energy, with whom we all work very
12 closely, is really not a regulatory agency, it really is a
13 major shipper.

14 DOT operates under the authority of the
15 Hazardous Materials Transportation Act, which empowers the
16 Secretary of Transportation to promulgate and enforce
17 safety regulations on the transportation of hazardous
18 material of which, of course, spent nuclear fuel is one.

19 The Secretary has, in turn, delegated her
20 authority to various operating administrations within the
21 Department of Transportation, with RSPA playing a principal
22 and, in many respect, coordinating and focussing role.

23 Except for the bulk transportation by water,
24 which is the responsibility of the Coast Guard, the role of
25 promulgating regulations for hazardous materials for all

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1 transportation modes rests in RSPA.

2 Enforcement of hazardous materials regulations,
3 on the other hand, is delegated severally to the operating
4 administrations such as the Federal Highway Administration,
5 the Bureau of Motor Carrier Safety, the Federal Railroad
6 Administration. And, of course, we work with the Federal
7 Rail Administration and the Bureau of Motor Carrier Safety
8 to make sure that we do coordinate and that there aren't
9 any gaps or overlaps.

10 The principal components of our regulatory
11 program are rulemaking, enforcement, training and, to some
12 extent, emergency response. The regulations as they apply
13 to spent fuel transportation govern the packaging and
14 operations of shippers and carriers. For packaging, DOT
15 has incorporated the NRC standards for certain types of
16 packages. We, obviously, are going to get into a lot more
17 detail on how NRC and DOT work together and are split in
18 authority in the workshops later today and through the next
19 few days.

20 In enforcement, each of the operating
21 administrations, again, is responsible for the inspection
22 appropriate to its mode. Again, RSPA works with the BMCS
23 and we work with Federal Rail Administration to make sure
24 that things don't fall through the gaps. Sometimes we come
25 into play where there's an intermodal shipment. So we at

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1 DOT do coordinate.

2 In training, DOT sponsors a program in line with
3 its safety regulatory mission of accident prevention. We
4 provide for training of enforcement personnel at our
5 facility at the Transportation Safety Institute in Oklahoma
6 City. We have expanded that to now allow, and work with,
7 the Transportation Safety Institute to take the training
8 programs to the states; and that has worked out very, very
9 well.

10 In addition, we have also developed technical
11 material which can be used in curricula provided by other
12 organizations.

13 A fourth, and important, component of our safety
14 program is the emergency preparedness and response.
15 Because our primary mission is in prevention, our role in
16 emergency response is really a supporting one. The Federal
17 Emergency Management Agency within the federal government
18 is the primary agency responsible for emergency response.
19 And, again, we work with FEMA and we are right now in the
20 process of working extra hard with FEMA and with others to
21 coordinate our activities.

22 We do have some assistance materials, though, at
23 the Department of Transportation. For example, you all
24 might be familiar with our emergency response guidebook.
25 That guidebook we have distributed to over a million and a

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1 half people -- fire people and policemen -- and that
2 project has been, I think, very useful -- or that book,
3 rather, I think has been very useful; the feedback we've
4 gotten on that has been very good.

5 That's only a brief sketch of DOT's regulatory
6 program. And, again, we will go over that in greater
7 detail as the workshop develops.

8 We are here to share with you the specifics of
9 our program, and, equally importantly, we are here to
10 listen to your concerns.

11 I know that some of the issues are very
12 controversial, especially with regard to spent nuclear fuel
13 transportation. I am hopeful that when we leave here we
14 will all have a clear understanding of our respective
15 responsibilities.

16 Nuclear spent fuel does exist, and it must move
17 in transportation unless somehow we can store it
18 permanently at the site, which, at this point, is not
19 possible. My interest is in how can we work together to
20 achieve our primary objective? And our primary objective
21 is the safety of the citizens of this country.

22 I think we also have a responsibility to educate
23 the public as to the facts regarding nuclear
24 transportation. Nuclear transportation has been carried
25 out safely in this country, and it is our commitment -- and

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1 by "our" I mean the federal and the state enforcers,
2 regulators and planners -- it is our commitment to the
3 public to see that that safety record continues.

4 And I'm here to commit to doing that.

5 Thank you.

6 MR. CUNNINGHAM: Thank you very much, Cindy.
7 We're especially pleased to learn that you'll be able to
8 stay with us for the whole two and a half days. That's
9 wonderful.

10 We have a large number of participants and
11 observers drawn today from rather diverse backgrounds. As
12 you can see, if you look at the list of attendees,
13 participants come from all the states except Alaska, and
14 they hold a variety -- or, rather, you hold a variety of
15 positions in government specializing in areas such as
16 public health, transportation, highway control, and
17 community administration.

18 Therefore, before hearing from our next
19 speakers, I will take a few minutes to briefly describe
20 spent fuel transportation related government programs and
21 some of the broad issues as we at NRC understand them.
22 I'll do this to help provide a common understanding about
23 matters that will be discussed in much more detail later.

24 At the risk of being too fundamental, I will
25 start with commercial power reactor fuel itself.

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1 This fuel consists of uranium oxide in ceramic
2 pellets sealed in Zircaloy rods varying in length from 12
3 to 14 feet depending on whether they are to be used in
4 pressurized water reactors, or PWRs, or boiling water
5 reactors, BWRs. About 200 rods are tied together at top
6 and bottom in a PWR fuel assembly and about 60 in a BWR
7 assembly. These assemblies are also referred to as fuel
8 bundles or fuel elements.

9 The capacities of transportation casks are
10 usually defined in terms of the number of fuel assemblies
11 they can hold. However, when used in a power reactor--
12 Well, fresh fuel itself, first, is relatively innocuous
13 from a radiation safety standpoint, but when it's used in a
14 nuclear power reactor highly radioactive isotopes, or
15 fission products, are formed in the fuel. These fission
16 products collectively produce intense radiation requiring
17 careful handling procedures.

18 Spent fuel -- that is, the fuel that has been
19 used in a reactor -- is shipped in casks which weigh in the
20 range of 25 to 100 tons depending on capacity, with the
21 larger casks being shipped by rail.

22 The casks employ metal to shield gamma radiation
23 emitted from the fission products and a hydrogenous
24 material, such as water or resin, to shield neutrons. They
25 must be designed to dissipate heat generated by the

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1 radiation and be configured to prevent accidental nuclear
2 criticality. Finally, they must be designed to prevent
3 loss of contamination during normal transport or in the
4 event of accidents.

5 While spent fuel is certainly not the only
6 material transported, it encompasses most of the issues
7 associated with transport of other radioactive materials as
8 well as some that are unique to spent fuel. Therefore, as
9 a simple expedient, and mainly because of time, the seminar
10 is directed at spent fuel transport.

11 Furthermore, it is directed at transport of
12 spent fuel generated in the civilian nuclear power program
13 as opposed, for example, to shipments which might take
14 place under DOE and Defense programs.

15 I believe you will find it helpful to keep in
16 mind some of the major responsibilities of federal agencies
17 involved in transportation of commercial spent fuel as the
18 seminar progresses. My summary of these responsibilities
19 is brief and does not cover, certainly, all the
20 responsibilities for nuclear materials assigned to federal
21 agencies, but they are the major ones concerned with
22 commercial spent fuel transport.

23 DOT activities have already been well covered by
24 Cindy Douglass. Briefly, as it applies to spent nuclear
25 fuel transport, DOT regulates the safety of vehicles and

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1 the route spent fuel travels. DOT also operates an instant
2 response center, as Cindy pointed out, which receives
3 notification of accidents in transportation and, in turn,
4 notifies other federal agencies and coordinates emergency
5 response assistance to state and local governments. DOT
6 also provides training and assistance to states in these
7 and related matters.

8 The Nuclear Regulatory Commission regulates the
9 safety of spent fuel shipping containers and physical
10 protection of spent fuel against theft and sabotage.

11 With respect to container safety, major elements
12 of the NRC program involve engineering analysis and
13 certification that containers are designed to meet
14 performance standards, quality assurance requirements
15 through all phases of design, fabrication and use of the
16 containers, maintenance requirements to keep the containers
17 up to performance specifications during repeated use, and
18 inspection to assure that casks are fabricated and used in
19 accordance with all regulatory requirements.

20 In addition, the NRC conducts a research program
21 directed toward assessing and confirming the adequacy of
22 its regulations.

23 The protection of spent fuel shipments against
24 theft and sabotage is an important NRC responsibility.
25 Rules governing safeguards are currently under review to

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1 determine the appropriate balance between safeguards
2 requirements and the risks of sabotage. A proposed new
3 rule on physical protection of spent fuel during
4 transportation has been published for public comment. This
5 proposed rule will be a subject of much more detailed
6 discussion later in the seminar.

7 The NRC has issued a policy statement on its
8 role in the event of a transportation accident. The
9 statement recognizes the states' primary responsibility for
10 emergency response in the event of an accident. The NRC
11 will provide technical analysis and advice upon request.

12 To help assure readiness to assist states in the
13 event of accidents, NRC maintains an instant response
14 center at NRC headquarters with corresponding facilities in
15 each of the regional offices. Periodic drills at the
16 centers provide NRC staff with experience by reacting to
17 realistic accident scenarios, including establishing
18 communication links with appropriate state officials and
19 recommending appropriate protective measures as needed.

20 The Federal Emergency Management Agency, or
21 FEMA, evaluates emergency response plans of states and
22 assists states and local governments with preparedness
23 training to increase their capabilities for effective
24 responses. This is a broad charter which includes
25 transportation emergencies.

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1 The DOE role in transportation, under the
2 provisions of the Nuclear Waste Policy Act of 1982,
3 includes taking title to spent nuclear fuel at the reactor
4 site and transporting it to a storage or disposal site and
5 attending to all aspects of long-term care from that point
6 on, including further transportation if necessary.

7 DOE also has responsibility for the development
8 of a new generation of containers for transporting spent
9 fuel and high-level waste to DOE storage facilities or a
10 responsity.

11 In addition to its responsibilities under NWPC^A,
12 DOE also maintains about thirty emergency response teams at
13 field locations throughout the country which will provide
14 technical assistance to evaluate and contain hazards at a
15 transportation accident site upon request.

16 With this brief summary of federal roles, I
17 would like to say just a few words about our past
18 experience and present issues.

19 During the past 25 years there have been over
20 5000 shipments of spent fuel. Although there have been
21 some road accidents, there has never been a loss of
22 containment or a known radiation injury resulting from
23 shipment. As we look toward the year 2000, however, we know
24 that spent fuel shipments will increase substantially. A
25 new generation of casks will be developed to make these

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1 shipments.

2 The case for public safety cannot rest on the
3 past excellent record alone; we must ~~cont~~ainue to assess
4 the adequacy of our regulatory requirements to assure
5 safety. Such assessments, however, must be timely to avoid
6 costly changes in new cask design or delay in schedules.
7 We must also gain public confidence that we are in fact
8 providing adequate safety. Failure on any one of these
9 points could be a major impediment to achieving the
10 objectives of the Nuclear Waste Policy Act for eventual
11 disposal of spent fuel and high-level waste.

12 Based on inquiries we have received and on
13 meetings with state and local officials, my perception is
14 that the main public concerns with transportation of spent
15 fuel are route safety and the ability of state and local
16 authorities to respond adequately to emergencies in the
17 event of an accident

18 Route safety issues mostly focus on local
19 conditions which appear to make accidents more likely or
20 the consequences greater. Clearly, local authorities must
21 respond to all accidents involving spent fuel, and do so in
22 a manner which assumes some breach of containment,
23 regardless of the very small likelihood of this happening.

24 At issue is the level of training and equipment
25 necessary to do the job properly; costs and access to

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1 training are important considerations.

2 These concerns, in turn, give rise to issues
3 about state and local governments' role in route approval
4 as well as the relationship between route safety as
5 regulated by DOT and approval by NRC as presently provided
6 in its regulations for protection against theft or
7 sabotage.

8 Container safety itself seems secondary to these
9 concerns; however, there is a continuing program with
10 public understanding and acceptance of the adequacy of cask
11 safety. I believe this difficulty is mainly due to the
12 fact that performance standards in our rules, which are
13 specified in engineering terms, and the forces experienced
14 in real world severe accidents appear quite difference. As
15 you will hear later, we have research under way to evaluate
16 and explain this complex relationship.

17 These and other issues are interrelated, they
18 are not the exclusive responsibility of a single regulatory
19 agency or of other organizations engaged in spent fuel
20 transport; however, some have more direct responsibility
21 for addressing well-defined issues than do others.

22 The seminar agenda is intended to develop in
23 more detail the regulatory roles which I've summarized and
24 explore related regulatory issues which I've touched upon,
25 as well as some that I have not touched upon.

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1 Therefore, having the goals of the seminar
2 outlined by John Davis, and the regulatory roles as
3 summarized by Cindy Douglass, and my comments on some
4 background information which hopefully will be helpful in
5 the course of the seminar, it's indeed a pleasure to turn
6 to our speakers representing state and local governments
7 and Indian tribes.

8 The first speaker is Mr. Karim Rimawi, Director,
9 New York Bureau of Environmental Radiation Protection.

10 Mr. Rimawi.

11 MR. RIMAWI: Thank you, Dick.

12 Allow me to share with you some experiences that
13 we've had in New York State and some of the conclusions we
14 have arrived at as a result of these experiences.

15 Over the last two years, a large number of spent
16 reactor fuel shipments have tranversed the New York State
17 highways. Since October of '83, these shipments totalled
18 over two hundred. These originated in one of three sites:
19 West Valley in western New York, Brookhaven National Lab on
20 Long Island, or Chalk River in Ontario, Canada.

21 The large volume of activity was aided, if not
22 caused by two court decisions. The first decision required
23 owners of spent reactor fuel that was stored at West Valley
24 since the early '70s to remove their fuel. As a result,
25 750 fuel assemblies had to be moved to sites in Wisconsin,

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1 Illinois, New Jersey, Idaho, and the Ginna reactor site
2 near Rochester, New York.

3 The shipments to Wisconsin, Illinois and New
4 Jersey have been completed. Shipments to Ginna have
5 started. In all, 179 shipments have been made, with about
6 60 more expected to be moving before the end of 1985.

7 Prior to the start of these shipments, DOE, who
8 is the manager of the West Valley site, its contractors at
9 the site, and some of the utilities concerned had
10 information meetings to which the public, the press, and
11 the local and state government representatives were invited
12 to discuss the shipments. These meetings proved to be of
13 great value in reducing the public opposition to these
14 shipments.

15 All shipments leaving West Valley are inspected
16 onsite by DOE staff. NRC staff inspected some of these
17 shipments. The State Department of Transportation inspects
18 the vehicles used for highway safety.

19 The second court decision was made by the
20 Supreme Court when it decided not to hear an appeal by the
21 City and State of New York, thus letting stand a decision
22 by the U. S. Court of Appeals that found the DOT rules on
23 transportation of radioactive materials to be valid,
24 including the preemption of all state and local regulations
25 that are not consistent with these rules.

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1 This court decision made it possible to resume
2 the shipments from Chalk River, Ontario, to Savannah River
3 in South Carolina via Interstate Route I-81, which travels
4 New York State north-south going through Syracuse and
5 Binghamton. Previously these were virtually blocked by a
6 number of local actions. These shipments, which
7 traditionally traveled through New York State on I-81, had
8 to be diverted to Michigan and the Bridge Authority between
9 Canada and the U. S., and a county in northern New York
10 State adopted rules prohibiting them.

11 When Michigan banned the shipments, they
12 traveled east through Ontario and Quebec, then south into
13 Vermont to Connecticut, and then west into southern New
14 York State into Pennsylvania on Route I-84. When Vermont
15 found it might be difficult to safeguard the control
16 information on these shipments, a route was proposed that
17 would take the shipments into New York State on I-87 in the
18 eastern part of the State to Albany, then southwest to
19 Binghamton where it would pick up Route 81.

20 This would have taken these shipments through
21 busy city streets in Albany and Binghamton, New York. This
22 led the State of New York to object to having these
23 shipments go through.

24 Since the DOT rule was aimed at developing a
25 uniform, safe and efficient national highway routing

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1 framework for the transportation of radioactive materials,
2 such a situation hopefully will not occur again.

3 The preemption of local rules also led to the
4 resumption of shipments from Brookhaven National Lab on
5 Long Island to the City of New York. Previously the
6 Brookhaven shipments had been suspended in '76 when the New
7 York City Department of Health adopted regulations that
8 restricted the movement of such shipments through the city
9 without a special permit.

10 Prior to the start of the Brookhaven shipments,
11 the proposed rules which pass through densely populated
12 areas generated strong opposition in New York City and a
13 number of other communities mostly north of the city. This
14 opposition led to a number of measures by the State and the
15 City of New York.

16 The City commissioned a study by a consultant to
17 explore modes of transport, focusing on barring the
18 shipments to Connecticut, and requested the Department of
19 Energy to postpone shipments until the study was
20 completed. The City agreed to pay for the cost of
21 expanding the storage capacity of Brookhaven National Lab
22 that was required because of the delay.

23 The study developed by the consultant for New
24 York City examined a number of alternatives for barging the
25 fuel to various ports. The most appropriate route was

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1 determined to be that utilizing a chartered ferry from
2 Orient Point, Long Island, to New London, Connecticut.
3 This was determined to reduce the risk by 9 percent while
4 increasing the costs by 17 percent when compared to
5 trucking the fuel through the city of New York.

6 On December 24, 1984, New York City filed an
7 application for a non-pre-emption determination with the
8 U. S. Department of Transportation, using the consultant's
9 report to support its application. Later, New York State
10 joined the city in its application.

11 New York State also provided the State of
12 Connecticut with a copy of the consultant's report and
13 asked for their cooperation in considering the alternative
14 route. Connecticut did not agree; they retained a
15 consulting firm of their own to review the New York City
16 proposal. Needless to say, the Connecticut consultant's
17 review resulted in conclusions opposite to those arrived at
18 by the New York City consultant.

19 The Connecticut route was found to result in 40
20 percent higher risk than that of trucking the spent fuel
21 through a portion of New York City when the risk to truck
22 drivers is added to that of the general public.

23 To date, the Department of Transportation has
24 not ruled on the non-pre-emption request.

25 As it became obvious that the Brookhaven

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1 shipments would start, many local governments along the
2 route requested prior notification, and expressed their
3 intent to provide escorts to the shipment. At the same
4 time, a number of community groups and legislators asked
5 the Governor to establish a state routing commission.

6 In order to eliminate potential delays and
7 confusion with a multiplicity of escorts as the shipments
8 moved from one local jurisdiction to the next, the state
9 police escort the shipments from Brookhaven to the
10 Pennsylvania border. The state police escorting the
11 shipments also inspect them for radiation levels and for
12 highway safety.

13 In addition to the state police, the New York
14 City police, together with staff from the city radiological
15 health program, escort the shipments within the city
16 limits. Some of the counties north of the city also
17 escorted some of the shipments.

18 At the state level we feel it is not necessary
19 to have a radiological health specialist accompany the
20 shipment as long as the system exists by which the
21 radiological health staff would be notified promptly in the
22 event of any abnormal occurrence along the route.

23 The state also convened an inter-agency task
24 force to develop response plans and procedures for
25 responding to emergencies involving the transport of

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1 radioactive materials. The task force includes
2 representatives from a number of state agencies as well as
3 local governments' representatives. The plan will
4 emphasize the role of local government in responding to
5 such emergencies.

6 Since the probability of an accident involving a
7 shipment of spent reactive fuel is very small, it is more
8 likely that the plan and the trained staff in different
9 areas of the state will be relied upon in responding to the
10 more probable accidents involving routine shipments of
11 radioactive materials.

12 The public pressure also led to the large level
13 of bills that were introduced into the Senate and Assembly
14 proposing a variety of requirements. These include escort
15 by state police of all shipments, requiring a permit prior
16 to all shipments of any radioactive material, charging a
17 fee of \$1,000 per truck carrying radioactive materials, and
18 establishing the routing commission. However, only one
19 bill passed both houses and will be sent to the Governor
20 for signature.

21 The bill proposes to create a Hazardous Material
22 Transportation Board of 15 members with nine voting and six
23 non-voting members. The board decisions require an
24 affirmative vote by eight out of nine voting members.
25 Thus, it would appear quite unlikely that the board would

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1 make decisions that might be controversial.

2 Recently the Brookhaven shipments have been
3 delayed due to a controversy involving the casks used. The
4 cask had been certified by U. S. NRC in mid-'60s. However,
5 the NRC certification had expired. When NRC was asked to
6 renew the certification, it raised a number of questions
7 concerning performance claims stated in the application
8 that were felt not to have been supported adequately.
9 The controversy that followed resulted in DOE suspending
10 the use of this cask.

11 Since a large part of the driving force for many
12 of the efforts relating to the shipment of spent nuclear
13 fuel is the public perception of hazards associated with
14 the shipment, such controversy can only erode public
15 confidence and lead to more anxiety.

16 In conclusion, route selection is a federal
17 responsibility with direct involvement and input in terms
18 of review and evaluation of suggested routes by the state
19 and local jurisdictions. The route selection criteria
20 should be applied uniformly nationwide, and should not
21 return to the choice of the path of least resistance.

22 Except where warranted by national security
23 reasons, uniform procedures should be adopted by all
24 federal agencies concerning route selection,
25 prenotification, surveys, escorts, and many other issues.

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1 All casks used for shipping spent fuel should undergo the
2 same evaluation and certification criteria, regardless of
3 the shipping source. Preferably all casks should be
4 certified by one agency. I say this recognizing the
5 differences in responsibility among the different federal
6 agencies.

7 Prior notification should be made to the state
8 by all shippers, including the Department of Energy and the
9 Department of Defense except when warranted by national
10 security reasons. The state should use its own judgment on
11 notification of local jurisdictions along the
12 transportation route if the required confidentiality can be
13 maintained.

14 Escort by the state police is preferable. We
15 see no need for duplication by local staff nor
16 accompaniment by radiological health personnel.

17 States should develop emergency response plans
18 and procedures for dealing with such shipments. Local
19 rules should be an integral part of such plans.

20 Training relating to rules and regulations,
21 route selection and evaluation and emergency procedures
22 should be provided to state and local representatives.
23 Workshops such as this one and specialized training courses
24 sponsored by the federal agencies have been of great help
25 and should continue.

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1 Public information sessions prior to the start
2 of the shipments are of great value. Periodic sessions of
3 this nature can only help.

4 Thank you.

5 MR. CUNNINGHAM: Thank you very much, Karim.

6 I believe with your paper we can begin to see
7 the very complex interrelationships between state and
8 federal government, between one state and other states, and
9 the state and the local community.

10 Now for a somewhat slightly different
11 perspective on the whole problem of transportation, it is
12 my pleasure to introduce Mr. Robert Holden who is the
13 Natural Resources Researcher, National Congress of American
14 Indians.

15 Mr. Holden.

16 MR. HOLDEN: Thank you.

17 Good morning. In presenting the Indian
18 perspective, I must say that Indian Tribes are not unlike
19 states. They are individual entities that have similar
20 common concerns. I would like to give you some general
21 observations of some of these concerns that the Tribes
22 have, and also the basis of the Tribal Government
23 participation at this seminar.

24 Non-Indians call us native Americans or American
25 Indians but we have other names for ourselves: Lakota,

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1 Chahta, Chikasha, Tsa La Gi, Haudonoshonee. These would
2 translate into English as Sioux, Choctaw, Chickasaw,
3 Cherokee, and Iroquois.

4 Today, all of the Indian populations represent
5 only a minute portion of the Tribes and Bands that once
6 inhabited this country now called the United States of
7 America. Not that long ago this fledgling country now
8 called the United States of America sought peaceful
9 coexistence with many of the Indian Nations. Therefore,
10 numerous treaties and agreements were made between the
11 United States and Indian Nations.

12 In exchange for vast amounts of land, the U. S.
13 government promised to respect tribal autonomy, cultural
14 integrity, to protect these people from further
15 encroachment as well as to provide for the health,
16 education and other services for the signatory tribes.
17 These agreements and treaties have long been the subject of
18 discussion among the institutions of the U. S. government.

19 The President and the Executive office have
20 directed Indian policy at various times in recent history.
21 Andrew Jackson was the Commander-in-Chief in 1831 when the
22 Supreme Court refused to accept the case of the Cherokee
23 Nation versus Georgia. The major issue here was the
24 sovereign nature of the Indian Nations. Georgia had tried
25 to impose state laws within the Cherokee Territory.

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1 Chief Justice John Marshall stated that the
2 Cherokee Nation was a "distinct political society...capable
3 of managing its own affairs and governing itself."
4 According to the court, Indian Nations were "domestic
5 dependent nations," as in the relationship of a guardian
6 and his ward.

7 This trustee-beneficiary relationship imposes a
8 fiduciary duty on the trustee whereby the U. S. government
9 assumes the legal responsibility to manage the lands and
10 funds in the best interests of the beneficiary Indians. In
11 the eyes of the law, the standard for maintaining such a
12 duty is a high one.

13 In 1832, Georgia was still trying to impose its
14 laws on the Cherokee Nation. The laws in question required
15 that a non-Indian could not live within the Cherokee
16 Territory without state permission. Chief Justice Marshall
17 responded that:

18 "The words 'treaty' and 'nation' are
19 words of our language, selected in our
20 diplomatic and legislative proceedings, by
21 ourselves, having each a definite and well
22 understood meaning. We have applied them
23 to Indians as we have applied them to other
24 nations of the earth. They are applied to
25 all in the same sense."

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1 It is the result of this case, Worchester versus
2 Georgia, that evoked Mr. Jackson's statement:

3 "John Marshall has made his decision; now
4 let him enforce it."

5 The Cherokees may have won big in that battle
6 but lost the war because Mr. Jackson succeeded in removing
7 them, along with many other Indian Tribes, to Indian
8 Territory in Oklahoma.

9 According to federal case law, Congress has the
10 power to legislate in Indian affairs. We are no doubt the
11 most regulated people in the world. An entire section of
12 the U. ^{S.} Code, Title 25, is devoted to Indian law. Some
13 of this legislation represents good faith attempts by
14 Congress to deal with Indians honorably. Some are mere
15 pretexts designed to take away Indian land and resources
16 and worse, to assimilate a traditional people into the
17 dominant society so we would be only a memory in the dark
18 pages of history.

19 This short historical analysis may seem a bit
20 confusing. The Indian people have never fully accepted the
21 role of wards of the U. S. government. We are a strong-
22 hearted people who have survived what few other races could
23 tolerate without losing their cultural identity.

24 Tribal governments have jurisdiction over nearly
25 fifty million acres of land, or more than three percent of

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1 the land within the U. S. borders. Tribal governments have
2 jurisdiction over 43,410,186 acres of rangeland and
3 forests; 1,829,118 acres of dry farmland; 913,000 acres of
4 water reservoirs and lakes; 45,352 reservoirs and
5 impoundments; 3,199 natural lakes and ponds; and 12,000
6 miles of perennial ^lstreams.

7 Not to bore you with statistics, but Indians own
8 one-third of the nation's low-sulphur coal, 25 to 50 percent
9 of all uranium, depending on which study you decide to go
10 with, and two to four percent of the oil and gas. When
11 OPEC Nations were charging \$40 a barrel for oil, Indian
12 Tribes received an average of \$2 a barrel. When the market
13 price of coal was \$7 a ton, the Tribes were receiving 20
14 cents a ton.

15 Tribal residential and economic development,
16 including increasing mineral extraction activities, requires
17 strong Tribal governmental capabilities to protect the
18 environment for the generations to come.

19 Today we still win and lose in the Supreme
20 Court. Though Tribal governments have lost some aspects of
21 criminal jurisdiction, the highest court has recently
22 reaffirmed Tribal civil jurisdiction within reservation
23 borders.

24 President Reagan issued an Indian Policy
25 Statement on January 24th, 1983, which reaffirmed the

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1 government-to-government relationship of Indian Tribes with
2 the United States; expressed the primary role of Tribal
3 governments in reservation affairs; and called for special
4 efforts to develop reservation economies.

5 The President agrees with us that tribal
6 governments, like state and local governments, are more
7 aware of the needs and desires of their citizens than is
8 the federal government and should, therefore, have the
9 primary responsibility for meeting those needs. The
10 President called for federal agencies to offer specialized
11 assistance and expertise to Tribes to create a positive
12 environment in Indian Country.

13 The Environmental Protection Agency accordingly
14 developed an Indian Policy which was issued just prior to
15 the start of this Administration's second terms. The
16 Department of Energy has been working with several Indian
17 Tribes in the repository siting process as mandated by
18 Congress under the Nuclear Waste Policy Act of 1982.

19 The National Congress of American Indians, which
20 is the oldest, largest, and most representative
21 organization serving American Indians and Alaska Native
22 governments and individuals, is coordinating a mid-August
23 meeting in Albuquerque, New Mexico. This meeting will
24 bring together Tribal governments, federal agency
25 representatives, state representatives, and other

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1 interested parties.'

2 This meeting is one in a series of meetings that
3 allows us to disseminate information and provide technical
4 assistance to American Indian governments regarding nuclear
5 waste management repository site selection and
6 transportation issues.

7 We are very fortunate that the Department of
8 Energy has provided us with a grant and worked with us to
9 address the concerns the Indian Country faces today
10 regarding these important subjects.

11 A relationship is now developing between Indian
12 Nations, the Departments of Transportation and Energy, and
13 the Nuclear Regulatory Commission regarding the
14 transportation of nuclear waste. The Department of
15 Transportation is responsible for the routing of hazardous
16 material across the country.'

17 Preliminary Department of Energy routing plans
18 reveal that regardless of the first or second repository
19 site or monitored retrievable site location, transporting
20 nuclear waste without crossing Indian reservations or
21 tribally-owned land is highly improbable. Many Indian
22 Nations believe it is incumbent on the NRC and DOT to
23 implement an outreach program similar to the one DOE has
24 been mandated to carry out. I commend the NRC for inviting
25 the Indian Tribal representatives to this important

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1 meeting.

2 I must add here, however, that some Indian
3 Tribes and the NCAI resently had to respond to changes in
4 10 CFR, Part 60, proposed by the NRC. The proposed changes
5 would serve to limit participation by an already narrow
6 category of Indian Tribes in the NRC high-level waste
7 geologic repository licensing procedures. The proposed
8 change would preclude participation by tribally-sanctioned
9 organizations which may be requested by more than one
10 tribal government in the interest of cost-saving and
11 information-sharing and technical assistance.

12 Most importantly, the proposed change would
13 preclude the participation of Tribes that are not at this
14 time "affected" Tribes under the Nuclear Waste Policy Act.
15 There are only three Tribes at present that have petitioned
16 for and received "affected" status. Most Tribes in the
17 first and second repository states have not petitioned for
18 "affected" status and some have just become aware that they
19 are potentially affected.

20 Indian Tribes, excepting the three mentioned,
21 are years behind the states in receiving financial
22 assistance to address siting and transportation issues.
23 Though this may be an error to be laid at the feet of
24 Congress, it may be one that the federal agencies may
25 attempt to correct through discretionary policy procedures.

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1 Another concern of the proposed change in the
2 regs is that they may further limit participation by Tribes
3 that have land and usage rights that are ^{not} the subject of
4 congressionally-ratified treaties. Section 2(2) of the
5 Nuclear Waste Policy Act mentions both federally defined
6 possessory or usage rights and congressionally-ratified
7 treaties, the latter being one method of establishing
8 reservation boundaries and Indian Country.

9 Indian Country is defined in Section 1151(a) of
10 the United States Code, and the Court has interpreted it to
11 mean to include all reservation lands, with the term
12 "reservation" being a term of art meaning all Indian lands
13 which are subject to restrictions against alienation,
14 notwithstanding the issuance of any patent.

15 In 1871, in an appropriations act, Congress
16 restricted its future treaty-making with Indian Nations and
17 Tribes. Since that time, nearly 30 million acres have been
18 federally defined as reservations or Indian Country,
19 through congressional settlement, Executive Orders,
20 administrative procedures and court decisions.

21 Also, since that time, Congress has passed
22 numerous acts recognizing the property and usage rights of
23 Tribes, including NEPA, the National Environmental Policy
24 Act, the American Indian Religious Freedom Act and the
25 Archaeological Resources Protection Act, all of which

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1 recognize Tribes, their rights and property, irrespective
2 of their establishment method.

3 Since the NRC rule and the Nuclear Waste Policy
4 Act address, in the first instance, property that would be
5 affected by nuclear waste, the focus here should be on the
6 character of that property and related jurisdictional
7 systems, rather than on the precise manner in which they
8 were federally defined or recognized.

9 What the Tribes ask is that all of the
10 representatives of the federal agencies participating in
11 this meeting -- the states included -- keep in mind the
12 trust responsibility of each agency and that the Tribes
13 continue to be included in future meetings.

14 Several Indian Nations sacrificed hundreds of
15 thousands of acres for the people of this country when they
16 allowed the government to take land for experimental
17 project during initial research and development of nuclear
18 weapons. Lands belong to the Confederated Tribes and Bands
19 of the Yakima Indian Nation, the Nez Perce Reservation, the
20 Umatilla Reservation, the San Ildefonso Pueblo and the
21 Santa Clara Pueblo, to name a few, are still under
22 government control.

23 Sacred sites and areas of traditional cultural
24 significance are located on these federal reservations.
25 Indians have no doubt rose to the occasion when national

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1 security interests were at stake. A Taos Pueblo elder sat
2 on his roof one afternoon with his back to the sun. He was
3 speaking to a young non-Indian lady who wanted to write a
4 story on the Taos Pueblo people.

5 "You know how it is. People come here and they
6 want to know our secrets of life. They ask many
7 questions but their minds are already made up. They
8 admire our children but they feel sorry for them.
9 They come to our dances but they are always wanting
10 to take pictures. They come into our homes expecting
11 to learn about us in five minutes. Our homes, which
12 are made of straw and mud, look strange to them.
13 They are glad they do not live here. Yet they are
14 not sure whether or not we know something which is
15 the key to all understanding. Our secret of life
16 would take forever to find out. Even then, they would
17 not believe it."

18 Many of you wonder why we refuse to give up
19 Tribal identity, why we cling so tenaciously to our lands
20 and traditional tribal way of life. It is a ^fbelieve, a
21 feeling, and it is very difficult, maybe impossible, to
22 explain this ^fbelieve. This land is our home -- our
23 ancestral home. Many Tribes have stories of their origins
24 and those stories relate that the people came up from the
25 earth or were made from the earth, our Mother. And here

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1 our forebears were born, and our children will be born here
2 and their children's children.

3 I do not intend to pronounce a revelation by
4 saying that because of our beliefs we have regenerated
5 ourselves through times of extermination, repression,
6 religious persecution, and forced assimilation. The
7 Creator put the Indian people here just as he put all of
8 you here. If it is the will of the Creator that we truly
9 become the Vanishing American, as we have been called, then
10 it is meant to be.

11 Meanwhile, let us work together on this problem
12 that brings us together at this time. The source of
13 radiation, uranium, was created the same as the trees, the
14 grasses, the mountains, the rivers, four-legged animals and
15 the winged creatures, it ~~was~~ here before any of us were
16 here, it is here now, and it will surely be here after we
17 are all gone.

18 Let us seek an answer together.

19 Thank you.

20 (Applause.)

21 MR. CUNNINGHAM: Thank you very much indeed,
22 Mr. Holden, for a very interesting discussion on the tribal
23 perspective of this problem.

24 And now our time is running short. It is indeed
25 a pleasure to introduce the Honorable Robert Smith, Mayor

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1 of Piscataway, New Jersey.

2 Mayor Smith.

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1 MAYOR SMITH: I always wanted to know who was
2 sending those shipments out of New York State through my
3 town; and now I know.

4 I'm a second-term mayor of Piscataway Township
5 and, before that, a councilman. I mention that to you
6 because I wanted to put it in the context of Will Rogers'
7 comment that once a man holds public office he's absolutely
8 no good for honest work.

9 (Laughter.)

10 Hence, I'm here today.

11 I'd also like to know, because I couldn't find
12 out before the program began, who is out there. And maybe
13 you could by a show of hands tell me.

14 How many of you are federal, in some way federal
15 government operatives? Would you raise your hands?

16 (Show of hands.)

17 How many are state government operatives?

18 (Show of hands.)

19 How many are local government operatives?

20 (Show of hands.)

21 How many are here from consulting groups?

22 (Show of hands.)

23 And is there anybody here from other public
24 organizations?

25 (Show of hands.)

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1 Now I know who to pick on, whoever is here in
2 least numbers.

3 I would like to begin my remarks with a
4 disclaimer, and that is that I represent the most narrow,
5 the most parochial, the most prejudiced point of view, that
6 I have the most misinformation; and I mention that to you so
7 you can evaluate my comments in the spirit in which they're
8 given.

9 (Laughter.)

10 My comments are a distillation of my recent
11 experience in Piscataway Township, and to tell you about
12 that experience I, of course, have to tell you a little bit
13 about Piscataway Township.

14 We're a town of 43,300 of the happiest citizens
15 in the State of New Jersey; we are the high technology
16 capitol of the State of New Jersey, with more than 200 major
17 corporations and 35,000 high technology jobs; we have more
18 computers per square inch than just about any other place on
19 the East Coast. We're also the home of the medical
20 facilities of the University of Medicine and Dentistry of
21 New Jersey, and we have two of Rutgers University's
22 campuses, Livingston College²⁵ and the Bush Campus, which is
23 basically all their science facilities.

24 In addition to that, we have excellent
25 recreational facilities and cultural activities and a

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1 fantastic school system. In short, you're about coming to
2 that conclusion, I'm sure, that we are the closest thing to
3 paradise on God's earth.

4 In the fall of 1984, we were notified that spent
5 nuclear fuel rod shipments would be transported through
6 Piscataway Township, the ones from West Valley, New York,
7 utilizing route Interstate-287, unfortunately, while
8 Route 287 was undergoing major reconstruction and bridge
9 replacement.

10 In addition to Piscataway Township as a player,
11 players also included Governor Thomas ~~Kane~~, Governor of our
12 State of New Jersey, Congressman Jim Porter, and the New
13 Jersey Turnpike Authority, and all the local towns and the
14 country governments along the route.

15 Our main concern was the transport of these
16 110,000 pound vehicles over highway bridges that were in
17 need of replacement, so that a catastrophe like that which
18 occurred in New England with the I-95 bridge that collapsed
19 would not happen on Interstate-287 in our area.

20 Let me get to the bottom line. All of the
21 shipments have been transported, there have been no mishaps,
22 thank God, and we're going to pay ourselves a little bit on
23 the back. Perhaps part of this result is due to the small
24 efforts of local governments.

25 For the local officials who are out there, I'd

WRBwrb 1 like to distill my experiences, especially: what do you do
2 when the word comes down "Surprise, spent fuel rods are
3 going through your community?" And I think the first
4 question you have to face is how is it that you as a local
5 official are going to handle it?

6 You'll probably receive several months to a
7 year's notice of the shipments, and it appears to there's at
8 least three alternative approaches.:

9 Alternative A, lay down and die.

10 (Laughter.)

11 Now, it seems to me that that's clearly a
12 mistake.

13 Alternative B, create a public relations panic in
14 your citizenry; and that, clearly, in my opinion, is a
15 mistake.

16 Alternative C, try to handle it responsibly,
17 which includes, I believe, the following things that you can
18 do:

19 First, try to inform the public as to exactly
20 what is proposed. Deal with the issues associated with cask
21 safety. Make the public aware of who's in charge of the
22 decision-making process associated with the transport.
23 Throw the routing issues on the public table for discussion,
24 and fully bring forth the emergency response issues
25 associated with transport.

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1 As in any process that involves public
2 discussion, this approach will probably involve the most
3 pain for all officials on all levels.. No pain, no gain.

4 However, it is in the interest of everyone's
5 credibility that there be a full discussion of each and
6 every issue. Chances are that the various levels of
7 government will be in somewhat adversary roles, and perhaps
8 this tension between the government levels results in safer
9 and more efficient transport; or at least I hope that's the
10 case.

11 The next major conclusion from my experience in
12 Piscataway is the question of who's in charge -- or, as we
13 say in the political business: bad-guy, good-guy games.

14 There is no elected official, whether it be a
15 governor, a congressman, a U. S. senator, who will admit to
16 any authority in decisions associated with the transport of
17 spent fuel rods.

18 (Laughter.)

19 They will write letters to those damn bureaucrats
20 in Washington or criticize the action of the courts; they
21 will lift their arms into the air, look you in the eye and
22 say "I tried my best."

23 As a matter of fact, my congressman, when I
24 approached him to become a participant in the controversy
25 associated with the transport through Piscataway, he told

WRBwrb 1 me a story about the NRC. He said he had a friend who was a
2 senior civil servant in the Nuclear Regulatory Commission,
3 and this senior official was sent to work on a farm to get
4 some first-hand environmental experience. The farmer
5 decided to give him a tough time, so he showed him to a
6 large pile of manure and a four-acre field, gave him a
7 pitchfork and a shovel and told him to get on with it.

8 The farmer was surprised to see that the whole
9 lot was spread by the end of the first day.

10 The next day the farmer decided to give the civil
11 servant a simpler task. He told him to sort a huge pile of
12 potatoes into small, medium and large. At the end of the
13 morning the farmer came back to the NRC official. He was
14 sitting with his hands on his head and very few potatoes
15 sorted. The farmer said "What are you doing?" And the NRC
16 official said "Look, I'll spread bullshit, but these damn
17 decisions are driving me crazy."

18 (Laughter.)

19 That's what my congressman said about the NRC.

20 In answering the question "Who's in charge?" I
21 think you need to know the rules.

22 The first rule is the doctrine of pre-emption.
23 Pre-emption means that when the federal government
24 legislates over an area which it has been interpreted to
25 have authority under our constitution, its legislation

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1 pre-empts state, county and local government laws.
2 Therefore, if you plan going to federal court to challenge
3 routing decisions, or to challenge on the basis that state
4 and local legislation supercedes federal law, you are in for
5 a 99.9 percent deadlock loser.

6 If that is the case, why are the courts so
7 frequently approached by state, county and local
8 governments to challenge federal authority? And the answer
9 to this is that these governments wish to appear to their
10 constituents to be "fighting" in their constituents'
11 interest.

12 This is the arena in which most of the good-guy,
13 bad-guy games are played.

14 So who is in charge?

15 I had the pleasure of going to Washington during
16 the event that I described earlier and meeting with
17 representatives of the Nuclear Regulatory Commission.
18 Within the first thirty seconds of our conversation, the
19 official with whom I spoke said "I am in charge and I make
20 the decisions."

21 As our conversation continued, this official
22 indicated that he had made the decision in the absence of a
23 decision. This required a little bit of interpretation on
24 my part. It seems that any governor can express to the
25 Nuclear Regulatory Commission a "state preferred route."

WRBwrb 1 That designation will get a lot of consideration if it's not
2 unreasonable.

3 If there are any governors in the room, I know
4 you'll be very unhappy if this becomes public information.

5 In our particular situation, the governor's
6 response to my request to my request for his intervention
7 initially was that he had no authority. The next response
8 was that we were suing the federal government to accept the
9 state preferred route -- and, by the way, his state
10 preferred route was going through Pennsylvania.

11 (Laughter.)

12 And his third response was that he was unwilling
13 to consider alternate routes within the State of New Jersey
14 other than the one designated by the Nuclear Regulatory
15 Commission.

16 Governors do not want to designate a state
17 preferred route, because this will antagonize a group of
18 their constituents. However, local officials out there,
19 bear in mind that they do have the ability significantly to
20 affect the routing decision.

21 Another area of distilled comments from my
22 experience: routing issues, or whose ox is going to get
23 gored.

24 In the New Jersey situation, Governor ~~Kane~~^{Leane}, while
25 expressing dissatisfaction with the use of Route 287, was

WRBwrb 1 unwilling to designate any other state preferred route other
2 than the one going through Pennsylvania -- which was
3 unacceptable, of course, to Pennsylvania. Piscataway
4 Township reacted with reluctance by proposing an alternate
5 route, which generated a great deal of controversy.

6 As an aside for the local officials who are going
7 to propose alternate routes, you really want to use a major
8 highway or a state turnpike.

9 The alternate proposal that we suggested created
10 no end of controversy, and the governor did his best not to
11 respond to the alternate route suggestion until the last
12 possible moment. And for those people who are taking down
13 notes, this is one of the great laws, in fact, we call it
14 Mayor Smith's Law of Alternate Route Proposals: It is
15 likely that if the proposed alternate route passes closely
16 to the governor's or the congressman's home town it will
17 probably not receive favorable consideration.

18 (Laughter.)

19 This very nicely illustrates the major issue of
20 our routing: if any route selected is going to make people
21 unhappy, who evaluates whose unhappiness is most acceptable?

22 You will be told that there are federal
23 guidelines which give direction to the selection of
24 transportation routes, and they are published in the Federal
25 Register. However, local officials, do not fail to ask the

WRBwrb 1 follow-up question: What weight will be given to state
2 preferred routes if requested by the state government?

3 I can remember running into the New Jersey State
4 Commissioner of Transportation the night before I was to
5 meet with the NRC to discuss routing issues. And when I
6 explained that they might be willing to consider alternate
7 routes if the state requested them, his response was "Oh,
8 really? Did they really say that? Let me know what's
9 happening on this."

10 Now, I don't know whether that's inadvertence,
11 ignorance or what, but there seems to be a lack of knowledge
12 out there about what it is that the state declaring a
13 designated route can do. And let me to wish to all the
14 local officials out there: may your ox never be gored.

15 The last category of distilled comments I've
16 entitled "Emergency Response" or "Holy God, What Happens
17 If..."

18 One of the most important things you can to do
19 as a local official is to fully explore with the federal and
20 state officials the security and emergency response
21 procedures associated with the transport. And you'd better
22 put it in the back of your mind that you're not going to be
23 told everything because of the security aspects of the
24 transportation. In addition, this information should be
25 shared with the local fire companies, the rescue squads, the

WRBwrb 1 police departments, so that they're aware of how they may or
2 may not fit into the picture.

3 What I've found was that local emergency response
4 officials are overwhelmed by the what-if scenarios
5 associated with the transport of spent fuel rods. And by
6 your sharing information on this issue you are performing
7 perhaps one of the best services that you can perform as a
8 local official.

9 Well, the shipments are over by about four to six
10 weeks now, and after all this what are my conclusions on
11 this?

12 Well, I guess the first comment would be to
13 relate to you the very famous comment of Will Rogers in
14 which he said "The further away I get from Washington,
15 D. C. the more faith I have in our country."

16 (Laughter.)

17 Now, that's not all that funny to the federal
18 officials. But I'm really not thinking of the NRC people or
19 the DOT people or the DOE people, because my personal
20 experience with the NRC was, You guys are straight-shooters,
21 you know, you gave me answers, "I'm in charge, tell me the
22 truth." The people I think you have to watch out for are
23 the elected officials, and especially governors: they're
24 very, very shifty characters.

25 (Laughter.)

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1 The second conclusion -- that's in a humorous
2 vein -- is that the public relations and education effort of
3 federal, state and local governments has to be dramatically
4 improved. You've heard all the comments this morning that
5 spent nuclear fuel rod shipments are going to increase.
6 They have increased as there is more experience with
7 operating experience of nuclear power plants.

8 I think most people don't realize -- and maybe
9 I'm wrong in my assessment of the situation, but it appears
10 to me there are 225 million Americans out there who don't
11 believe in us, who don't believe in the federal government,
12 who don't believe the federal government is working in their
13 interests, they don't believe in the state efforts; they
14 have a tiny little belief in local government only because
15 they know the names of the people involved, and they see
16 them in and out of office fairly frequently, and it gives
17 them some feeling of control over the situation.

18 So we have a serious credibility problem.

19 I guess the strongest recommendation I can make
20 to all of us is: like it or not, even though we may appear
21 to be in an adversary position, as the years progress I
22 think we all have to come to work together as a team to
23 educate the public about spent nuclear fuel rod transport.
24 There are 225 million Americans who appear to be
25 tolerating the nuclear option. I don't run into people who

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1 come up to me on the street and say "I love nuclear power."
2 it doesn't happen. Spent fuel rod shipments are rubbing
3 salt in the wound to a lot of the people who are antagonized
4 by the entire issue. Education is the way to do it.

5 Have a good one.

6 (Applause.)

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1 MR. CUNNINGHAM: Thank you very much indeed,
2 Mr. Smith. You obviously are where the action is.

3 I am very grateful to you for spreading the blame
4 on elected officials rather than just picking on
5 bureaucrats.

6 We have come to the end of our presentations for
7 this session. We were supposed to close at 10:30. We are
8 few minutes behind. I think we have time for one or two
9 questions.

10 This is not a democratic seminar, by the way. We
11 will give preference for questions from the forward part of
12 the group where the designated invitees are sitting, and
13 work our way toward the back of the room during the course
14 of the session.

15 If you do have a question, I suppose, following
16 the standard procedure, you will be asked to give your name
17 and affiliation since the proceedings are being recorded.

18 Are there any questions?

19 Yes, sir.

20 MR. RAMATOWSKI: I am Peter Ramatowski,
21 representing the Confederated Tribes of the Umatilla
22 Reservation.

23 My question is to the gentleman from New York,
24 and is in regard to the consultant study, and difference
25 between the New York State consultant and the Connecticut

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1 consultant.

2 This administration is taking a policy of
3 establishing that the value of human life is inversely
4 proportional to the risk the individual is willing to take.
5 How can they judge the life of the drivers very highly if
6 they are willing to drive hazardous materials?

7 Do you understand the implications?

8 MR. RIMAWI: I'm not really sure I understand
9 your question, but if you are considering it in terms of
10 risk to the driver or to the general public, if you look at
11 it in terms of absolute numbers, it is very small. What you
12 are looking at here is you're comparing numbers, one small
13 number to another small number.

14 MR. RAMATOWSKI: The point was, though, that the
15 change in the value of one route as opposed to the other was
16 based on the safety of the driver being added to the
17 equation.

18 MR. RIMAWI: Oh, I'm sorry. The procedure
19 described by DOT for evaluation or for comparing the
20 different routes, if we look at the risk of exposure along
21 the transport routes, we look at exposure not only to the
22 public but to cars on the highway and people who have homes
23 that a truck goes by, but also include the truck driver who
24 is driving that truck. So if you look at the total
25 exposure, overall exposure, that's one number.

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1 The other number that was obtained was obtained
2 from the public along the route, but not including the truck
3 driver.

4 MR. CUNNINGHAM: I think there will be
5 opportunities to discuss this some more later on, how these
6 types of evaluations are made. And I think some of these
7 questions as to the value of human life will be in that
8 discussion. That of course is something that is very
9 difficulty. But there are always risks associated with any
10 activity undertaken by man. The risks, as Mr. Rimawi
11 pointed out, are very small, especially in comparison with
12 other risks.

13 Are there any other questions at this moment?

14 In the back of the room there. Yes?

15 MS. ZALMAN: My name is Rachelle Zalman, of the
16 Illinois Safe Energy Alliance, and I am also here
17 representing the Interstate Radwaste Transportation
18 Coalition.

19 I just have an informational question to clear up
20 some confusion I have.

21 Yesterday I made a point of contacting, actually
22 rather at the last minute, a number of individuals at all
23 levels of participation in the situation, what they would be
24 interested in in the conference. And when I contacted the
25 Mayor and the Director of Emergency Services of Aurora, they

WRBeb 1 didn't know about it.

2 And I just have a question-- They do know about
3 it now.

4 I just have a question about how the notification
5 about this went out.

6 MR. CUNNINGHAM: My understanding of this, and
7 perhaps you can talk to Wayne Kerr in the break, was that
8 first we wanted a seminar with people that are involved in
9 making decisions about transportation, so we did have a list
10 of invitees. NRC invited people through notification to the
11 Governor's office and DOT invited people that they had
12 contacts with also.

13 In addition to that, the meeting was published in
14 the Federal Register. And more detailed information can be
15 provided by Wayne Kerr.

16 We are now well into the break. I think we had
17 better stop at this point. Let's see. We will begin again
18 in 15 minutes, at five minutes to 11:00.

19 (Recess.)

20 MR. RAWL: We are running a little behind time,
21 and I would like to get this session underway if I could.

22 I am Richard Rawl, and I am with the Office of
23 Hazardous Materials Transportation of the Research and
24 Special Programs Administration of DOT. I am going to be
25 the session chairman for this particular session.

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1 What we have lined up for you is a sterling cast
2 of damn bureaucrats. One of the first objectives that we
3 wanted to accomplish at this seminar was the presentation of
4 information on what the federal requirements in certain
5 areas really are. As a part of the damn bureaucrats, we get
6 blamed for a lot of things, and first of all, we wanted to
7 get it straight what we should be blamed for and what we
8 should not be blamed for.

9 The purpose of this session specifically is to
10 present information on what the federal safety regulatory
11 requirements are that pertain to shippers and carriers of
12 spent fuel, including the physical security requirements.
13 These requirements are imposed by either the Nuclear
14 Regulatory Commission or the Department of Transportation.

15 The responsibilities between the two agencies are
16 delineated by a Memorandum of Understanding. A copy of the
17 Memorandum of Understanding has been included in the packet
18 of information that everyone hopefully has received.

19 Dick Cunningham gave you some details on the
20 responsibilities of both DOT and NRC. To recap briefly on
21 that division of responsibility, NRC has primary
22 responsibility for the packaging requirements, for fissile
23 in greater than Type A quantities of radioactive materials.

24 Now Type A quantities is a relatively small
25 amount of material. It is basically the amount of material

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1 that would go in a package of radiopharmaceuticals, for
2 instance. The NRC has packaging responsibility for
3 materials greater than that quantity, and also for the
4 physical protection of materials loss in transportation.

5 DOT has packaging requirements for Type A smaller
6 quantities of radioactive materials. We also have a whole
7 host of regulations that govern shipper and carrier actions.
8 For example, for shippers of radioactive materials,
9 including spent fuel, we require that they follow certain
10 packaging requirements. The packages have to be marked,
11 shipper paper descriptions have to be provided. Labeling
12 and placarding in routing all comes within the purview of
13 DOT.

14 Since this seminar is to concentrate on spent
15 fuel, we do not have a specific speaker on the DOT
16 requirements that govern such things as shipping papers and
17 labeling and marking. We do have speakers that will give us
18 information on the DOT carrier requirements, including the
19 basic safety requirements as well as those which pertain to
20 spent fuel and other hazardous materials.

21 The speakers will describe in detail for us what
22 the NRC and the DOT requirements are, and we will cover the
23 physical protection activities as well.

24 Our first speaker is Mr. Charles MacDonald, who
25 is chief of the Transportation Certification Branch of the

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1 NRC. Mr. MacDonald is responsible for the package design
2 and certification program at NRC. He has held that position
3 since 1972, and prior to joining the Atomic Energy
4 Commission in 1963, he was employed by Combustion
5 Engineering. He is a graduate of the U. S. Merchant Marine
6 Academy, showing how far back his transportation experience
7 goes.

8 He is an active member of the American National
9 Standards Institute Committee N-14, the Transportation of
10 Radioactive Materials.

11 Mr. MacDonald.

12 MR. MAC DONALD: Thank you, Rick.

13 Good morning. I am impressed by the number of
14 new faces that we have in the audience, and also the beauty
15 of the room which we have this morning.

16 I appreciate the opportunity to address packaging
17 requirements. Included in the material that you received is
18 a medley of Vugraphs which will form the basis for my
19 presentation. These are three sheets of disjointed
20 Vugraphs. I hope to bring them together in my presentation.

21 In the time that I have I plan to provide a broad
22 overview of the shipments of radioactive material, the
23 packaging strategy that applies to those shipments, the
24 requirements and implementation of that strategy, and some
25 past and present activities related to safe transport of

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1 radioactive material.

2 (Slide.)

3 First I would like to present some results of a
4 study sponsored by DOT, NRC, DOE, and FEMA. The study was
5 to determine the magnitude and characteristics of
6 radioactive material shipments in the U. S. The study was
7 conducted by SRI International, with Sandia Laboratory as
8 technical monitors.

9 The charts that you have and what I will be
10 showing are the results of the sampling of 14,600 NRC and
11 Agreement State licensees. This part of the study indicated
12 the shipment of some 2.8 million packages containing nine
13 million curies of radioactivity.

14 In looking at the package type, we note that a
15 small percentage of the packages were Type B, but they
16 contained 90 percent of the curies shipped. Sixty-four
17 percent of the packages shipped were Type A and contained
18 eight percent of the curies shipped. And 15 percent of the
19 packages shipped were limited or small quantities and, while
20 not showing up on the chart, did contain approximately 1,000
21 curies.

22 The results do not include~~d~~ the limited number of
23 spent fuel shipments made during the period. We should
24 note, however, that a spent fuel cask is a Type B package,
25 and that the 3.5 percent Type B packages represents

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1 approximately 95,000 shipments -- 95,000 packages during
2 that year.

3 It may also be of interest to note that 13
4 percent of the packages shipped contain 90 percent of the
5 curies in special form or non-dispersible radioactive
6 material. Medical is the largest shipper of radioactive
7 material, with 62 percent of the packages shipped, and 34
8 percent of the curies, and that radiography accounts for 56
9 percent of the curies shipped, and three percent of the
10 packages.

11 The highway mode continues to be the predominant
12 mode. There is a fair balance between the packages shipped
13 and the curies. There were approximately 3900 shipments by
14 rail during this period. Most shipments were single-package
15 shipments made by non-exclusive-use vehicles. The average
16 shipment was 1.4 packages per shipment for about 1.96
17 million shipments per year.

18 (Slide.)

19 There have been a large number of radioactive
20 material shipments over the years. However, it should be
21 kept in perspective that radioactive material shipments
22 represent only a small percent of all hazardous material
23 shipments, and spent fuel shipments are even a smaller
24 percentage.

25 Experience has been that no Type B package,

WRBeb 1 which includes spent fuel casks, has ever failed to perform
2 as designed in accidents. We often say that the overall
3 safety is equal to package integrity plus transport
4 controls.

5 (Slide.)

6 As with many strategies, the basic strategy for
7 assuring safety in transport of radioactive material is
8 simple. As the activity to be shipped increases, the
9 requirements increase. Requirements are
10 performance-oriented, stating both the conditions and
11 the acceptance standards. Requirements are expressed so
12 that the demonstration of compliance may be by test or
13 analysis.

14 The activity is expressed in curies, based on the
15 radiotoxicity of each radionuclide. This strategy is
16 consistent with the recommendations of the International
17 Atomic Energy Agency, making the U. S. regulations
18 compatible with domestic regulations of most of the
19 international community.

20 (Slide.)

21 As the strategy evolves it becomes more complex.
22 Here we have added three basic plateaus: limited to small
23 quantities, Type A for the Type A quantities and Type A
24 packaging, and Type B for Type B quantities and Type B
25 packaging.

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1 Spent fuel casks are on this upper plateau.
2 Introduced are the A1/A2 values. An A1/A2 value is the
3 maximum activity, based on its form, permitted in a Type A
4 packaging. A Type A package is assessed to normal
5 conditions of transport.

6 The normal conditions of transport which must be
7 considered are heat, cold, pressure, vibration, water spray,
8 free drop, corner drop, compression and penetration. The
9 conditions are applied separately as required for a
10 determination that there be no reduced effectiveness for the
11 packaging.

12 Exceeding the A1/A2 value, a Type B package may
13 be required. A Type B package, which includes a spent fuel
14 cask, is assessed in normal conditions of transport and the
15 hypothetical accident conditions.

16 The hypothetical accident conditions which must
17 be considered are free drop, puncture, thermal, and
18 emergency. These hypothetical accident conditions are
19 applied in sequence to determine the cumulative effect on
20 the package, and to demonstrate that adequate containment
21 and shielding is provided and subcriticality is maintained.

22 (Slide.)

23 As we complete the picture, it is very vivid.
24 Here we have included the acceptance standards we just
25 discussed, introduced our quality assurance, operating

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1 controls, and fissiles, all of which apply to spent fuel
2 casks. This is the Vugraph included in your handout. For
3 completeness, we have added a few extra items.

4 Enough of this.

5 (Slide.)

6 I am frequently asked what the requirements are
7 for packaging and transport of radioactive material. My
8 initial response is there is no absence of requirements.

9 A comprehensive set of regulations has been
10 established by both DOT and the NRC. In general, the DOT is
11 responsible for regulating the safety during the actual
12 transport of the package, and for packages excluding fissile
13 up to the A1/A2 value.

14 The NRC is responsible for regulating the design,
15 manufacture and use of fissile and Type B packages. The NRC
16 also has requirements for physical protection in transport
17 which will be discussed later in this session.

18 (Slide.)

19 Together the DOT and the NRC regulations are
20 intended to assure safety in transport. The implementing
21 NRC requirements are in 10 CFR Part 71. The basic safety
22 objective is to ensure adequate containment of radioactive
23 material, control of the radiation emitted by the contents,
24 and prevent nuclear criticality. This is consistent with
25 the packaging values we discussed.

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1 A complete revision of Part 71 was published in
2 the Federal Register in 1983. This was to achieve
3 compatibility with the regulations of the IAEA. I believe
4 this is the first time that an NRC regulation was also
5 subject to the Plain English review.

6 Part 71 consists of subparts A through H, and
7 several tables.

8 Subpart A includes the purpose, the scope, the
9 definitions, and requirements for a license.

10 Exemptions. Part 71 covers all radioactive
11 material. The primary purpose of Subpart B is to provide an
12 exemption for the quantities that are subject to the DOT
13 requirements.

14 General license and conditions for use of
15 NRC-approved packages, the specification of packages,
16 fissile packages, and foreign packages are included in
17 Subpart C.

18 Subpart D addresses the information required in
19 applications for package approval submitted to the NRC.

20 Package approval standards are included in
21 Subparts E and F. Subpart E includes the general standards
22 for all packages, lifting and tie-down requirements,
23 external radiation standards and requirements for fissile
24 packages, and the acceptance standards.

25 Subpart F includes the normal conditions of

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1 transport and the hypothetical accident conditions.

2 Quality control and quality assurance are
3 included in Subparts G and H. Subpart G includes the
4 preliminary determinations that must be made prior to the
5 initial use of a package, and the routine determinations
6 that must be made prior to each shipment, the records to be
7 maintained and the requirements for advance notification are
8 also included.

9 Subpart H described the QA requirements that
10 apply to all the activities conducted under Part 71, while
11 Table A-1 the main table to Part 71, includes the A1/A2
12 values for each radionuclide.

13 Subparts A through H are intended to cover all
14 packaging aspects of all Type B packages and spent fuel
15 casks.

16 (Slide.)

17 The submission of an application to the NRC
18 initiates the package review process. The application is
19 independently reviewed by the NRC engineering staff to
20 verify that all design requirements are met. A certificate
21 of compliance must be issued by the NRC before a Type B
22 package or spent fuel cask fabricated to that design may be
23 used by a licensee.

24 Subsequent users of fissile and Type B packages
25 for which an NRC certificate of compliance has been issued

WRBeb 1 are required to register with the NRC prior to the use of
2 the package. This requirement applies to both NRC
3 licensees and to Agreement State licensees.

4 Annually NUREG-0383 is published which includes
5 all the certificates of compliance issued by the NRC and
6 also a listing of those who are registered to use the
7 various packages. Of the approximately 220 certificates of
8 compliance issued, five are for spent fuel casks which may
9 be used for the shipment of current generation spent fuel
10 assemblies.

11 The approval issued by the NRC identifies
12 the design approved, the authorized contents, and other
13 conditions applicable to the design. The industry
14 determines how many packages will be fabricated to these
15 designs. However, a quality assurance program for
16 fabrication must be in place and the NRC Office of
17 Inspection and Enforcement notified prior to the fabrication
18 of a spent fuel cask.

19 NRC licensees are also required to maintain
20 and use packages in accordance with the NRC-approved QA
21 program.

22 (Slide.)

23 This is a typical spent fuel cask. I am showing
24 this because I sense in looking at the requirements, there
25 is no indication as to what a fuel cask looks like. This is

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1 the nature of the performance-type requirements.

2 In part, this raises the question whether the
3 current criteria for cask designs are sufficient to meet
4 accident conditions involving the transportation of spent
5 fuel and high level waste.

6 (Slide.)

7 I believe the answer is Yes.

8 Following the organization of the NRC in 1975,
9 the Commission embarked on a reevaluation of its transport
10 regulations. The results were published in NUREG-0170, the
11 Final Environmental Statement on the transportation of
12 radioactive materials by air and other modes.

13 Considering the information developed, the public
14 comments received, and the safety record associated with the
15 transportation of radioactive materials, the Commission
16 determined in 1981 that its present regulations provided a
17 reasonable degree of safety, and that no immediate changes
18 were needed to improve the safety.

19 However, the Commission indicated that prudence
20 dictates that regulatory policy concerning transportation of
21 radioactive materials be subject to close and continuing
22 review. As part of this review, a study was initiated to
23 more fully investigate the response of large shipping casks
24 to severe highway and railroad accident conditions.

25 (Slide.)

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1 The MODAL study undertaken for the NRC by
2 Lawrence Livermore National Laboratory seeks to determines
3 how well packages designed to meet NRC performance criteria
4 will withstand forces generated in the worst sorts of
5 accidents. The study is based on data on severe non-nuclear
6 accidents that have actually occurred, supplemented by data
7 on various package test programs.

8 Comparing the forces resulting from severe
9 accidents with those the casks are designed to withstand
10 will give a measure of the degree of protection afforded by
11 casks that conform to regulatory requirements. Any accident
12 which produced forces in excess of those the casks are
13 designed to withstand may be studied in more detail to
14 assess the potential for release of radioactive material.

15 The probability of such an accident actually
16 occurring will be evaluated and the resulting risk to public
17 health and safety will then be compared with the risk
18 previously calculated in NUREG-0170.

19 Another objective of the study is to provide a
20 document which relates regulatory performance criteria to
21 real-world accidents in simple, straightforward language.

22 The two-volume MODAL study contractor report is
23 scheduled to be completed this summer. Volume One is to
24 contain the main text, the conclusions and the
25 recommendations. Volume Two is to contain the data and

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1 analysis. Prior to publication, the study will be subjected
2 to peer review by one or more major universities.

3 Thank you for your attention.

4 (Applause.)

5 MR. RAWL: Thank you, Chuck.

6 With that understanding of the packaging
7 requirements that are in place and are imposed on spent fuel
8 packages, this leads us into the requirements that are
9 imposed on the carriers of these packages.

10 Our first speaker on this subject is Mr. Darrel
11 Gregory. For the past five years he has been chief of the
12 Field Programs Branch of the Bureau of Motor Carrier Safety
13 of the Federal Highway Administration of the Department of
14 Transportation. And boy, that's a great alphabet soup when
15 it gets abbreviated.

16 He is basically responsible for the oversight of
17 all of the Motor Carrier Safety field operations. Prior to
18 coming to BMCS in Washington, he served six years as a
19 Field Safety Investigator in Missouri. He was officer in
20 charge in Nebraska, a hazardous material specialist in
21 Washington, D. C. Prior to that, he spent time with
22 Consolidated Freightways on safety requirements, and prior
23 to that, 12 years with the Kansas Highway Patrol.

24 Mr. Gregory will explain to us what some of the
25 motor carrier safety requirements are for transporting spent

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1 fuel.

2 MR. GREGORY: Thank you, Rick.

3 It is a genuine pleasure for me to be asked to
4 appear here today to address such a broad section of
5 interested groups, and I do appreciate the opportunity.

6 I am going to cover the highway movement
7 requirements, and I think you should know early on that for
8 the past several years, the transportation of hazardous
9 material, and especially radioactive material, has been a
10 high priority for a program emphasis area within the Bureau
11 of Motor Carrier Safety, both from a safety management audit
12 standpoint that the field staffs conduct, and from roadside
13 inspections.

14 The requirements that I wanted to cover will
15 cover all carriers of hazardous materials, including the
16 movement of spent nuclear fuel.

17 We in the Bureau would kind of like to hitch our
18 star to the RAM transportation, and it was alluded to by
19 Chuck. We would like to point with pride to the record that
20 the transportation of radioactive material has gained over
21 the past several years. It is an excellent record, and it
22 is one that we should all be very, very proud of.

23 Our requirements are found in 49 CFR, Parts 300
24 to 399. And the first one that would apply or does apply is
25 found in Part 387 which is a financial-responsibility

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1 requirement. It came on board about 1980 to '82, depending
2 on which financial-responsibility action you want to
3 address.

4 What it does in pure king's English is place an
5 insurance requirement on carriers that transport certain
6 types of hazardous materials, including radioactive
7 material. This was an attempt by Congress to legislate X
8 amount of dollars, which they did, that each carrier must
9 have when he moves hazardous material, in our case
10 radioactive material, in interstate or foreign commerce.

11 We next jump to 391, which are
12 driver-qualification requirements. There are written
13 requirements. A driver must pass -- must take a written
14 test on the Federal Motor Carrier Safety Regulations. He
15 must be given a road examination by an individual who is
16 qualified by the carrier in the type of equipment --
17 utilizing the type of equipment that he will be operating in
18 this movement.

19 There are medical requirements. The driver must
20 meet certain medical standards. He must be examined by a
21 physician, either a medical doctor or an osteopath. And
22 these cover a broad gamut of medical requirements from blood
23 pressure to eyes to heart, the whole nine yards.

24 The carrier is required to make a background
25 investigation of the driver to determine previous

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1 employment, to check with previous employers to see type of
2 individual he was.

3 The carrier is required to make a driving record
4 inquiry to states that the driver may have held a driver's
5 license in.

6 This brings up another subset and another concern
7 that we have that this symposium does not directly address,
8 but I think it certainly impacts and that is the multi-state
9 licensing of drivers. That is a very serious problem that
10 we face in the highway transportation.

11 And again in pure and simple English, that's a
12 driver going into the State of Kansas and acquiring a
13 driver's license and then going north to the State of
14 Nebraska and acquiring another driver's license and not
15 telling the State of Kansas about it. He now runs on two or
16 more driver's licenses and depending on which one he's got
17 the most points on, he gives the trooper that stops him the
18 other license.

19 This is a very, very serious problem that is
20 being looked at but certainly does need to be looked at.
21 There are no simple solutions. A lot of people are
22 advocating a better driver's license. Well, that's fine
23 right up front, but then you start talking costs to
24 implement such a thing, and it gets almost
25 cost-prohibitive.

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1 But I think every one of you, especially you
2 state people, should be well aware that that is a problem
3 and it does impact the movement of hazardous materials and
4 radioactive materials.

5 The next area is part 393, which is in our
6 regulations entitled Parts and Accessories. And very simply
7 put, this is the requirement that the vehicles have certain
8 specified parts and accessories, i.e., brakes, lights, good
9 tires, the steering in proper condition, and things of that
10 nature.

11 We have accident-reporting requirements found
12 under 394, in which carriers are required to report to the
13 Department, to the Bureau of Motor Carrier Safety, accidents
14 that meet certain criteria.

15 395 is generally called, for those of you
16 old-timers, the HOSO requirements or, more specifically, the
17 hours of service requirements. We regulate the hours of
18 service, both the daily hours, the aggregate hours, and the
19 weekly hours that a driver may operate a vehicle.

20 For instance, we have no driving after the tenth
21 hour; he must take eight hours consecutive in an off-duty
22 status. We limit the number of hours, depending on the type
23 of operation, that a driver can operate; no more than 70
24 hours in any eight consecutive days.

25 Part 396 covers inspection and maintenance and

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1 simply sets down some very broad, general guidelines that
2 the carrier must follow, some reporting requirements that
3 they must maintain on inspection and maintenance of
4 equipment.

5 One of the first things that we see when a
6 carrier gets in trouble from a financial standpoint is that
7 the inspection -- or the safety goes down, too. Safety is
8 kind of an embryonic thing. You can sometimes see it but
9 many, many times you cannot.

10 So unfortunately many times we see that when the
11 bucks get tight, why the safety program, translated i.e.,
12 the inspection and maintenance program, starts getting
13 affected. Instead of getting a preventive maintenance
14 inspection at 20,000 miles, the carrier will decide well, I
15 can up it to maybe 40,000.

16 So these are some of the areas that we constantly
17 monitor.

18 Part 397 covers routing and other HM
19 requirements. We have a requirement that a driver stop and
20 check his tires, for instance, every 200 miles, and things
21 of that nature.

22 As was alluded to earlier in the program, the
23 Bureau of Motor Carrier Safety is responsible for those
24 portions of the ASMAT rates that are found in 171 to 177
25 that concern highway movement, and I will just touch on

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1 those very briefly.

2 They contain marking requirements and packaging
3 requirements as Rick mentioned, shipping paper requirements
4 and placarding requirements, but they also contain some
5 specific requirements concerning RAM movements including
6 highway route controls, which was mentioned earlier, some
7 driver training requirements for drivers that are
8 transporting radioactive material, blocking and bracing, and
9 some requirements that are placed on a carrier for use of
10 exclusive-use vehicles, both before and after the use.

11 So those very briefly and very generally are the
12 highway requirements. Again they are found in 49 CFR, Parts
13 390 to 397, on the motor carrier side, and in the hazardous
14 materials side, 171 to 178.

15 Thank you.

16 (Applause.)

17 MR. RAWL: Thank you, Darrel.

18 The idea that we are trying to present here is
19 how the various requirements of DOT interact and how the
20 regulations cover all aspects of transporting spent fuel.
21 As Darrel has referred to, we have the general body of the
22 regulations which apply to shippers and cover many of the
23 actions that a shipper has to perform. And we have seen
24 from Darrel some of the motor carrier safety requirements
25 that apply to highway movement.

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1 If a movement is going to go by rail, the same
2 sort of a division of regulatory assignment exists.
3 Specific requirements are imposed on the rail carrier. And
4 to address this issue we have with us Mr. Ed Prichard from
5 the Office of Safety Enforcement of the Federal Railroad
6 Administration, which is also part of DOT.

7 Ed is responsible for field inspection and
8 enforcement activities, and he is with the agency in
9 Washington. His education is in civil engineering and
10 environmental engineering, and he has been in his present
11 position at DOT for two years.

12 For five years prior to that, he was the District
13 Supervisor with the Federal Railroad Administration in
14 Chicago, and eight years before that he was a field
15 inspector assigned here in Chicago. Prior to that he was
16 with private industry, both the Bureau of Explosives and the
17 Pennsylvania Railroad.

18 Ed tells me that he is a native Chicagoan, so if
19 he disappears and we can't find him some time tomorrow, we
20 can probably locate him at the Cubs game.

21 MR. PRICHARD: Thanks, Rick.

22 Good morning. It is good to be back in Chicago.
23 Of course the weather is wet and rainy, but I can tolerate
24 that.

25 In the very short period of time that I have I am

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1 going to give you what the rail carrier requirements are for
2 the movement of not only radioactive material and hazardous
3 materials, but hazardous materials in general. Those
4 requirements are found in Part 174 of 49 CFR.

5 Basically they require the train crew to have
6 documentation onboard the train of any hazardous materials
7 being transported, including radioactive material. And of
8 course that documentation originates from the shipper, and
9 his requirements are in 173.

10 In addition to the documentation, we have train
11 placement requirements, and that deals with all hazardous
12 materials except combustibles, but basically with
13 radioactive material there must be a separation by at least
14 one car from the engine or occupied caboose, plus a
15 separation again of one car from any placarded car in the
16 train.

17 In addition to that, the rail carrier has what is
18 referred to as a 48-hour rule to expedite the movement of
19 all hazardous materials in train yards, and the rail carrier
20 must forward each shipment of hazardous materials promptly
21 and within 48 hours -- Saturdays, Sundays and holidays are
22 excluded -- after acceptance at an originating point or
23 receipt at any yard or transfer station.

24 In addition to the regulations in 49 CFR on the
25 hazardous material end of it, the rail carriers also have

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1 safety regulations comparable to the Bureau of Motor
2 Carrier Safety. They have an accident-reporting
3 requirement, that they must report to FRA any damages
4 exceeding \$4700. And in addition to that, the Materials
5 Transportation Bureau also has a reporting system of any
6 unintentional release of hazardous materials.

7 The railroad carriers also have federal freight
8 car standards which deal with the trucks, wheels and brakes
9 on freight cars, the Power Brake Law and Locomotive Safety
10 Act which deals with the locomotives propelling the train.
11 And we have an Hours of Service Act that the carriers must
12 comply with, and Track Standards, which was instituted back
13 in 1974, dealing with the class of track that the carriers,
14 if they maintain a certain speed, have to maintain a certain
15 standard of track.

16 We have signal-to-train control requirements that
17 the carriers must meet. In the Operating Practices Branch,
18 we have blue flag, rear-marker devices and employee training
19 and testing the qualification of train crews.

20 That pretty much sums up, and those requirements,
21 in addition to the hazardous materials requirements, are
22 covered in Part 49 CFR, Part 200 to Part 300. And that is
23 where you will find what I just mentioned.

24 Thank you.

25 (Applause.)

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1 MR. RAWL: Thank you, Ed.

2 In addition to the packaging and the carrier
3 requirements that DOT places on movements of spent fuel, the
4 Nuclear Regulatory Commission also exercises responsibility
5 over the physical security of spent fuel when it is in
6 transit. We have with us to address those issues Mr. Carl
7 B. Sawyer, who is a staff member of the NRC Division of
8 Safeguards.

9 Carl joined the Atomic Energy Commission in 1971,
10 and has been with the NRC since its inception. For the past
11 several years he has been associated with the development of
12 the protection requirements for radioactive material
13 shipments and, most recently, has been active in the NRC
14 rulemaking procedure for the protection of spent fuel
15 shipments.

16 Carl.

17 MR. SAWYER: Thank you, and good morning.

18 (Slide.)

19 My co-speakers here have been talking in terms of
20 safety, that is safety requirements for protecting against
21 such things as accidents, human error, and acts of nature.
22 We turn our attention now to another perspective which is
23 that of protection against a deliberate malevolent act, in
24 this particular case, sabotage.

25 (Slide.)

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1 Before 1979, there were no protection
2 requirements and we depended entirely for physical security
3 upon the durability and the structural nature of the
4 casks which you have heard described. However, in 1977, one
5 of the studies that ~~were~~ were conducted projected or at least
6 did not rule out sabotage that might release up to 14,000
7 grams of respirable material from a preassembled truck
8 cask.

9 In the scenario studied, tens to hundreds of
10 pounds of explosives in a sophisticated configuration would
11 be required. The charges would have to be placed by a
12 person skilled in the use of explosives. Attacks not
13 involving sophisticated explosive configurations were judged
14 unlikely to release spent fuel from the cask.

15 The particles of material ejected from a cask
16 would be of various sizes. The vast majority of the release
17 would fall to the ground in the immediate vicinity of the
18 cask. However, a small fraction of the released material,
19 particles having a diameter of a few microns, -- that is,
20 particles perhaps to the order of a size of a fog droplet or
21 a little smaller. These particles would form a cloud and
22 fall to the ground very slowly.

23 Particles of this size have the property that if
24 inhaled, they tend to remain in the lungs for long periods
25 of time, years or even decades. Now these are particles

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1 that most analysts believe would be responsible for any
2 large-scale health effects.

3 The study went on to calculate the radiological
4 health effects from a release in a heavily-populated urban
5 area. Population densities studied ranged from 60,000 to
6 200,000 persons per square mile. The radiological health
7 effects were characterized as tens of early fatalities and
8 hundreds of latent fatalities, early fatalities being those
9 that occurred within a year, latent fatalities being those
10 that occurred thereafter.

11 The study pointed out that the calculated early
12 fatalities, being closer to the detonation site, would
13 likely succumb first to blast effects rather than to
14 radiological effects.

15 The study also took great care to point out that
16 the respirable release estimates were subject to large
17 uncertainties because there was little relevant data
18 available at the time.

19 The NRC response is indicated in the third
20 bullet. An interim rule was issued and set forth
21 approximately ten temporary requirements, and these
22 requirements are still in force. The requirements are to
23 remain in effect until the additional research has been
24 carried out and the NRC can reassess the situation.

25 Two separate research programs were carried out,

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1 one sponsored by NRC and the other sponsored by the
2 Department of Energy. These programs are now complete.

3 They each consisted of a series of explosive
4 experiments, some using models, some using full-scale casks,
5 some using small explosives, some using full-scale
6 explosives, some using irradiated surrogate material and
7 others using spent fuel. Releases of spent fuel or
8 surrogate material, both respirable and larger particles,
9 were measured.

10 Health-effects calculations were made based on
11 the experimental releases. Respirable releases were found
12 to be in the range of 18 grams for the NRC study, and 34
13 grams for the DOT study. These results are of course in
14 marked contrast to the upper bound of 14,000 grams that
15 prompted issuance of the interim rule now in effect.

16 The corresponding calculated health effects are
17 no early fatalities and one to four latents for average
18 conditions; 14 latents if one assumes the most unfavorable
19 of the meteorological condition.

20 Based on these results, the NRC began to reassess
21 the interim requirements for the protection of spent fuel,
22 and in June of 1984, the Commission issued a proposal for
23 new requirements that would cover spent fuel shipments, and
24 those are the subject of the next slide.

25 (Slide.)

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1 Here we see a comparison of the current
2 requirements with those that were proposed following
3 completion of the research, and I will scan through them
4 briefly.

5 Before a shipment is made, a licensee must gain
6 NRC approval of the route he intends to use, and he must
7 provide or arrange for an armed escort in the city. A
8 communications center must be maintained and manned while
9 the shipment is in progress.

10 Before the shipment begins there must be advance
11 coordination with local law enforcement authorities,
12 generally the state police.

13 Schedule information concerning the shipment must
14 be protected against unauthorized disclosure until the
15 shipment is completed.

16 The transport vehicle is equipped with radio
17 telephone capable of communicating with the communications
18 center previously mentioned, and an immobilization device
19 that can instantly disable the vehicle for a period of about
20 30 minutes.

21 There are various additional requirements:
22 unarmed escort, surveillance at all times.

23 There is a requirement that a licensee planning a
24 spent fuel shipment must notify the governor of the state
25 before he transports spent fuel in that state.

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1 There of course are inevitable procedures and
2 instructions, and the vehicle may make no casual stops en
3 route.

4 Once again we can give a little attention to the
5 requirements that we intended to drop in consequence of the
6 lower release estimates from our research program.

7 We invited-- The Commission invited public
8 comment on this rule and we received 32 comprehensive
9 letters of comments such as shown here.

10 (Slide.)

11 Eleven of them were from the states.

12 (Slide.)

13 The letters of comment that we received covered
14 the full spectrum of possible positions, and here we attempt
15 to characterize the comments that objected to the proposal.

16 Inasmuch as the proposed rule is based on
17 technical arguments, it is only natural that many of the
18 comments should address that subject, and both states and
19 others who commented have voiced many technical concerns.

20 Probably most of the-- The most frequent
21 comment charged that there was one or more irregularities in
22 the research supporting the modified ruling. By this I mean
23 irregularities in experimental technique, instrumentation
24 and measurement accuracy, data processing, perhaps omissions
25 of some kind, or inconsistencies. There are perhaps 20 to

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1 30 comments in this particular area.

2 Commenters were also concerned with the fact that
3 our peer review extended only to the exposure aspects of the
4 studies, and did not address such things as the
5 experimental techniques, instrumentation, and health
6 effects, et cetera.

7 However, the general response to those concerned
8 is that we felt comfortable with our knowledge of the
9 radiological matters, but not comfortable with our knowledge
10 of exposure technology, and accordingly, the aspects of
11 the study dealing with the exposure technology were
12 submitted for review to the U. S. Army Ballistic Research
13 Laboratory.

14 Another popular set of comments charged that
15 worst-case scenarios were not examined, and there are two
16 classes of these. The first is concerned that we have made
17 the wrong choice in some critical area such as the wrong
18 site for carrying out sabotage.

19 The other class of comment points out that one or
20 more additional links in the scenario chain would
21 significantly increase the sabotage consequences.

22 Still another group of comments charged that
23 cancer fatalities are really an insufficient criterion for
24 rulemaking. We used health effects as our primary
25 criterion, but our commenters suggest that in this

1 WRBeb 1 particular proceeding that we should consider such things
2 perhaps as property damage or cleanup costs.

3 States have also had a number of concerns which
4 seem to me to be unique to their particular situation, and
5 many of these comments were non-technical in nature. Some
6 states, for example, perceived significant safety-side
7 benefits from the current safeguards requirements,
8 particularly the route approval requirement and the police
9 coordination requirement.

10 Some states argued that their citizens tend to
11 discount the technical arguments which we have put forward,
12 and they believe their citizens see only that security is to
13 be relaxed and are concerned that their citizens may object
14 to this relaxation.

15 Still another set of comments contend that there
16 is a close connection between our current requirements and
17 the ^{Nuclear} ~~National~~ Waste Policy Act activities that will be coming
18 up in the future. They are concerned, for example, about
19 the increased number of shippers and whether new casks that
20 may be designed in the future will be as sabotage-resistant
21 as the current casks.

22 We are now considering these comments and are in
23 the process of preparing a final rule. The status of this
24 rulemaking proceeding at this time can probably be
25 summarized as follows:

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1 Thus far, the drafting of the final rule
2 continues to be guided largely by technical arguments. All
3 concerns are made visible, but the technical arguments are
4 given greatest weight. The technical comments we have
5 received thus far have not caused us to change our position
6 that current requirements should be moderated.

7 We have prepared and circulated a draft final
8 rule for review by NRC staff analysts and NRC middle
9 management. In that draft, all but a very few of the
10 technical comments we have received are addressed.
11 Responses to those remaining are being developed.

12 In closing, I hope to gain from this seminar
13 information and ideas that will enable the rule to achieve
14 its objectives of sound, physical protection and yet gain
15 widest acceptability.

16 Thank you.

17 (Applause.)

18 MR. RAWL: Thank you, Carl.

19 Before we open the floor to questions, I have one
20 announcement. I am going to embarrass Mr. R. D. Ross by
21 requesting that he call his office as soon as possible.

22 I would like to point out that there are a number
23 of publications which cover some of the topics we have been
24 discussing this morning. There are sign-up tables out in
25 the foyer area just in front of the meeting room here, and

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1 there are some publications which are specific to packaging
2 and packaging requirements which you might wish to sign up
3 for to get more specific details than we are able to cover
4 in the limited time available here.

5 Specifically the NRC has available NUREG-0170,
6 the environmental analysis document, a directory of package
7 certificates, NUREG-0380. You can obtain copies of Part 71,
8 the packaging requirements. You can obtain the report that
9 Chuck used for some of his statistics on the shipment survey
10 of radioactive materials traffic. And there is also a
11 three-page summary of spent fuel and high level waste
12 transportation requirements.

13 From DOT you can sign up for the Green Book that
14 we distributed which is a review of the DOT regulations
15 which will cover in detail subjects we have not really
16 dwelled on here, which are the DOT requirements that are
17 applicable to all shippers of radioactive materials.

18 Now I would like to open the floor up for
19 questions. I would just again repeat that we would like
20 each questioner to give their name and affiliation. If it
21 is a general question, make it a general question, and if it
22 is specific to one of our speakers, please so indicate.

23 MR. MOBLEY: I'm Mike Mobley, of Tennessee.

24 The first presentation on spent fuel packaging
25 requirements stated that Part 71 regulations cover all

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1 radioactive material. I believe that is a misstatement. It
2 only covers radioactive material regulated by the NRC.

3 I believe that's true, is it not?

4 MR. MAC DONALD: Part 71 includes the fissile
5 regular Type A quantities of radioactive material. It does
6 apply to NRC licensees and it applies to the ^{Agreement} PEMA State
7 licensees.

8 DOT in its regulations references Part 71, and by
9 that fact 173.7 of DOT regulations also apply to DOT. We
10 did not discuss that aspect this morning in the broad
11 overview that I gave, but it does impact by virtue of the
12 Title 49 ~~DOE~~ requirements.

13 Does that help?

14 MR. MOBLEY: You got to my next question.

15 I would point out very specifically that there is
16 material, radioactive material, that is not regulated by the
17 NRC. The statement covers all radioactive material.

18 Then my next question was going to be based on
19 DOE shipments of spent nuclear fuel specifically. Since
20 most, if not all, of the shipments in the future are going
21 to be done by DOE, you know, all of these requirements that
22 we're discussing here may not be applicable at all to DOE
23 shippers.

24 MR. RAWL: I would like to address both of those
25 questions.

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1 First of all, with the cooperation that has
2 developed between NRC and DOT, DOT requires that NRC
3 regulations be applied to all radioactive materials in
4 transportation. If you're referring to radionuclides such
5 as radium which is not covered under the Atomic Energy Act,
6 if one wanted to ship a Type B quantity of radium, one can
7 only do it in an NRC-approved package because the DOT
8 requires that.

9 The other aspect-- We are trying to concentrate
10 here in our presentations on transportation that is
11 occurring today and will be occurring in the immediate
12 future. As a result, I think we can focus on packages that
13 are being certified by NRC.

14 We do recognize of course that the Department of
15 Energy has the authority to self-certify spent fuel casks.
16 The language in Title 49 which authorizes that is very
17 specific. It states that those packages must be evaluated
18 against standards that are equivalent to 10 CFR 71, and in a
19 manner which is equivalent to the analysis which NRC
20 applies.

21 So while I understand the thrust of your question
22 which is concerning who is going to certify spent fuel
23 packages when the shipments increase greatly in the future,
24 there are two parts to that. We require equivalents, and
25 right now, there's a very small number of packages that

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1 have been approved by DOE that are being used.

2 MR. MOBLEY: Well, the point I would like to
3 make there specifically is that a great increase in the
4 number of spent fuel shipments will be occurring or may be
5 occurring in the very near future, and a great number of
6 those shipments will be by DOE and could be specifically
7 exempt both from DOT requirements and will be specifically
8 exempt ^{from} ~~for~~ any NRC requirements.

9 MR. MAC DONALD: If I may make one other comment,
10 under the Nuclear Waste Policy Act, DOE will take title to
11 fuel at the utilities. The Nuclear Waste Policy Act is not
12 entirely clear as to what certification those packages might
13 have. The NRC and DOE have a procedural agreement in which
14 there is full intent of the DOE to submit those package
15 designs going to be used in 1998 to the year 2000 to the NRC
16 for certification.

17 I don't particularly know the date of publication
18 in the Federal Register but it was there. We do have the
19 agreement and it is the DOE intention to have their spent
20 fuel casks certified by NRC.

21 MR. MOBLEY: Thank you.

22 MR. RAWL: In the back of the room.

23 MR. LASH: I'm Terry Lash. I am director of the
24 Illinois Department of Nuclear Safety.

25 My question pertains to the last speaker from the

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1 NRC, considering the proposed modification of the rule.
2 This is a matter of great interest to the State of Illinois,
3 as well as to other states.

4 I am not sure I fully understood what the
5 response is going to be from the NRC and I would like some
6 clarification, both with regard to substance and to
7 procedure in applying the rule.

8 Regarding procedure, the question is if the NRC
9 did not recommend any further changes to the proposed final
10 rule, does that mean that it will be published in the
11 Federal Register as a final rule without any further
12 consideration from state conferences in particular?

13 And secondly, how does the rule treat certain
14 procedural comments that were made dealing with such things
15 as the requirement to maintain a 24-hour communication
16 center by the carrier?

17 MR. SAWYER: With respect to the last question,
18 the requirement for a communication center is one of those
19 that is proposed to be dropped insofar as the current drafts
20 are concerned. These current drafts are circulated among
21 staff analysts and middle management. We still have the
22 arduous task of obtaining agreement from senior management,
23 and final authority from the Commissioners themselves.

24 MR. LASH: May I ask as a follow-up whether those
25 who have commented on the proposed rule in the Federal

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1 Register will be given adequate notice so that they may make
2 their views themselves known to the Commissioners before
3 they make a decision on the proposed final rule?

4 Because I can assure you that your response is
5 not satisfying to us in Illinois and that we want to
6 vigorously argue for retention of some procedural
7 requirements now, and in fact strengthening them, and we
8 wish to have every single possible opportunity to convince
9 the federal authorities not to relax those standards.

10 (Applause.)

11 MR. SAWYER: My own personal view in this matter
12 is that any comment that we receive within the reasonable
13 future can be incorporated and considered before the final
14 rule goes forward for consideration by senior management and
15 by the Commission. Certainly to the extent of my influence
16 that would happen.

17 MR. LASH: I would explicitly request here that
18 we be notified when the materials are sent to the
19 Commissioners for decision, and that we have an opportunity
20 to present our own views in our own language and in our own
21 manner to the Commission for its full consideration before
22 adoption of the final rule.

23 MR. RAWL: Thank you.

24 MS. QUIGG: I am Catherine Quigg with the
25 Illinois State Energy Alliance in Chicago. I have a

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1 question for the panel.

2 We heard on television yesterday about a highway
3 chemical truck fire in Houston, Texas, which melted part of
4 the steel structure of a bridge. This accident points up
5 the inadequacy of the cask fire test standard of
6 withstanding a 1475-degree fire for one-half hour because
7 our railroads and highways are filled with chemical trucks
8 whose contents burn at higher than 1475 degrees and for
9 longer than one-half hour.

10 As a matter of fact, the 1475-degree one-half
11 hour test is the same fire standard as for the wall between
12 your house and your garage.

13 I would like to know what is the federal
14 government going to do to upgrade and improve this seriously
15 deficient fire standard.

16 MR. MAC DONALD: I will try to approach the
17 question.

18 We went through the regulatory requirements and
19 standards that we have. We indicated that they were
20 performance-type standards. I would like to dispel any
21 ~~notion~~ ^{NOTION} that anyone might have that a spent fuel cask would
22 only withstand 1475 degrees F. for 30 minutes. These
23 requirements are meant to be discriminatory requirements.

24 One of the purposes of the MODAL study was to
25 take a look at the real-world type accidents, comparing

WRBeb 1 those to the packages that result from the regulatory
2 standards. It is hopeful that this part -- and whether or
3 not it will pick up that particular incident or not I'm not
4 sure. It will be looking at the tunnel fire in California.
5 That was one that we could very readily relate to, and I'm
6 not familiar with the circumstances of the other
7 requirement.

8 But we also have requirements in Part 71 that a
9 package withstand water spray equivalent to a heavy rain for
10 30 minutes. It does not mean that if you put a spent fuel
11 cask package in water spray for 45 minutes that all bets are
12 off. So that attitude, that viewpoint, should be dispelled
13 somewhat.

14 But we do need to look at the real accident
15 conditions, which we are doing, and we will be comparing
16 those to the various--

17 MS. QUIGG: May I ask then that you notify the
18 public and other interested people the degree of fire and
19 the length of time to which the casks can actually withstand
20 the fire? I think it is important that we know that.

21 MR. RAWL: Chuck alluded to the problem of
22 perception of the engineering standards that are used in 10
23 CFR 71. That's a problem that we have encountered time and
24 time again. The standards are designed to provide
25 repeatable insults to the package that result in evaluations

WRBeb 1 of different designs to the same criteria.

2 The 1475 at 30 minutes is not a low-temperature
3 fire for a relatively short period of time. That is a
4 thermal input that is defined in engineering terms. The
5 Federal Railroad Administration has tank car standards for
6 insulation that require a higher temperature fire for 100
7 minutes, for example. On the surface, as you observe, that
8 is a serious deficiency in the Type B packaging standards,
9 but I repeat that that is on the surface.

10 The Federal Railway Administration has underway a
11 research and development contract with an independent
12 contractor which is costing them quite a bit of money to
13 evaluate the differences between the tank car standards and
14 the standards for a Type B package. I don't think I am
15 letting any cats out of the bag to let you know that they
16 found out that the higher temperature fires and longer
17 duration fires that are encountered in the rail mode do not
18 have a serious impact on the spent fuel casks.

19 For example, a torch fire is required for the
20 rail tank car because the rail tank cars failure mode makes
21 them susceptible to torch fires. The spent fuel cask is
22 such an energy-absorbing body that it has no effect
23 whatsoever on the integrity of the package.

24 The same thing is applied to the longer duration
25 cool fire. The mechanisms for release are such that the

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1 integrity of the cask is really not brought into question.

2 So the explanation of why just the temperature or
3 just the duration or the combination of those things appears
4 to be worse in the type of tests is one of explanation of
5 the difference between -- for bridging the gap between what
6 happens in the real world and the severity of these
7 engineering conditions and the package integrity that is
8 required to pass these engineering conditions.

9 MS. QUIGG: Well, I understand that some of the
10 older casks used lead that melts at 620 degrees F. I hope
11 that they are no longer being used.

12 I do have one additional question.

13 I would like to know what changes in the spent
14 fuel cask design and regulations are being made to
15 accommodate high-level spent fuel which is hotter from a
16 thermal and a radioactive standpoint than the typical spent
17 fuel and is becoming increasingly common in the United
18 States.

19 MR. MAC DONALD: Having performance type
20 standards, the designer must know the characteristics of the
21 shipments, the decay heat that he may have, the radiation
22 that may be emitted from them. All those considerations
23 would have to be included in the design. The approval
24 document for the particular design has limitations.

25 There are burnup limitations that one can have

WRBeb 1 currently in the spent fuel cask; there are limitations on
2 the enrichment; there are limitations on the decay heat that
3 one might have. All these must be below that.

4 MS. QUIGG: Thank you.

5 MS. PAGE: My name is Edith Page. I am with the
6 Office of Technology Assessment in Washington. My question
7 is addressed to Mr. Sawyer.

8 One of the comments submitted on the proposal to
9 change the rulemaking on routing and notification was that
10 there was insufficient -- or disagreement among the peer
11 reviewers of the second research that was undertaken. I
12 would like to know what the peer review process is in the
13 normal routine procedures for the NRC studies.

14 MR. SAWYER: Research papers and reports are
15 subjected to peer-review situations. One of these
16 situations is when there is substantial disagreement among
17 NRC analysts as to what the results should be.

18 The second situation, and the one which we found
19 ourselves confronted with in the sabotage study has to do
20 with does the NRC staff really believe that it has the
21 expertise to review the material before it in the case of
22 explosive technology.

23 Our answer was no, and of course we did the peer
24 review on that basis.

25 MS. PAGE: Then you did not speak to-- When you

WRBeb 1 were making the comments on the study, you did not speak to
2 how you planned to address that particular comment. Are you
3 thinking of resubmitting it for outside peer review, or will
4 the procedure from now on be strictly internal to the NRC?

5 MR. SAWYER: No, Ma'am. We will-- As matters
6 now stand on this particular day, our response to that
7 comment would be essentially as I have explained it. It is
8 in two parts:

9 The first part is that the NRC staff felt
10 competent to review the non-explosive aspects of those
11 studies.

12 The second point is it did not feel capable of
13 reviewing the explosive aspects and submitted them for
14 formal peer review.

15 MR. RAWL: Well, if there are no other
16 questions, I thank you all.

17 We do have another question.

18 VOICE: (Inaudible)

19 I have a comment, or a question directed to
20 Mr. Sawyer.

21 In your consideration of this new rule, the
22 changes in the rule, what I hear is that the drafters of
23 this new rule are so invested in their craft that state
24 comments that deal with human lives, environmental quality
25

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1 are given dismissal out of hand, that technical comments are
2 the only thing you consider, and there is not really a lot
3 of use in making comments.

4 Given that the NRC needed to work with the
5 states, I'd like to see a reconsideration of that attitude,
6 because this is very frightening when we hear that we have
7 no voice, and that whatever we say is not going to be
8 considered, and that the drafters are going to go ahead with
9 that.

10 That's all.

11 MR. SAWYER: In partial response to these
12 comments, if I may: The situation that I was faced with in
13 a 15-minute presentation, as I explained at the outside, is
14 to give an overview of the current status of our rulemaking
15 procedure. It apparently achieved one of its objectives in
16 that people are thinking about what the consequences of the
17 current course of action are.

18 The other thing I would have you consider is that
19 we are talking probably fifty or sixty individual
20 identifiable comments that will be comprehensively addressed;
21 most of them are already, in the draft. And we are
22 certainly prepared to discuss these with any interested
23 party at the detailed technical sessions which are planned
24 for that purpose a day or so hence.

25 MS. MC NABB: I'm Marilyn McNabb from the

WRBeb 1 Nebraska Energy Office. I wanted to follow up on the
2 Tennessee question.

3 As I understand it, DOE shipments under the
4 Nuclear Waste Policy Act -- well, first of all do not have
5 to follow DOT regulations. Is that right?

6 MR. RAWL: No, Ma'am. Any shipment that the
7 Department of Energy makes using a common carrier must be in
8 accordance with the DOT regulations.

9 MS. MC NABB: So it must follow DOT regulations?

10 MR. RAWL: That's correct.

11 MS. MC NABB: As to the NRC regulations, except
12 for the cask regulations, my understanding is that they do
13 not have to follow NRC regulations with respect to the
14 written seven-day notification to the governors. Is that
15 right?

16 MR. RAWL: The requirements of the Department of
17 Energy for package certification and physical protection are
18 that they must be performed in a manner equivalent to those
19 required by NRC, not that they would follow the NRC
20 regulations -- Let me restate that -- not that they be
21 identical but that they be equivalent.

22 MS. MC NABB: Let me try it one more time.

23 For example, with the written notification to the
24 governors for the shipments that are now being shipped, DOE
25 is not required to give written notification to governors of

WRBeb 1 the states. Is that right?

2 MR. RAWL: As I understand it, that's correct.

3 MS. BOYLL: I'm Jamie Boyll of the Nuclear Waste
4 Policy Council of Mississippi.

5 I would just like to reiterate a public concern
6 that has already been stated about cask safety. It is my
7 understanding that casks will withstand a projectile force
8 of 60 miles per hour. I know that there is a German
9 ^{Kastor}~~Kesstler~~ cask that is able to withstand a projectile of 650
10 miles per hour.

11 I am concerned that with tornadoes, the question
12 of sabotage, the question of crush forces, especially in
13 rail where there could be up to 550 tons of crush force
14 between cars, that perhaps some of these casks might be
15 breached anyway.

16 MR. RAWL: The regulations are constantly
17 basically being reevaluated. The International Atomic
18 Energy Agency has recently revised its regulations, and its
19 regulations form the basis of all major countries in the
20 world. That was a five-year project under which experts
21 from all around the world were asked to provide comments,
22 technical evaluations, research and development projects,
23 any type of information which would lead one to the
24 conclusion that the basic regulatory requirements need to be
25 strengthened or changed.

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1 That effort, which lasted five years, has
2 resulted in a 1985 edition of the international regulations
3 and the U.S. will, of course, be looking at those
4 regulations to adopt U.S. requirements that are consistent
5 with them.

6 There have been some small changes in those
7 requirements for tightening packages. For example, there
8 is a crush test that has been added. It was found out that
9 only small, lightweight packages are subjected to crush
10 forces which may impose a threat to the package integrity.
11 Other changes were made such as a 200 meter submergence
12 test.

13 The regulations are under a constant state of
14 evaluation and they are being changed. But many of the
15 things that have been mentioned which are perceived
16 deficiencies have not been able to be shown in an analytical
17 manner to be deficiencies in the regulations which result
18 in lower safety than what should be required.

19 Q I would like to remind the panel
20 that I know a lot of the tests were done by simulations of
21 my models by necessity. There was a modeling simulation of
22 the incident at Three Mile Island and I believe the
23 statistical analysis was that that occurrence could happen
24 only one in one million times but it did occur.

25 MR. RAWL: Thank you.

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1 Well, we have run into our lunchtime quite a
2 bit. I think we have had a good discourse and an expression
3 of opinions and comments and questions from the audience. I
4 would like to point out that immediately following the break
5 we will have a continuous videotape showing of three
6 10-minute presentations which will be in the four monitors
7 around the room here. Everyone is invited to stay and watch
8 this or to have lunch and come back, since it will be
9 on-going.

10 We will reconvene at 1:30 for the next session.

11 Thank you.

12 (Whereupon, at 12:20 p.m., the conference was
13 recessed, to reconvene at 1:30 p.m., this same day.)
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AFTERNOON SESSION

(1:30 p.m.)

MR. COOK: Ladies and gentlemen, at this time I would like to welcome you to the session on routing of spent fuel shipments. My name is John Cook and I work on transportation issues for NRC's Division of Fuel Cycle and Materials Safety.

Before the session begins in earnest, there are a few announcements regarding housekeeping arrangements.

(Announcements made.)

MR. COOK: It is a pleasure for me to chair this session on routing, which I know is an area of great interest to state and local authorities. By way of a very brief introduction to this session, the speakers we have arranged this afternoon will discuss transportation safety and DOT's routing rule as well as physical protection and NRC's safeguards written approval process. So we will attempt to establish for you the distinction that safety plays in routing as well as the role that safeguards plays in routing.

We will also discuss the issues that have arisen in the implementation of these rules.

Also, we will hear the results of a survey on prenotification requirements. This session will conclude with a panel discussion on routing issues, in which we will

WRBagb 1 be joined by the state, Indian and local representatives
2 from this morning's session with the exception of Mr. John
3 Eaton from the Ohio Disaster Services Agency will be
4 replacing Mr. ~~Tim McCauley~~, *Karim Rimawi*.

5 There will be an opportunity for you to ask
6 questions after the speakers have given their presentations
7 and also during the panel discussion.

8 As we have a very ambitious schedule for this
9 session, I would like to immediately introduce our first
10 speaker, Ms. Elaine Economides, from Department of
11 Transportation's Office of the Chief Counsel, who will
12 discuss DOT's routing rules.

13 After concluding the remarks on the routing rule,
14 Elaine has also agreed to present the first of a two-part
15 discussion on the interrelationship of DOT and NRC routing
16 rules.

17 Ms. Economides.

18 MS. ECONOMIDES: First I would like to say that
19 copies of both my papers are in the packet of materials you
20 received in registration. Since that provides all the
21 detail as to legal citations, dates, documents, references
22 to the U.S. Code and the Code of Federal Regulation, I am
23 going to delete that kind of detail from my discussion.
24 Also I may pass over certain portions which go into levels
25 of detail appropriate for a written document but which would

WRBagb 1 be excruciatingly boring in an oral presentation.

2 This morning we heard a great deal about the
3 highway routing rule and, indeed, it is something which has
4 created a great deal of conversation, if not controversy.

5 It was in January of 1981 that DOT issued this
6 final rule on highway routing of radioactive materials, the
7 rule which is commonly referred to by its docket number as
8 HM-164. The principle purpose of HM-164 was to establish
9 nationally applicable standards for the safe highway routing
10 of radioactive materials.

11 My presentation today is going to review the
12 legal history of that rule, describing substantive
13 provisions and discuss its impact on certain state and local
14 rules also involving highway routing.

15 First I would like to address the source of DOT's
16 authority to issue such regulations. This authority is
17 derived from the Hazardous Materials Transportation Act, the
18 HMTA, which authorizes the Department of Transportation to
19 designate certain quantities and forms of material as
20 hazardous and to establish regulations governing -- to
21 insure the safety of transportation of those hazardous
22 materials in commerce.

23 The substantive regulations adopted under the
24 HMTA are known as the Hazardous Materials Regulations or
25 HMR. I will be referring to sections of the HMR throughout

1 WRBagb 1 my talk.

2 And within DOT, as has been said before, the
3 primary responsibility for issuance and interpretation of
4 these regulations has been delegated to the Materials
5 Transportation Bureau of the Research and Special Programs
6 Administration.

7 My paper discusses at length a portion of the
8 HMTA which deals with the relationship of Federal rules
9 adopted under this law with state and local rules.

10 This morning one speaker discussed what
11 pre-emption meant. In this case, Congress provided a
12 provision within the HMTA which did not completely pre-empt
13 the field in favor of Federal regulation and said the
14 provision of the statute says that any state or local
15 requirement which is inconsistent with Federal rules is
16 pre-empted. Clearly Congress did not intend that the
17 Federal regulatory system should completely pre-empt the
18 field and recognized that there was an appropriate role for
19 state and local governments. So long as those rules were
20 consistent then it was possible for those too to become part
21 of a safety regulatory program of national applicability.

22 Now under a further provision in the Act, even
23 though a state or local rule is inconsistent and therefore
24 pre-empted, Congress recognized that there would be
25 instances where for unique local circumstances application

WRBagb 1 of a rule of national applicability did not make sense
2 because of these unique local conditions and, therefore,
3 provided for those circumstances that the Department could
4 waive pre-emption so long as, in addition to demonstrating
5 unique local condition, the inconsistent rule provided an
6 equal or greater level of safety and did not unreasonably
7 burden commerce.

8 The Department has adopted procedural regulations
9 for issuing advisory opinion on the question of whether a
10 state or local rule is inconsistent and also issuing
11 administrative rulings on whether or not it will grant a
12 waiver of pre-emption.

13 The first on the question of state or local rule
14 is inconsistent are known appropriately enough as
15 inconsistency ruling and I will be discussing some of those
16 later in my presentation.

17 The second form of proceeding is a
18 non-pre-emption determination. The speaker from New York
19 this morning made reference to such an application by the
20 City of New York; indeed, our first non-pre-emption
21 proceeding is open at the moment and we expect to be issuing
22 a ruling on that by early September.

23 Now this discussion of regulatory authority,
24 while somewhat lengthy, does provide the background
25 necessary for an understanding of the development of both

1 WRBagb 1 the substantive provisions of HM-164, the appendix to that
2 rule and how we have interpreted the pre-emptive effect of
3 the rule.

4 So now I would like to provide a little history
5 on the development of the rule. It was in 1976 that the
6 City of New York amended its health code in such a way as to
7 effectively ban the highway transportation of most
8 commercial shipments of radioactive materials through the
9 city.

10 This had a profound effect on the Brookhaven
11 National Laboratory, located on Long Island, because the
12 only way to proceed by highway from Long Island is to go
13 through New York City. Therefore, a ban on highway
14 transportation in the city was, in effect, a complete
15 cessation of transportation from the Brookhaven Lab.

16 Therefore, the operators at Brookhaven requested
17 an administrative ruling from the Department of
18 Transportation and an inconsistency ruling on whether or not
19 the New York City ban was pre-empted.

20 At that time the Department had not adopted a
21 highway routing rule, had not adopted any policy position
22 with regard to the appropriateness of routing subject to
23 regulation because the Department had exercised no action,
24 no regulatory authority with regard to the question of
25 routing. There was nothing on which to base the finding of

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1 inconsistency.

2 Therefore, we were compelled to issue in the
3 first inconsistency ruling the finding that New York City's
4 ban on transportation was not inconsistent and was not
5 pre-empted under the regulatory system as it then existed.

6 However, the Department clearly recognized the
7 implications of this decision; there were already more than
8 200 bans and other severe restrictions on the highway mode
9 of transportation. A departmental ruling which said, in
10 effect, there is nothing in the body of law now to prevent
11 the continued proliferation of these bans and it could only
12 lead to complete impasse in this form of
13 Congressionally-recognized interstate commerce.

14 Therefore, in its inconsistency ruling, the
15 Department announced its intention to examine whether there
16 were a need for routing regulations at the Federal level.
17 This, in effect, was the beginning of HM-164.

18 Within months of the publication of this first
19 inconsistency ruling, the Department published an Advanced
20 Notice of Proposed Rulemaking. Hundreds of comments were
21 received, these were reviewed and incorporated into the
22 Notice of Proposed Rulemaking, after which the Department
23 conducted at least eight public hearings, reviewed more than
24 1600 public comments and finally issued HM-164 as the final
25 rule.

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1 As adopted, the final rule very much resembled
2 the proposed version but there were a few differences and I
3 will be commenting on some of those.

4 The preamble to the final rule stated the
5 Department's conclusion on the basis of the extensive public
6 comment which was received in the docket, documented risk
7 studies as well as past experience with radioactive material
8 transport, based on all of this the Department found that
9 the public risks in transporting these materials by highway
10 were too low to justify the unilateral imposition of bans
11 and other severe restrictions on the highway mode of
12 transportation. Moreover, other modes of transport
13 were generally found not to offer alternatives which lowered
14 public risk to such an extent as to warrant substantial
15 restriction of the highway mode.

16 Moreover, the Department also concluded that
17 these already-low risks could be further reduced by adoption
18 of driver training requirements and provisions for a method
19 of selecting the safest available highway routes for
20 carriers of large quantities of radioactive materials.

21 On this basis, DOT adopted the final rule which
22 actually contains two routing rules: the first, a general
23 which applies to all placarded shipments of radioactive
24 material except for large quantity, and then a specific
25 routing rule which applies to placarded shipments of

1 WRBagb 1 radioactive materials which contain large-quantity
2 radioactive material.

3 The general routing rule is set forth and is
4 cited in a quote that I made in the paper. I am not going
5 to read it, just the relevant portion which is that carriers
6 of placarded shipments that insure that any motor vehicle
7 containing that is required to be operated on routes that
8 minimize radiological risk.

9 This reflected somewhat of a change from the
10 proposed rule, but the basic objective remained the same,
11 that the carrier examine all available highway routes and
12 select one which minimizes radiological risk to the public.
13 In making this determination the carrier must consider
14 available information on the most important factors which
15 contribute to the minimization of radiological risk. The
16 rule identifies these factors as population, accident rates
17 on available highways, transit time and the time of day and
18 day of week during which the shipment occurs.

19 The proposed rule had also considered such
20 factors as terrain, physical features, weather conditions
21 and effectiveness of local emergency planning, but these
22 were deleted from the final rule for specific stated
23 reasons. The influence of terrain and physical features on
24 public risk from transportation is reflected in documented
25 accident rates of the alternate roadways. Since these are

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1 only two of several factors which may contribute to overall
2 highway accident rates, the Department didn't believe they
3 should be singled out for consideration by the carrier.

4 Similarly, chronic weather conditions, chronic
5 winter snowfall or ice conditions are reflected in overall
6 highway accident rates. Short-term weather conditions, on
7 the other hand, are a factor for which the carrier can't
8 control, the carrier has little advance knowledge of and
9 which can change during the course of a single shipment;
10 therefore, consideration of short-term weather conditions
11 would be speculative at best.

12 And insofar as determining the effectiveness of
13 local emergency planning, this was necessarily such a
14 subjective judgment that the carriers would lack the
15 necessary information and indeed any determination made on
16 that would be subject to opinion.

17 The Department stated that effective emergency
18 response planning is an activity that all communities should
19 be involved in and to further this the preamble to the rules
20 also cited several Federal efforts to assist communities in
21 this area.

22 And I might add that this is indeed an area where
23 there has been increasing activity, not only by DOT but by
24 many of the other Federal agencies since the time of the
25 publication of HM-164 as the final rule.

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1 The last major change to the proposed general
2 routing rule involved the replacement of the phrase "routes
3 that risk radiological route exposure to the fewest persons"
4 with the phrase that is in the final rule "routes that
5 minimize radiological risk."

6 The basic goal of the general routing rule is
7 risk minimization. While limiting exposure to the fewest
8 people possible is one element of overall risk reduction, it
9 is not the only consideration; several other factors, not
10 merely the number of people exposed, must be considered.

11 Now my paper goes on with further comments and I
12 will leave you to read those to yourself, this is more of a
13 detailed history of what went into the rule.

14 The general routing rule applies to thousands of
15 shipments involving relatively low hazard
16 radiopharmaceuticals and other medical/industrial isotopes.
17 Their transportation frequently involves multiple pick-ups
18 and deliveries, interchanges with other modes of transport
19 and comingling with non-hazardous materials on the same
20 vehicle. A general routing rule which can accomodate such a
21 great number of shipments and such a complex transportation
22 environment necessarily involves some vagueness. By
23 adoption of the general routing rule, DOT intended to guide
24 motor carriers by specifying those important factors to be
25 considered in evaluating a number of available groups.

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1 While the general routing rule engendered a great
2 deal of public comment, clearly the most controversial
3 feature of HM-164 was the establishment of specific routing
4 requirements for large quantity radioactive material. Now
5 in a subsequent rulemaking the term "large quantity" was
6 changed to "highway route controlled quantity." This
7 revision was necessary to ensure the compability of the HMR
8 with the latest revised international standards for
9 transport of radioactive materials. While there are some
10 difference between values for large quantity and highway
11 route controlled quantity, the differences don't materially
12 affect the implementation of HM-164.

13 Under 164, specific routing requirements were
14 established for highway shipments of highway route
15 controlled quantity radioactive material such as spent
16 nuclear fuel. Briefly stated, the specific rule requires
17 carriers of -- I'm going to say spent nuclear fuel, it's a
18 much shorter phrase -- carriers of spent nuclear fuel to
19 operate over interstate system highways selected to reduce
20 time in transit except where an available interstate system
21 beltway or bypass allows them to avoid urban centers.
22 Carriers are allowed off the interstate system only under
23 the four specific circumstances described in the rule: the
24 first being to follow a state-designated alternate route;
25 second, in documented case of emergency; to make necessary

1 WRBagb 1 stops for fuel, rest and vehicle repair; and finally, to
2 travel to and from a pickup or delivery site not located on
3 the interstate system highway.

4 Now clearly a state-designated alternate route is
5 something I am going to be discussing in more detail. In
6 the other cases, to pickup and deliver materials, for rest,
7 fuel stops and emergency, the rule which the carriers must
8 follow is the general routing rule which I described
9 before. If it is necessary to leave the interstate system,
10 it's not a case of all bets are off, there is a rule which
11 applies and it is the general routing rule which applies to
12 other placarded shipments. Again, in the paper you will be
13 able to see some of the comments and the determination that
14 went into the decision to use this.

15 Generally DOT has discussed the technical basis
16 for its reliance on the interstate system of highways and
17 generally the designation of these highways is based on an
18 overall performance rating with respect to lower accident
19 rates and the capacity for reducing transit time. The less
20 time the stuff is in transit, the less time for the
21 possibility of an accident; the more circuituous and lengthy
22 the route, the longer it is in transit and the greater the
23 period of time during which an accident could occur.

24 For the most part, public comment expressed
25 support for the proposal and also for the related provision

1 WRBagb 1 allowing states the prerogative of modifying the preferred
2 status of interstate highways by designating other roads as
3 acceptable alternatives.

4 Now I would like to turn to the process of state
5 designation of alternate preferred route, and I would like
6 to start by saying that a state routing agency is defined as
7 any entity which is authorized to use state legal process to
8 impose routing requirements enforceable state-wide on
9 carriers of radioactive materials without regard to
10 interstate boundaries and it specifically includes Indian
11 tribal authorities which have lease powers to regulate and
12 enforce highway routing requirements within their land.
13 That specific language is included in the definition of
14 terms that's contained in the HMR. Therefore, when I
15 continue to talk about state-designated roads and state
16 routing agencies, think of me as using state and the more
17 generic political science terminology of a self-governing
18 policy^t as opposed to the more limited sense of one of the
19 50.

20 The DOT recognized when we adopted the rule
21 requiring the use of interstate systems that not all
22 segments of the interstate system highway were of equal
23 caliber, that indeed there were areas where non-interstate
24 routes provided much preferable alternate routes. DOT
25 further acknowledged that the task of identifying preferable

1 WRBagb 1 alternative local routes was best performed by the state and
2 developed a mechanism for state designation of alternate
3 routes.

4 Many commentators felt that local governments
5 should be responsible for routing within their
6 jurisdiction. First they argued that local governments have
7 the primary responsibility for protecting the health and
8 safety of their citizens and therefore they should determine
9 whether routes through their jurisdictions were acceptable
10 and they argued that as route selection was a site-specific
11 project, local officials were the most knowledgeable.

12 However, the Department saw both practical and
13 safety problems associated with placing ultimate routing
14 authority in the tens of thousands of local jurisdictions in
15 this country. The Department noted that local jurisdictions
16 are inherently limited with respect to events, we clearly
17 know now from Mayor Smith's talk this morning; because they
18 are accountable only to their own citizens, local
19 governments may not take sufficient account of the adverse
20 impacts of their decisions. And uncoordinated unilateral
21 restriction would simply not be conducive to safety, indeed,
22 it was the proliferation of these that caused us to develop
23 164 in the first place.

24 Further, the Department believed that state
25 governments could provide the key to ensuring that that the

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1 governments would provide the key to ensuring that the
2 safest routes were used to transport high-level radioactive
3 materials. A state government has a much broader
4 perspective than local governments because it is responsible
5 for the safety and welfare of all its communities. A state
6 cannot only assess the safety impacts of a routing decision
7 on all communities but can also address the concerns of
8 tunnel, turnpike and bridge authorities.

9 States thus have the capability, through existing
10 administrative and lawmaking procedures, to incorporate
11 local input directly into their routing analyses. At the
12 same time, states have the capability of working with the
13 federal government and are familiar with implementing
14 regulations under a variety of federal programs.

15 Now, clearly, there is concern among local
16 governments who commented that there be some protection to
17 ensure that they would have this input into the process, and
18 that there be some assurance that routing decisions be made
19 on an objective basis, and, therefore, the definition of
20 what constitutes a valid state designated route -- the
21 definition which appears in the regulation -- addresses
22 these factors.

23 A state designated route means a preferred route
24 which was selected on the basis of a comparative safety
25 analysis, either an analysis using the guidelines which DOT

3 WRBwrb

1 had developed for the purpose or an equivalent
2 routing methodology. But it must be a routing analysis
3 which adequately considers overall risk to the public.

4 Moreover, designation of the alternate route must
5 have been preceded by substantive consultation with affected
6 local jurisdictions as well as any other affected states
7 in order to ensure consideration of all safety impacts, and
8 also for the more practical reason of assuring continuity of
9 the designated route.

10 There is no requirement for DOT approval of a
11 state designated route. I'm going to address the approval
12 process more in my next paper, but that point cannot be made
13 often enough.

14 Now, HM-164 has a number of other provisions
15 requiring additions to the shipping papers, requiring a
16 placard with a white background to be easily identified as a
17 shipment that was under route control. There were
18 requirements that were added for ensuring that drivers
19 receive training which was appropriate, training not only in
20 the requirements of the federal safety rules but properties
21 and hazards of the radioactive material being transported,
22 and the procedures to be followed in case of an accident or
23 other emergency.

24 Finally, HM-164 requires that motor carriers
25 transport shipments of spent fuel in compliance with a

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1 physical protection plan established by the shipper. Now,
2 these are the physical security regulations which were
3 discussed earlier. And, again, this is an area where DOT
4 and NRC will intersect. And we'll be discussing that
5 later. But I wanted to mention that as a feature that was
6 considered in 164.

7 Now, I mentioned the appendix to the rule. The
8 appendix to the rule, which is now the appendix to Part 177
9 of Title 49, is not a regulation, it does not impose
10 obligations to the act; it is a policy statement. And in it
11 the Department sets forth its policy on how it would
12 interpret the preemptive effect of HM-164 on state and local
13 routing rules. It was not meant to be a regulation but,
14 rather, to provide guidance to state and local governments
15 contemplating rulemaking action as to the likelihood of such
16 action being deemed inconsistent. So it was meant to have
17 advance guidance to let the world know how we intended --
18 how we expected to interpret the preemptive effect of this
19 regulation.

20 Appendix A contains a number of specific examples
21 of types of regulatory activities that would generally be
22 considered inconsistent. I've listed some of them in my
23 paper, and you can refer to that, and also to the appendix
24 itself, of course, directly for more detail.

25 Now, following the adoption of HM-164 and the

1 WRBwrb 1 flurry of litigation that it prompted, the question
2 inevitably arose as to the consistency or inconsistency of
3 specific state and local rules on transportation of
4 radioactive materials.

5 More than a dozen inconsistency rulings
6 proceedings have been initiated since that time. And in
7 November of 1984 the Department issued nine related
8 inconsistency rulings, all dealing with state and local
9 restrictions in Michigan, New York and Vermont which had
10 effectively blocked the transportation of spent fuel which
11 Canada was treaty-bound to return to the United States.
12 Indeed, this is the situation Mr. Rimawi was describing this
13 morning.

14 Those rulings expanded and refined DOT's earlier
15 statement on what it regards as appropriate or inappropriate
16 matters for state and local regulation. A review of the
17 findings of those rulings should provide a better
18 understanding of DOT's view of the regulatory role of state
19 and local governments, and it will also reveal what might be
20 anticipated in future inconsistency rulings.

21 Rather than deal with each one separately, since
22 they have so much in common, I'm going to very quickly go
23 over the kinds of regulatory provisions that were dealt with
24 and what our ruling was. You can read it at more length in
25 the paper.

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1 On the question of definition, regulatory
2 definition of radioactive material, a number of
3 jurisdictions established their own. In many earlier
4 inconsistency rulings, DOT has said without question that
5 the federal role in hazard class definition is exclusive.

6 If there is to be any meaning to system of safety
7 regulation, there must be a common vocabulary; we cannot
8 have the same words defined differently in different
9 jurisdictions. Therefore, especially in an area involving
10 high-risk, or perceptions of great danger, it is clearly
11 critical that there be a common language. And, therefore,
12 any state or local requirement which involves a different
13 definition we would find to be inconsistent.

14 Now, in terms of a different approach, assertion
15 of an intent to regulate, all seven jurisdictions either
16 implied or expressly stated an intention to regulate the
17 transportation of radioactive materials. We found that
18 there was no reason to find this inconsistent; indeed, the
19 way the HMTA was composed, it left the congressional intent
20 clear in drafting; it makes it beyond question that Congress
21 intended there should be a role for state and local
22 governments in the regulation of hazardous materials
23 transportation and safety. So a mere assertion of intent to
24 regulate creates no problem.

25 With prenotification and permit requirements, a

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1 different view was taken. Where the state and local
2 prenotification requirement was the same as the federal
3 requirement, the provision was found to be, in effect, an
4 adoption of the federal rule and, therefore, consistent.
5 Where it differed from the federal requirements, either by
6 requiring the same information to be submitted to different
7 parties or by requiring submission of additional
8 information, documentation and/or certification, it was
9 found to be inconsistent.

10 In reaching these findings, DOT relied on the
11 expressed congressional intent in enacting the preemption
12 provision "...to preclude a multiplicity of state and local
13 regulations and the potential for varying as well as
14 conflicting regulations in the area of hazardous materials
15 transportation."

16 This nationally uniform system of highway routing
17 would be completely nullified if interstate carriers of
18 radioactive materials were unable to proceed until they had
19 satisfied the infinitely diverse advance notification and
20 permit application requirements of every jurisdiction along
21 the route to be traveled.

22 There are also provisions dealing with additional
23 equipment, personnel, escorts. Again, we took the same
24 approach as with the prenotification and permits.

25 A more serious one was additional packaging and

1 WRBwrb 1 container requirements. In one case, a state agency imposed
2 additional design and test criteria on shipping casks used
3 to transport spent fuel over certain major bridges and
4 waterways. Asserting that federal standards were inadequate
5 to meet local conditions, the state chose this method to
6 overcome the perceived federal inadequacy.

7 In prior rulings the Department firmly establish
8 the exclusive federal role in hazardous materials containment
9 systems. The unilateral imposition of design changes on a
10 shipping container as complex as a spent fuel case is
11 incompatible with safe, efficient transportation.

12 If, as the state alleged, the federal standards
13 are inadequate, there are other alternatives to the
14 imposition of independent design requirements. There is, of
15 course, a petition for a waiver of preemption which I
16 mentioned before, the preemption determination; there is a
17 petition for rulemaking seeking to have the federal standard
18 changed, or there is the designation of alternate highway
19 routes which avoid the major bridges or the areas of risk
20 which were alleged by the state.

21 So for these reasons the additional design and
22 test requirements were allowed to be deemed inconsistent.

23 Finally, in two cases state requirements included
24 express provisions regarding the inspection of radioactive
25 materials transport to ensure compliance with applicable

1 WRBwrb 1 state and federal laws. While noting that a state rule was
2 applicable only if it is not inconsistent, the Department
3 found that such provisions represented a legitimate
4 exercise of the state's inherent police powers.

5 State enforcement of federal and consistent state
6 regulations on radioactive materials transportation is a
7 critical element of a regulatory system of national
8 applicability. Accordingly, both provisions for state
9 inspection were found to be fully consistent with the HMTA
10 and the federal regulations.

11 In conclusion, the Department has devoted several
12 years to developing HM-164 and to defending it against
13 various challenges to its validity. To date, no evidence
14 has been presented which rebuts the Department's conclusion
15 that, when federal rules are complied with, high level
16 radioactive waste can be transported over any interstate
17 highway and most other comparable routes, with a confident
18 level of safety.

19 As I said, much of what I spoke of in the first
20 paper is going to be relevant to the second topic which I
21 will introduce now; and that is how the DOT and NRC routing
22 rules work together, the merger of transportation safety and
23 physical security requirements.

24 There are three principal areas of regulation
25 which are addressed by both agencies: packaging and

1 WRBwrb 1 container standards, highway routing, and physical
2 protection. And I'll discuss each of these.

3 The packaging requirement and certification, of
4 course, was discussed by Mr. MacDonald in this morning's
5 session. DOT and the Nuclear Regulatory Commission exercise
6 their respective regulatory authority over radioactive
7 material in accordance with a Memorandum of Understanding
8 which was signed by the two agencies six years ago.

9 This Memorandum of Understanding provides that
10 DOT will develop design specifications and performance
11 requirements of packages of radioactive materials other than
12 fissile materials, not exceeding Type A quantities, and for
13 low specific activity radioactive materials. It further
14 provides that NRC will develop safety standards for design
15 and performance of packages for fissile materials and for
16 quantities of radioactive materials, other than low specific
17 activity material, exceeding Type A limits.

18 In developing their rules, each agency agreed to
19 act in consultation with the other. Or, to put it in
20 simpler terms, given the expertise of the NRC with the
21 high-level radioactive material, as opposed to DOT's
22 experience in regulating the transportation of lower levels
23 of radioactive material, this appeared to be a reasonable
24 division of responsibility to ensure that there would not be
25 duplicate -- or, worse -- conflicting regulatory

2 WRBwrb 1 requirements, that indeed there would be one federal rule,
2 and each of the two bodies working together would ensure a
3 single federal standard.

4 Spent nuclear fuel is fissile material which
5 exceeds Type A limits and must be transported in a Type B
6 package. Therefore, in accordance with the Memorandum of
7 Understanding, the regulations governing the design and
8 performance of Type B packages are set out by the NRC.

9 The NRC packaging standards are contained in Part
10 71 of Title 10 of the Code of Federal Regulations and cover
11 licensing and approval of package designs, as well as safety
12 standards, tests and quality assurance. It also places a
13 specific requirement on each NRC licensee who transports
14 licensed material to comply with the applicable requirements
15 of the DOT regulations.

16 The DOT regs contain a similar provision.
17 Packaging regulations are contained in Part 173 of the
18 Hazardous Materials Transportation reg and they authorize
19 the use of Type B packages which meet the NRC standards of
20 Part 71 and which have been approved by the NRC.

21 An exception to this requirement involves
22 packaging made by or under the direction of the
23 U. S. Department of Energy. Because DOE is not subject to
24 the licensing requirements of the NRC, it is not therefore
25 subject to the packaging standards contained in those

1 WRBwrb 1 regulations. Therefore DOT adopted a requirement to address
2 this matter.

3 Under that regulation, packagings made by or
4 under the direction of DOE may be used for transportation of
5 radioactive material when they have been evaluated, approved
6 and certified by DOE against packaging standards equivalent
7 to the NRC standards, and by a method of evaluation which is
8 equivalent to that used by the NRC.

9 Mr. Rawl spoke of this much better, since it is
10 his field, this morning. I will only use this, then, as an
11 echo of the much more expert description that he provided us
12 with.

13 But that, in effect, is the way the DOT and the
14 NRC packaging rules work together.

15 The routing requirements, of course, I have just
16 discussed in my first paper. A motor carrier of highway
17 route controlled quantity is responsible for preparing a
18 written route plan. At the time the rules were adopted, DOE^T
19 recognized the interest of shipper in routing decisions and
20 acknowledged that shipper would be very influential in the
21 final selection of routes.

22 Nevertheless, we emphasized that carriers remain
23 the party with ultimate responsibility for compliance with
24 the routing plan requirement and, because of this, carriers
25 were cautioned to carefully evaluate any route plan

1 WRBwrb 1 submitted for adoption by other parties.

2 This caution is particularly relevant for
3 carriers of spent nuclear fuel because under the NRC
4 regulations on physical protection, the licensee, not the
5 carrier, is responsible for submitting a route plan for
6 advance approval by the NRC.

7 Whether developed by the carrier or by the
8 licensee, a highway route plan must comply with the
9 requirement in HM-164 to select preferred routes which
10 reduce time in transit, except where an interstate bypass or
11 beltway around a city is available.

12 I should not, however, that the DOT rules do
13 allow deviations when necessary to comply with NRC
14 safeguards requirements.

15 "Preferred route," of course, is an Interstate
16 system highway for a state designated alternate route. I've
17 discussed the exceptions and when the general routing rule
18 applies.

19 When such deviations from a preferred route is
20 necessary, the transporters select their routes in
21 accordance with the general routing rule.

22 There are other factors which also must be
23 considered. Deviations from preferred routes which are
24 predictable must be included in a transporter's route plan.

25 After a route has been selected in accordance

1 WRBwrb 1 with the requirements -- and I have not read all of them:
2 that level of detail is better read than heard -- a written
3 route plan must be prepared containing a statement of the
4 origin and destination points, the highway routes to be
5 used, all planned stops, and estimated departure and arrival
6 times, and the telephone numbers which will access emergency
7 assistance in each state to be entered.

8 Again, I will say there is no requirement for DOT
9 approval of the route plan. There is, however, a
10 requirement for NRC approval.

11 The purpose of the NRC approval is to ensure that
12 the proposed route does not include any segment where the
13 physical security of the shipment might be compromised.
14 While both the DOT and NRC regulations are concerned with
15 protecting the public from exposure to radiological risk,
16 the DOT rules address risks which are inherent in the
17 transportation of this hazardous material. The NRC rules
18 address the risks of deliberate interference with the
19 shipment.

20 While NRC's regulatory concerns may be
21 distinguished from those of DOT, the two are, nonetheless,
22 clearly related and must be considered together. It is for
23 this reason that DOT included the provision in HM-164
24 permitting variation from the DOT routing requirements for
25 security purposes so far as necessary to meet the

2 WRBwrb 1 requirements of the physical security plan. However, we're
2 not aware of any instance to date where a shipment of spent
3 fuel has had to deviate from the requirements of HM-164 for
4 this reason. Nevertheless, the contingency has been
5 provided for.

6 Now, Mr. Nulsen, who will be speaking after me,
7 will be describing the process of route survey, and he will
8 specifically go into the approval -- the NRC approval of the
9 route. But I want to state once again that DOT does not
10 approve route selection.

11 The physical protection requirements were
12 discussed by Mr. Sawyer this morning. I will note that the
13 DOT regulations require a shipper of spent nuclear fuel to
14 provide physical protection in compliance with a plan
15 established under the requirements prescribed by the NRC or
16 equivalent requirements approved by DOT. Again, the second
17 provision assures coverage of those persons who are not NRC
18 licensees.

19 In conclusion, the DOT and the NRC regulations
20 applicable to the transportation of spent nuclear fuel have
21 been developed through close consultation to ensure
22 consistency of federal safety standards. The DOT has given
23 great attention to the issue of consistency among federal,
24 state and local safety regulations, and I would like to
25 assure you that no less attention has been devoted to

2 WRBwrb 1 ensuring the same degree of consistency among federal
2 agencies.

3 Thank you.

4 (Applause.)

5 MR. COOK: Thank you, Elaine, for that clarifying
6 discussion.

7 I would now like immediately to introduce
8 Mr. Charles Nulsen, NRC Division of Safeguards, who will
9 give a presentation on NRC practices in the approval of
10 spent fuel routing for safeguards purposes.

11 Mr. Nulsen.

12 MR. NULSEN: Thank you, John.

13 (Slide.)

14 I would like to warn you before we start the
15 presentation that I appear to present the route survey
16 procedures of NRC, and not the requirements. I'm going to
17 talk about a very narrow band of NRC safeguards
18 responsibility and not the broader responsibilities that I
19 think you have heard other speakers talk about.

20 (Slide.)

21 Within the Division of Safeguards I have been the
22 man responsible for route surveys. I have also been the
23 man responsible for the route approvals. And I have to
24 reflect back on an earlier speaker this morning, the
25 Honorable Robert Smith of Piscataway, and I'm about to tell

1 WRBwrb 1 you I've had a lot of conversations with Bob Smith. In
2 listening to him, I couldn't help be a little concerned,
3 during the lunch hour, as to whether I was the manure
4 spreader or the take-charge guy. I hope it was the latter.

5 (Laughter.)

6 The route surveys by NRC are made to fulfill a
7 regulatory obligation under 10 CFR 73.37. And, of course,
8 as has been indicated before, that is a safeguards
9 regulation and not safety, although the two are intertwined
10 to a certain extent, and a lot of the safeguards
11 requirements do have some safety effects.

12 The NRC requirements require, among other things,
13 two things that we're concerned with right now: one is
14 advance approval of routes, the other is advance
15 arrangements with the local law enforcement agencies.

16 (Slide.)

17 The approval of routes is based upon the DOT
18 routing rule; that is, we look at Interstates and state
19 designated routes. The advance arrangements with the
20 local law enforcement agencies is another requirements, and
21 I bring it up at this time because these arrangements are
22 made during our route survey.

23 The route survey starts with an NRC licensee
24 writing in to us to ask for a route approval. And in his
25 letter requesting the route approval he does detail certain

2 WRBwrb 1 data. The licensee gives us the amount of spent fuel and
2 the types, whether it is BWR or PWR or research reactor
3 fuel; he lists the casks to be used, and he lists the
4 routes. And generally the routes are indicated by "Take
5 I-80 to I-91 and go south on I-91 to I-95." Please don't
6 try to follow me on a regular map, you'd get lost.

7 But the point is that the proposed routes usually
8 come in in a written form as opposed to a map with the
9 routes outlined.

10 The licensee also gives us the time and dates of
11 shipments. And I think, as has been indicated before, those
12 times and dates of shipments are safeguards information, and
13 they're safeguarded until ten days after the shipment is
14 completed or after a series of shipments is completed.

15 (Slide.)

16 Going back to the last slide, the licensee
17 generally has to give us enough time to conduct a route
18 survey and get it approved so that he can notify the
19 governors of states it goes through seven days ahead of
20 time.

21 Part of the requirements for a licensee is to
22 have contingency planning. Part of the contingency planning
23 is making contact and advance arrangements with the LLEA,
24 the local law enforcement agencies. These contacts are made
25 by telephone prior to the survey. Generally speaking, if we

2 WRBwrb 1 are going to conduct our first route survey in a state, we
2 will not only contact the LLEA but the listed governor's
3 representatives; and it depends upon him whether we notify
4 them on subsequent surveys, as to whether we do that.

5 We schedule meetings along the routes with the
6 local police, and the meeting is a get-acquainted visit and
7 a briefing we give the state police, or they give us. And
8 in at least one instance when I made the survey I was quite
9 surprised, we had an appointment to meet the chief of the
10 state highway patrol up in Pennsylvania, and generally you
11 just walk into his office and you have a pleasant
12 discussion. But he had his whole troop waiting for us in a
13 little auditorium there, and he said "Would you mind giving
14 a briefing to my people?"

15 So we perform that service as well as getting
16 acquainted and discussing his capabilities.

17 (Slide.)

18 Now I have outlined a sort of step-by-step
19 procedure that we follow.

20 During the pre-survey actions, of course, we
21 receive a letter from the licensee asking for our approval.
22 As indicated earlier, we make our contacts with the
23 LLEA. And we have a file in our office of all the contacts
24 we've made for the six years we've been doing this, and it
25 is pretty much an up-to-date file. And if we have never

1 WRBwrb 1 been in the state, we insist that we come in and have a
2 mutual briefing. If we have been in the state previously
3 and the person we contact is someone we have known and we
4 have talked with -- and we do have frequent telephone
5 conversations with these state police -- we ask him if
6 anything has changed that might preclude an actual
7 on-the-ground visit.

8 The route survey, the actual route survey is now
9 being conducted by staff in the NRC regions. Up to two
10 years ago, the NRC headquarters staff actually conducted the
11 surveys. And when I say "conduct the survey," you get in a
12 rent-a-car with a radio-telephone and actually ride the
13 proposed route. We found that it was more effective and
14 cost-beneficial to have the staff in the regions that are
15 already out there run the survey. They collect the data for
16 us, and it comes in in written form and we put it together
17 when we are assessing whether we will approve the route or
18 not.

19 The actual survey itself is a two-man survey. We
20 have a driver and an observer, or note-taker. The observer
21 also runs the radio-telephone. We have a radio-telephone
22 along so that we can indicate the dead spots in
23 communication along the route. We have an AT&T
24 radio-telephone directory, and as we approach a city where
25 there is an operator, we try fifty miles out, forty miles

1 WRBwrb 1 out, thirty miles out, until we get good reception. But the
2 radio-telephone communication spectrum is part of the data
3 we collect.

4 We also take note of safe havens: that is where a
5 truck can go in case of emergency, either a mechanical
6 emergency or maybe he feels that somebody is following him.
7 And the safe havens are generall weigh stations, state
8 highway maintenance compounds, the visitors' areas that many
9 states have, picnic areas. But we also try to make the safe
10 havens someplace where there is a telephone.

11 We also note and locate fuel and food stops.
12 That's a matter of convenience for the carrier.

13 We make a highway analysis. A highway analysis
14 not a safety analysis. We try to find out where there is
15 construction, we try to find out places on the highway where
16 the truck might have to stop or slow down; and the reason we
17 do that is that we feel if a truck has to stop or slow down
18 it makes it more vulnerable to any attempt at hi-jacking.

19 I indicated how we test the communications.

20 Then during our LLEA contacts we have a little
21 checklist and we ask the state police their capabilities in
22 an emergency, whether they have radiological teams
23 available, are their people trained to react to radiological
24 emergencies, whether they have helicopters available for
25 communications. And we note all this.

2 WRBwrb

1 Now, what is the final product of this route
2 survey?

3 Well, the final product really is about a 15- to
4 20-page document, such as the one I have here. The
5 document has with it a summary of LLEA response
6 capabilities, it lists and locates all the safe havens, it
7 lists and locates all the fuel and food stops, it gives the
8 routing with the mileage. The routes are done on a strip
9 map type thing. It also gives all the LLEA telephone
10 numbers and the communications capabilities; it draws a
11 little arrow where there are dead spots and where the
12 communications is good.

13 Now, what do we do with this final document?

14 The final action we take is the NRC letter of
15 route approval. If we approve the route we indicate up
16 front that it is approved. We also give a few caveats. One
17 is that highway safety is a licensee and carrier
18 responsibility. We also have a little note there to remind
19 the licensee of their obligation to notify the governors or
20 the governors' designee in the states that they cross. And,
21 of course, we also reiterate the fact that dates and times
22 are safeguards information.

23 The final package of approval is our little strip
24 map, and we attach this to the letter of approval, and this
25 can be used by the carrier for the driver's emergency

2 WRBwrb 1 response procedures.

2 Now, that is our procedure that NRC uses for the
3 spent nuclear fuel route surveys.

4 (Applause.)

5 Thank you, Chuck, for your remarks and your
6 experience with routing approvals.

7 I would now like to introduce our next speaker,
8 Mr. John Allen, formerly with the Department of
9 Transportation and now with Columbus Laboratories.

10 MR. ALLEN: Thank you, John.

11 (Slide.)

12 First of all, I would like to thank NRC and DOT
13 for asking me here today to give this presentation.

14 This study entitled: The Assessment of State and
15 Local Notification Requirements for Transportation of
16 Radioactive and other Hazardous Materials. This study was
17 conducted by the Battelle organization, Battelle HARC,
18 located in Seattle, in conjunction with Battelle Columbus
19 Laboratories, principally for the U.S. DOT with
20 participation by Sandia National Laboratories,

21 (Slide.)

22 Now, there are a number of reasons why DOT was
23 interested in pursuing the issue of notification. First,
24 as we all know, there has been a growthth of notification
25 requirements during the last ten or twelve years, and there

3 WRBwrb 1 have been a lot of arguments put forth and reasons for
2 having shipment-specific information ahead of time at the
3 state and local level. My own feeling is that it really
4 boils down to two positions: the advocates focus on the need
5 for information. There are a lot of reasons why they want
6 this information which I'll get into in a moment,
7 but it really boils down to a need for information transfer
8 to the state and local levels. And this was made clear to
9 me personally from my three-year involvement as a project
10 officer when I was with DOT: it was hard to separate the
11 routing issues from the notification issues and the need for
12 more information at the state and local level.

13 So there's no question about the sincerity of
14 state and local governments' desire for this information.

15 On the other side of the fence, the opponents,
16 principally the regulated industries, shippers and carriers,
17 view this as a potential burden on commerce. And so what
18 this boils down to is, DOT looked at the issue and decided
19 that it needed to have more information about the extent and
20 nature of the notification requirements, and requested a
21 study.

22 The study really boiled down to two basic tasks,
23 and that was an inventory of the state and local laws and
24 some kind of analysis. And it was stressed by DOT "Don't
25 get involved with the policy implications of the

1 WRBwrb 1 notification issue, just try for a very straightforward
2 assessment of what's out there, what laws have been passed,
3 what did they say, and look at a couple of individual
4 notification laws in more detail, and see if it has any
5 meaning for DOT as a regulatory agency in handling this
6 issue."

7 The inventory consisted of-- This is the overall
8 study. We're trying to lead into a discussion here of spent
9 nuclear fuel. The overall study was very comprehensive: it
10 involved all state and local facility notification
11 requirements: that's every type of local government --
12 county, municipality, township or what-ever. Facilities
13 included bridges, tunnels and turnpikes primarily. It
14 covered all hazardous material classes. There are various
15 opinions on just how many hazardous material classes there
16 are. You can get Al Roberts' opinion, but I guess there are
17 about seventeen radioactive materials in one hazards class.
18 And it really includes everything else -- corrosives,
19 inflammables, compressed gases, explosives, and so on.

20 And there are three types of notification
21 requirements that DOT asked us to look into. One was
22 prenotification, which was the thing that most people are
23 talking about when they say notification: that's the advance
24 notice of shipments. Also periodic notification, which is
25 an after-the-fact type of summary report on a monthly,

2 WRBwrb 1 annual or semi-annual basis. And also per-trip reporting,
2 which, again, is an after-the-fact report for each
3 individual shipment.

4 So we included all these notification
5 requirements in the analysis.

6 As far as the analysis, we looked at a number of
7 things: the purpose of the various state and local laws, the
8 form, timing, the commodities covered, and so on. And then
9 we got into some of the individual case studies where we
10 tried to look at some of the requirements in detail. One
11 involved the NRC notification system: this has been touched
12 on already: and the other included about fourteen state and
13 local and facility case studies.

14 The focus here today is on the NRC notification
15 system.

16 (Slide.)

17 There are a couple of reasons why we looked in
18 detail -- or why DOT wanted to look in detail at the NRC
19 study. --excuse me; at the NRC notification system. First
20 of all, it's the only federal level shipment notification
21 system. Really that's a misnomer; it's actually a state
22 level notification system with oversight by a federal
23 agency, the NRC. The NRC really does not become all that
24 involved in the notification process, it's really a matter
25 of the licensees submitting information directly to the

2 WRBwrb 1 state governments, with oversight provided by the NRC.

2 The second reason is: the state and local
3 emphasis on nuclear as compared to other hazardous
4 materials.

5 (Slide.)

6 We found about a total of -- or, exactly 136
7 notification requirements of various types throughout the
8 United States at all levels. These don't total up to 136,
9 but they give you an idea as far as commodities covered, and
10 where the emphasis lies from the state and local perspective
11 as far as laws that have been passed.

12 It's sort of like an inverse pyramid: you start
13 at the bottom considering all hazardous materials, which is
14 the vast bulk of the materials being shipped -- gasoline,
15 compressed gases, propane, and everything else, and you only
16 have a very small number of state and local laws that cover
17 notification for those materials. And as you move up the
18 list here you get into waste of various types, and
19 radioactive materials, you have the hazardous wastes, and
20 it picks up a few more.

21 (Slide.)

22 So as far as the case study, what we're going to
23 do is present very quickly, since we're in a little bit of a
24 time crunch, the background of the notification system,
25 establish the shipment data base and review the shipping

1 WRBwrb 1 experience under the system, and survey state implementation
2 and use of this data for the state survey, and then the
3 findings.

4 (Slide.)

5 I won't read all this. But the background of the
6 NRC notification rule starts with June 1980 when Congress
7 directed the NRC to develop a state and local notification
8 system for certain types of nuclear waste. NRC put out the
9 notice in December of 1980, and the final rules were
10 promulgated in January of 1982.

11 They came up with two sets of rules: one, Part 71
12 of Title 10 of the Code of Federal Regulations, and Part 73
13 on spent nuclear fuel. They separated spent nuclear fuel
14 from other nuclear waste because of the security aspects of
15 schedule information relating to spent nuclear fuel, which
16 we'll get into in a moment.

17 As a matter of fact, the focus of this case study
18 is on Part 73, spent nuclear fuel. And the rules became
19 effective in July 1983.

20 (Slide.)

21 Many of you representing states are familiar with
22 the requirements because you see the notifications. But,
23 quickly, what is covered is spent nuclear fuel in 10 CFR
24 Part 73; not all spent nuclear fuel, but most of the spent
25 nuclear fuel that is of concern to state governments.

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1 To whom the notification goes. Each state
2 through which the shipment will be made. It goes
3 specifically to the governor's designee; and, again, we'll
4 cover that later; and to the appropriate NRC regional
5 office. It must arrive four days before entry into the
6 state, so far as notification to the state. It is mailed
7 and must have a seven-day postmark.

8 Information that is required. As you would
9 expect, identification of the parties involved --
10 the shipper, the carrier and the receiver; a description of
11 the material, as required by the DOT hazardous material
12 shipping requirements; identification of the origin and
13 destination; and the routes through each state, and, finally
14 schedule information is required.

15 As you can see at the bottom, schedule
16 information is protected until at least ten days after the
17 shipment is completed or the last shipment in a series is
18 completed. Schedule information must include the actual
19 time of departure from the origin and the time of entry into
20 the state, and must be accurate to within plus or minus six
21 hours.

22 Schedule updates may be made by phone, but it
23 must be done using some kind of a code procedure to protect
24 the schedule information. And cancellations must be made by
25 the licensee if the shipment does not take place.

3 WRBwrb

1 (Slide.)

2 As far as the shipment data base, what we're
3 really looking for, we're going back and looking at past
4 shipping experiences, trying to get a handle on which states
5 and which experience in handling notification so we can go
6 on to the state survey.

7 Two sources of information. One is the NRC
8 Office of Nuclear Materials Safety and Safeguards, which was
9 just discussed, the route approval program and safeguards
10 regulations, and the DOT Research and Special Programs
11 Administration has a data base based on the route plans
12 that are required to be filed in accordance with HM-164 by
13 the shipper within ninety days after the shipment. And DOT
14 has taken this information and computerized it, and that
15 information is used to cross-check NRC data.

16 Most of the case studies involving spent
17 nuclear fuel covered a 20-month period from July 6, 1982,
18 which was the effective date of the rule, until April 1,
19 1984.

20 Two points on this, on the shipment data base,
21 are important. One is, it does not include non-NRC licensee
22 shipments, primarily Department of Energy contractor
23 research and development shipments, which are not NRC
24 licensees and therefore not subject to this rule, and,
25 secondly, this does not include any shipping campaign that

1 WRBwrb 1 was under way at the time of the study, or had not been
2 completed because of security requirements, so therefore
3 does not include the West Valley shipments; which is a very
4 important thing to keep in mind, because -- well, think of
5 this whole presentation in terms of pre-West Valley, because
6 a lot of things have changed because of the West Valley
7 shipments.

8 (Slide.)

9 This is the gist of the data base that was
10 available for this 20-month time period.

11 Looking at Column 1, for example, we have the
12 origins and destinations: there are six that are shown here,
13 and then there are all others. There are quite a few other
14 origins and destinations. As you can see, most of them
15 involve principally shipments to Idaho Falls or Aiken, South
16 Carolina, to federal facilities.

17 Looking at the first one, Plattville, Colorado,
18 to Idaho Falls, Idaho, there were 36 shipments in this time
19 period.

20 The number of shipments in a series in Column 3
21 is very important: there's only one. And the reason why
22 that is important is because the NRC's notification
23 requirements only require one notification per state for a
24 shipping campaign or a shipment series.

25 So, in other words, what the licensee does is

1 WRBwrb 1 provide a schedule to the states through which he'll be
2 travelling; and that is the notification, he doesn't have to
3 re-notify unless there's a schedule changes. And that's an
4 important thing to keep in mind because it substantially
5 lessens the burden that some people may think is placed on
6 the licensee.

7 So looking across to Column 4 and using the DOT
8 data base, we can identify the states through which the
9 shipment has passed from its origin to destination.

10 Column 5 is simply Column 3 times Column 4: the
11 number of shipment series times the number of states
12 involved will give you the total number of notifications for
13 each origin and destination point. And that's what we're
14 after, we're not after the shipments, we're after the total
15 number of notifications.

16 Similarly, going down: Portsmouth, Virginia, to
17 Idaho Falls, there were 25 shipments going through
18 12 states, for a total of 204 notifications. And on down
19 the line. The totals, for a total of 134 shipments during
20 the 20-month period -- only an average of seven a month:
21 there were really not that many -- and a total of 355
22 notifications should have been received.

23 That's another point I wanted to mention: you can
24 never verify that the states actually receive the
25 notification. Although personally I feel it's almost

1 WRBwrb 1 impossible in today's shipping environment for licensees to
2 get away with not making notification, there was no way to
3 actually verify that the states did in fact receive the
4 notification. But these are the number of notifications
5 that should have been received.

6 (Slide.)

7 This displays the number of notifications and the
8 shipments by state. It's listed in rank order by the number
9 of notifications per state. And, again, we're looking at
10 Virginia, of course, is No. 1, Idaho, Ohio, Illinois,
11 Indiana and Iowa as the top six. As a matter of fact, the
12 top ten really involve a major east-west route for many
13 of the shipments going from Portsmouth, which are import
14 shipments of spent nuclear fuel going over to Idaho Falls,
15 Idaho.

16 Another reason for some of the states showing
17 up where they do is the major north-south shipments during
18 this time, and the Chalk River shipments, before they were
19 stopped and became subject to the inconsistency ruling that
20 Elaine discussed, involved a fair number of shipments. And
21 that's why a number of eastern corridor states are listed.

22 What we did was, we wanted to go talk to the
23 states that had most experience in receiving notifications.
24 We went to the top 15 states, and they received 94 percent
25 of the notifications. So we figured that was a pretty

WRBwrb 1 comprehensive way of getting a handle on how the states were
2 using the information. So these 15 states became the
3 subject of a survey, much of which was conducted by
4 telephone.

5 (Slide.)

6 One point here is, as far as who to talk with
7 within a state, there are a lot of differences of opinion,
8 as we all know, within a state on various issues, and it's
9 certainly true of notification for hazardous materials
10 shipments.

11 What we did was use the list of governors'
12 designees as published in the Federal Register in 1982, the
13 governor-designated individuals within certain agencies that
14 were to receive notification. And this just displays the
15 breakdown of fifty states and the agencies that received
16 these notifications. You see radiological health and
17 emergency response are the principal agencies, generic
18 agencies, to receive these notifications.

19 At this point I want to say that those two
20 combined include 30 out of 50 states, and both those
21 agencies have generic responsibility for emergency response
22 or specific radiological responsibilities for emergency
23 response. So it's an indication by specific action taken by
24 states as far as designating the agency to receive the
25 notification of where they place the importance of this

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1 notification information, and that is in the area of
2 emergency response.

3 (Slide.)

4 The questions that were asked in the context of
5 the state governments included seven areas. We were
6 interested in hearing about the internal processing or the
7 administrative handling, what they normally do at the time
8 they get the information; we were interested in who they
9 subsequently notify once they get this information; the
10 method of communication; what specific action is taken other
11 than filing information or subsequently contacting another
12 state agency; and then the last three: the benefits, the
13 problems, and usefulness involve opinions on the part of the
14 individual who was interviewed.

15 (Slide.)

16 These are the results of the study in a nutshell.
17 A lot can be said about their responses, but not in the
18 timeframe we're working with here.

19 As far as administrative handling, a typical
20 procedure would be to log in, and all the states do that;
21 almost all states make a subsequent notification somewhere,
22 and we'll talk about that in a minute. Most states, 14 out
23 of 15, file the information. One state just destroyed it,
24 or at least expressed that their policy is to destroy the
25 information ten days after the shipment as no longer

WRBwrb 1 needed. Five out of the 15 states make periodic summaries
2 of some type to the governor's office or elsewhere, and only
3 4 out of 15 take other specific actions; for example,
4 escorts or inspection purposes.

5 The method of notification. The states where the
6 enforcement type agency is receiving the information, these
7 are law enforcement computer systems. Mail is used by three
8 states, and some kind of secure teletype and telephone is
9 used by most of the others. Two states did not have pass on
10 the notification information, so there is no response.

11 (Slide.)

12 As far as subsequent notifications; in other
13 words, what the governor's designee did with the
14 information, who did he pass it on to, the first line should
15 read "To other state agencies but not locals." And there
16 were six states that fell into that category. They received
17 the information, say, emergency response would receive
18 it, they would pass that information on to the enforcement
19 type, to the public health type, or what-ever. And that's
20 about as far as it would go. And it's not distributed to
21 any lower level.

22 Five states send the information to other state
23 agencies and some local governments. Some of these
24 governments include the local police, fire chiefs, county
25 emergency coordinators and country sheriffs.

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1 The principal reason for not passing the
2 information along from the states to the local levels, even
3 where specifically requested by various local officials, was
4 security, because of the schedule information in particular.
5 Now, other information could be sent along, but not
6 schedule information, because that has to be protected.
7 Nevertheless, even the other information wasn't generally
8 sent along unless requested.

9 Two states provide the information to local units
10 within the same state agency. This usually occurs with
11 enforcement type agencies. If the state police received it,
12 they would pass information on to the local subdivisions
13 along the route traveled, but that would be it. And then
14 two states did not make any further notifications, they just
15 filed it.

16 (Slide.)

17 As far as specific action taken other than
18 filing or subsequent notification, eleven of the states
19 really took no specific action. --and this is specific
20 action on a routine basis.

21 Inspections. The State of Illinois did use
22 information routinely for inspections. They also used the
23 information for escorts. Several other states also planned
24 occasional escorts based on information. Again, this is
25 pre-West Valley type shipments. And one state,

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1 South Carolina, used information for occasional route
2 compliance checks; they checked to see whether they were
3 following HM-164 route requirements or state route
4 requirements.

5 (Slide.)

6 As far as the benefits of notification
7 identified by state officials, we just asked what the
8 principal benefits were, we did not ask for first, second or
9 third choice. But in cases where they responded, where
10 there was more than one choice, the information is displayed
11 in this matrix. It's pretty obvious that shipment awareness
12 and emergency response are far and away the primary benefits
13 seen at the state level from shipment notification.

14 Shipment awareness in this context...It's more or
15 less a term -- I suppose you could come up with another
16 term: we just came up with shipment awareness. It includes
17 the benefit of having knowledge of shipments taking place,
18 so the agency can respond quickly to inquiries from the
19 media, from the general public, or from whoever wants to get
20 information. It was mentioned several times by different
21 state representatives that they believed that the shipment
22 awareness really enhances, actually enhances public
23 acceptability within their state to some extent, because it
24 gave them the feeling that the state had somebody close to
25 the people handling the information, and it wasn't a

WRBwrb 1 far-away federal agency or entity making shipments under the
2 shroud of secrecy. Even though that may not be the case,
3 that's the kind of response we got from the state people.

4 Emergency response also was a major benefit
5 perceived for having this information ahead of time.

6 (Slide.)

7 As far as problems with the NRC system, really
8 there were no serious problems that were identified by state
9 officials. Most of these are minor, are considered minor.
10 Schedule changes and updates were the primary ones, and the
11 reason for this is the one notification per shipment series
12 rule. Obviously if you have a shipment series that lasts
13 over two or three months, you're going to have some schedule
14 updates; and that happened fairly frequently, evidently, and
15 was identified by a number of states.

16 Another is non-licensee shipments that are not
17 covered under the rule, principally DOE shipments.

18 The notification period was thought not to be
19 adequate by two states: one thought it was too short, the
20 other thought it was too long.

21 Lack of standard report format and the
22 administrative burden.

23 Six states did not identify any problems with the
24 system.

25 The last question was really an overall opinion

WRBwrb 1 on the part of the governor's designee or the person who was
2 referred to by the governor's designee, generally if they
3 felt the information was useful. Twelve said yes,
4 definitely; we had two toward the middle, wavering, not
5 really sure, and then one actually said they didn't feel the
6 information was that useful. His name shall remain
7 confidential to protect his job.

8 (Laughter.)

9 (Slide.)

10 Finally, the conclusions from this case study,
11 again, are a relatively straightforward assessment of
12 what's out there, and how states are using this
13 information.

14 There is really limited shipping experience,
15 there was only an average of 7 shipments per month during
16 the study period. So we have to keep that in mind. There
17 just haven't been that many shipments to really test the
18 system.

19 There is general support among the state program
20 officials for this. And, again, this whole study was done
21 from the perspective of state program officials; it was to
22 get an idea of how the people that had to administer the
23 notification requirements felt about the system.

24 Third, states generally did not pass on
25 notification information to local officials.

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1 Security is a primary concern because of the NRC
2 safeguards requirements.

3 The primary benefits are shipment awareness and
4 emergency reponse.

5 Five, few states take specific action other than
6 filing or notifying other state agencies.

7 And, last, there has been little identifiable
8 burden on industry, so far, for two reasons: one, there have
9 really not been that many shipments, and, secondly, the one
10 notification per shipment series rule really limits the
11 amount of paperwork and the coordination of on state
12 officials.

13 Lastly, DOT is interested in following up on some
14 of the findings of the study: generally, the notification
15 issue and information gathering, or information transfer
16 from the federal to the state level on hazardous material
17 in general, including radioactive. And DOT and DOE are both
18 interested in further investigation of different ways --
19 identification of alternatives as a means to provide
20 hazardous materials shipment information withou
21 pre-notification. This study did the first three on this
22 list, but there are other ways to collect information,
23 including route plan filing, highway counts, weigh station
24 counts, carrier studies. Some of these have already been
25 looked at in DOT demonstration projects for generalized

WRBwrb 1 materials, and they've been reported on with a fair amount
2 of success, and DOT and DOE programs are looking further
3 into these results.

4 Thank you.

5 (Applause.)

6 MR. COOK: Thank you, John, for that very
7 interesting report on a very comprehensive study.

8 I see that we are running behind schedule. I
9 would like to ask at this time if Mr. Holden and Mayor Smith
10 would rejoin the panel for the panel discussion at this
11 time.

12 We have a very brief opportunity for questions,
13 particularly from our state invited designees at this time.

14 Please use the microphone, identify yourselves,
15 and to whom the question is directed.

16 MR. HARDEMAN: Jim Hardeman, State of Georgia.
17 My question is for Ms. Economides.

18 Do the provisions of HM-164 apply to private
19 carriers; in particular, DOE shipments with DOE vehicles and
20 DOE drivers?

21 MS. ECONOMIDES: In the case of DOE shipments
22 that are accompanied by their own personnel for security
23 purposes, they are subject to HM-164 requirements under a
24 exemption. I discussed that at some length in the paper I
25 gave.

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1 MR. HARDEMAN: The second type, they are all
2 involved in physical protection requirements, assuming that
3 they use their own vehicles?

4 MS. ECONOMIDES: It's not just the vehicles, it's
5 also the trained security personnel who go along with it.
6 It is just a matter of private carriage, but there are other
7 factors which are involved.

8 MR. HARDEMAN: The statement that you have in
9 there says

10 "Because federal agencies are not subject to
11 NRC licensing requirements, DOT included in its routing
12 rules a requirement for equivalent physical protection
13 to be developed for consignments from federal agencies
14 when transported by for-hire carriers who are subject
15 to DOT regulation."

16 I read that as saying if they transport their own
17 and are not using for-hire carriers, they're exempt from
18 those physical protection requirements.

19 MS. ECONOMIDES: I can't comment. This is
20 probably an area that is better answered by someone who is
21 involved in the daily operation rather than by my attempting
22 to give a legal interpretation.

23 I'm afraid you stopped me on that one. There are
24 many people who are probably better qualified to respond.
25 I'm afraid I have to plead ignorance.

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MR. MOBLEY: Michael Mobley, Tennessee.

A couple of questions. One of them may not be answerable.

Has there ever been a hi-jacking attempt of a spent nuclear fuel shipment?

MR. NULSEN: I don't keep track of those things, but there has been none brought to my attention that I know of.

Did you say a highway hi-jack; is that what you said?

MR. MOBLEY: Yes.

MR. NULSEN: Okay.

MR. MOBLEY: The second -- I guess I'll make a statement out of it rather than a question -- is just to point out safeguards -- as I understand it, safeguards is not for protection of the public from the material, it's protection of the material from terrorism or hi-jacking or sabotage or theft; it's not an item for protection of the public from the materials being transported.

MR. NULSEN: We safeguard the public against radiological release. The safeguards is to prevent a group of terrorists or somebody getting ahold of the cask and blowing it up. And the protection is against people.

MR. MOBLEY: I was always under the impression that safeguards was to protect special nuclear material

WRBwrb 1 from terrorists rather than to protect people from the
2 material itself.

3 MR. NULSEN: We protect unirradiated fuel against
4 theft, if that's what you're talking about. We protect the
5 spent fuel against radiological sabotage, and that is
6 against health effects of the people.

7 MR. MOBLEY: But the real concern is somebody
8 getting ahold of the material.

9 MR. NULSEN: Only unirradiated.

10 Now, it is true that we don't want a group of
11 terrorists to get ahold of spent fuel and take it someplace
12 else and sabotage it. But it's against the radiological
13 effects against people that we're protecting.

14 MR. COOK: I'm afraid we have time for just one
15 more question.

16 MS. QUIGG: I would like the record to show that
17 I consider the NRC and DOT answer to my spent fuel fire
18 standard question to be gobbledy-gook.

19 Since you say the cask can withstand a fire
20 of higher than 1475 degrees F., I would like to know if you
21 have conducted, performed fire tests with actual spent fuel
22 in casks to prove that spent fuel and their casks can
23 withstand fires of 2000 to 2200 degrees F., because those
24 are typical chemical fire temperatures.

25 As a matter of fact, the diesel fuel from cask

WRBwrb 1 trucks burns at higher than 1475 degrees.

2 If you have conducted these tests, which
3 government documents should I refer to for records of those
4 tests?

5 MR. COOK: I'm afraid we have to move on to the
6 panel discussion at this time.

7 VOICE FROM THE AUDIENCE: No answer?

8 MS. QUIGG: Do I get an answer?

9 MR. COOK: I believe the question will have to be
10 subsequently.

11 MS. QUIGG: In addition to that question I would
12 like to know, since they say a cask can withstand higher
13 fire temperatures than 1475 degrees, I would like to know
14 where is your proof?

15 MR. COOK: That's not a subject for this
16 seminar. We'll have to move on. I'm sorry.

17 MS. QUIGG: I'm not reassured by this.

18 MR. KERR: Wayne Kerr, NRC.

19 I think if you could get ahold of the people that
20 addressed that subject this morning, they'd be the more
21 appropriate ones to give you some answers.

22 The panel that's up on the dias now cannot answer
23 the question.

24 MR. COOK: The panel discussion on highway
25 routing issues will be moderated by Dr. Sherwood C. Chu from

WRBwrb 1 DOT's Office of Hazardous Materials Regulation.

2 Dr. Chu.

3 DR. CHU: Thank you, John. You're doing such a
4 great job that -- and the fact that we're running out of
5 time, makes me wonder why we should be doing this
6 change-over.

7 In any case, we do have some views representing
8 the state and local governments as well as to Indian tribes
9 in reaction to the subject matter of this afternoon's
10 session on the routing of spent fuel transportation.

11 The first speaker will be Mr. John W. Eaton,
12 Nuclear Operations Office of the Ohio Disaster Services
13 Agency, and he will speak on behalf of the state government.

14 Mr. Eaton.

15 MR. EATON: After listening to the speaker this
16 morning from the State of New York, I thought perhaps he
17 might have been using some of my notes because they were so
18 similar. I guess I shouldn't be surprised, because all the
19 states share the same problems.

20 Also it was made aware to me that the
21 perspectives which I have some from a particular section of
22 government. I don't have all the answers for other parts of
23 the government: the legislature obviously has their own
24 motives for doing what they do, and the executive branch
25 also; but what I'm going to relate deals only with the

WRBwrb 1 agency which I am affiliated with, the Disaster Services
2 Agency. We deal specifically with planning and response to
3 radiation accidents.

4 In the last year in Ohio we saw a very
5 significant increase in the number of radioactive material
6 shipments. Now, this was due to several factors. The first
7 of them, of course, was the West Valley, New York, shipments
8 crossing the state, mostly all the way across from east to
9 west.

10 Another factor involving shipments was our
11 prenotification legislation which we do have still in effect
12 in Ohio. It has been challenged, but it's still in effect
13 right now. It's under appeal. Hopefully it will coincide
14 with the NRC requirements. We do use it, and we are very
15 concerned -- our governor is specifically very concerned
16 about shipments of radioactive material. We think the
17 information which we receive under our prenotification law
18 and it's transmitted by computer, closed-circuit computer,
19 to the law agencies in the state, specifically the sheriffs
20 and the highway patrol posts.

21 Also, the governor said he wanted the shipments
22 monitored; so we do that. We have people assigned for that
23 purpose now. In fact, most everyone in the nuclear section
24 got a chance last fall to monitor some of these 209
25 shipments.

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1 The shipments from West Valley have caused a
2 great deal of concern, not only to the state but to local
3 communities. In the northeastern part of Ohio we had
4 several communities band together and introduce a lawsuit to
5 stop the nuclear shipments because they thought they weren't
6 prepared. It was heard by a Federal District Court Judge
7 and he ruled that there was no standing, no legal standing
8 for the allegations that they presented, so that was thrown
9 out.

10 That doesn't mean that everything is hunky-dory
11 within the State of Ohio. We still have a lot of opposition
12 to shipments of radioactive material and proposed shipments
13 of radioactive material.

14 (Slide.)

15 Now not all of the 200 shipments which crossed
16 Ohio were from West Valley. You can see a breakdown here of
17 the different types of materials shipped. The only trouble
18 encountered by most of these high-level shipments that I can
19 remember, we had one flat tire, and one of the trailers
20 carrying radioactive material had one of the emergency
21 lights that was out.

22 When a vehicle carrying radioactive material
23 enters the State of Ohio, it is stopped at the border and
24 monitored, and the Highway Patrol also performs inspection
25 of the vehicle, and then they escort it across the state.

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1 Our agency also has a response team, in case of
2 nuclear accidents, to respond to accidents throughout the
3 state.

4 (Slide.)

5 We have a training course for local responders
6 who respond to nuclear accidents which is incorporated in
7 the FEMA training and sponsored by them, by the federal
8 government. And we teach that all across the state.
9 Emergency responders of course are the first ones involved
10 at an accident scene, and are very interested in shipments
11 of this type, and other hazardous materials.

12 We have been offering training in Ohio for a
13 number of years for hazardous materials and specifically
14 radioactive materials, so we had a pretty good start before
15 these large shipments started coming across.

16 One of the other concerns we had, some of our
17 state government officials are very distressed about the
18 high number of shipments they expect to cross Ohio due to
19 the temporary repositories in Tennessee that are going to be
20 opened. They think there are going to be great numbers of
21 shipments crossing our particular state since we happen to
22 be in a direct path from some of the other locations where
23 fuel is now located.

24 In addition to that, the National Academy of
25 Sciences report indicates that there will be possibly

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1 thousands of shipments of spent fuel when the permanent
2 repositories are opened, so I expect to see a lot of
3 legislation proposed and things of that nature in Ohio; not
4 necessarily that we agree with it, but it is for those
5 concerned citizens of Ohio.

6 (Slide.)

7 We have produced a radiological response plan for
8 transportation accidents in Ohio in accordance with FEMA
9 guidelines, FEMA ^{-REP-}Reg. 5. For those of you who are familiar
10 with power plants it is kind of a NUREG-0654, for
11 transportation hazards. And we have this in draft copies.
12 It has been reviewed by the Governor's office and accepted.

13 In this particular plan we have other state
14 agencies who are tasked with responsibilities dealing with
15 their particular expertise in order to cover any type of
16 radiological accident.

17 It also outlines notification of the federal
18 sector to respond to the same type of accidents.

19 (Slide.)

20 In addition to the plan, we have an interagency
21 agreement with several state agencies for hazardous
22 materials, not only radiological but other types of
23 hazardous materials. And in case of an explosive, the fire
24 marshall will be notified by any agency receiving the
25 notification. In case of spills, our Ohio EPA would be

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1 notified. In the case of radiological, the Ohio Disaster
2 Services Agency is notified.

3 You can see that the number of responses to
4 radiological accidents has also increased in the last few
5 years.

6 Now, one of the other aspects which I would like
7 to cover is the interest in spent nuclear fuel shipments in
8 the local communities. We have worked with several regional
9 governments and planning commissions in our large cities
10 that are very interested in trying to come up with a better
11 routing for hazardous materials through their particular
12 area.

13 Now, a lot of sincere effort and work has gone
14 into this. They have a big following of local governments
15 and personnel who are interested on these planning
16 commissions. And I often wonder to myself what response it
17 will have for the final rulings. It seems that a lot of the
18 effort is spinning the wheels and they're not really getting
19 anywhere.

20 It is very difficult for them, first of all, to
21 come up with a realistic proposal. They go through a lot of
22 statistics gathering and producing alternate routes, taking
23 different statistics from road segments, populations, and
24 all of that, and then they finally come up with a change in
25 the routing. Well, when they start to vote on it, we find

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1 that every community still has their own pet projects, or
2 they can't usually agree on what they really want to do, or
3 what the proposal should be.

4 I guess it has to be -- it must be a federal
5 decision in most cases on whether shipments of radioactive
6 material will go through communities or around communities.
7 And as long as they stick to the interstates, I don't think
8 there is any way that they are going to change that in the
9 local communities. But they are very interested and they
10 feel that they need some type of input. And I hope that the
11 rules the way they are right now will give them that outlet
12 to participate.

13 (Applause.)

14 MR. CHU: You have heard our next speaker before,
15 earlier this morning. He is Mr. Robert Holden of the
16 National Congress of American Indians.

17 Mr. Holden.

18 MR. HOLDEN: Thank you.

19 I hope I was able to give you some insight this
20 morning into the unique relationship the Tribes have with
21 the federal government. We also have a unique relationship
22 with the environment, and it is called "Culture."

23 In ceremonies and daily life we try to recognize
24 the forces and beings that exist around us. Different
25 Tribes do this in various ways, but the commonality is that

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1 food, medicine, sometimes animals in their local area,
2 usually in ceremonies. Without these helpers these
3 ceremonies cannot be performed.

4 If an unusual occurrence, an accident, was to
5 occur in a sensitive area, the impact on the cultural
6 lifestyle could be hampered or severely altered.

7 A few years ago a tanker truck transporting
8 chemicals -- the specific type I am not sure of --
9 overturned on a highway on the Flathead Reservation in
10 Montana. The chemicals were released into a stream and
11 killed every living organism in that stream. There was
12 nothing done by the state, nothing done by the federal
13 agencies, nor was there a Bureau of Indian Affairs
14 investigation.

15 The concerns the Indians have is that if this
16 type of occurrence happened, say on the Columbia River or on
17 the Wisconsin River, the Indian Tribes that have treaty
18 fishing rights on these rivers would lose their most
19 important resource. The salmon are known as the first food
20 to the indigenous people of Washington State or in ^{Oregon} ~~Ontario~~.

21 A side note is that fishing is an important
22 commercial industry both to Indians and non-Indians in that
23 area. It is conceivable that a spill into the waterways
24 would cripple a major economic resource of many people.

25 Some of the Tribes we are in league with are in

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1 the initial stages of providing tribal transportation
2 offices. Even before these offices were in place,
3 notification to Indian local law enforcement agencies of
4 shipments routed on Indian land should be implemented.

5 Sometimes the Indians get bogged down in
6 jurisdictional issues. We have what you call a checkerboard
7 jurisdiction in many areas. If you picture a large
8 checkerboard you will see that sometimes the state will have
9 jurisdiction for a mile, you go another mile and the Indians
10 will have jurisdiction, and then it will go back to the
11 state. In some areas there is joint jurisdiction.
12 Sometimes there is cross-deputization.

13 So we get bogged down in these issues, so it
14 makes it very difficult to come up with an elaborate scheme,
15 an elaborate plan to deal with transportation issues.

16 Also some of the deficiencies of the Nuclear
17 Waste Policy Act itself are hindering all but about three
18 Tribes in the transportation process. We -- I say "we,"
19 that is, the Tribes in the National Congress of American
20 Indians -- are working to clarify the interpretation of the
21 Act, and other Tribes want to participate.

22 We are trying desperately to bring the Tribes up
23 to speed, but until that time, believe me, we are interested
24 in communicating with state agencies and local agencies on
25 these shared issues.

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Thank you.

2

(Applause.)

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MR. CHU: You have also heard earlier from this next speaker. He gave us his views on the application of public administration as they applied to the state and local government, and he will now talk to us about routing.

Mayor Robert Smith.

MAYOR SMITH: I think I pretty well summarized an awful lot of the routing issues as far as the local governments are concerned, this morning. What I would like to do is really give you a 30-second summary of that, and then throw a really dumb idea on the table.

By way of summary, I think the local issues come down to a matter of information. As information develops for the local people, issues make themselves more or less evident. The kinds of information that we need -- and this is an information checklist, if you will, if you want to put it in that kind of a categorization: What's the past history? How is it that the current transportation need developed?

Secondly, how was the route selected, and what role did the state agency and the Governor of the state have in the selection of that route?

Thirdly, what are possible alternate routes?

Fourthly, what are the advantages and

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1 disadvantages of these potential alternate routes and
2 the actual proposed routes, including things like structural
3 characteristics.

4 In the New Jersey case, the New Jersey Turnpike
5 sought relief in federal court because they said the New
6 Jersey Turnpike roadway didn't have the structural
7 capability of handling the weight loads associated with the
8 vehicles.

9 Secondly, are any of the roads undergoing
10 construction? And if the roads are undergoing construction
11 or reconstruction, to what degree? Perhaps there's a
12 difference of degree between the alternates.

13 What are the population densities along the
14 routes? What are the lengths of the routes? Whose ox is
15 being gored; that is, who lives along the routes?

16 And, of course, lastly, local response. Do the
17 local people in the towns, the law enforcement officials,
18 the fire companies, rescue squads, et cetera, do they really
19 have the information that they need?

20 In your packet today there is a brochure entitled
21 "Information Package on Spent Nuclear Fuel Rod Shipments for
22 Law Enforcement Agencies." And on the first or second flap
23 it says "What assistance can law enforcement agencies
24 provide?" And the first two I thought were characteristics
25 of some of the local issues and the problems that we face.

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1 No. 1, render life-saving assistance as
2 necessary. I'm sure if it's a simple automobile accident
3 type situation, the local police can handle that. But if
4 there's a rad safety issue, the question becomes do local
5 law enforcement officials have that degree of
6 sophistication?

7 Item 2, Follow state radiological emergency
8 procedures as applicable. The question there for the local
9 people is, Can a state radiological emergency response team
10 get to your area; how quickly can they get to your area; are
11 they aware of the conditions in your area?

12 So they become some of the local emergency
13 response issues.

14 In any case, I think we had more time to develop
15 most of these ideas this morning, and what I would like to
16 do in the remaining three-and-a-half minutes that I have is
17 to throw a really dumb idea on the table.

18 After listening to our program for I guess about
19 six and a half hours now, some of the speakers and some of
20 the questioners have at least influenced me to believe that
21 there is some degree of frustration out there either amongst
22 state agencies or among local governments or citizen groups.

23 In New Jersey, one of the very good things that I
24 think we did in past years to deal with the issue of
25 credibility-- Because the NRC and DOT, even though they are

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1 not, they are perceived to be the enemy. What was done in
2 New Jersey was to institutionalize challenge and dissent;
3 and they did that in what is called an Office of Public
4 Advocate. It has resulted actually in less lawsuits, less
5 of a feeling among the citizens and towns that there is Big
6 Brother -- in that particular case it was the State of New
7 Jersey -- that is running their lives and they have no
8 relief.

9 The average citizen can't get the information
10 they really need to deal with issues associated with spent
11 fuel rod transport. It was alluded to in an earlier
12 panelist's comments that the towns, quite frankly, have a
13 great deal of difficulty dealing with the type of
14 information that they need, and I even detected that among
15 the state agencies, that there's a great deal of frustration
16 out there in state agencies.

17 Perhaps there should be a separate office in the
18 federal government, an Office of Public Advocate with regard
19 to radiological safety and/or spent fuel rod shipments that
20 state agencies and local governments and citizen groups can
21 turn to as a neutral source of information and/or advice.

22 That may help to build the credibility of the
23 federal government in that there is this creative tension;
24 it may provide a very good resource for state and local
25 governments for information; it may help us to not re-invent

1 WRBeb 1 the wheel over and over and over again, and it's really in
2 the American spirit.

3 Why don't we give the Indians, the locals and the
4 state governments an even chance? It's a thought.

5 (Applause.)

6 DR. CHU: Thank you, Mayor Smith. That last
7 point was a very fascinating idea.

8 We are at the point now where we are supposed to
9 be coming back from our break; however, I think I will
10 exercise the prerogative of the moderator and keep it open
11 for a little while and throw open the discussion on the
12 subject of this session.

13 Let me first ask the speakers, or, for that
14 matter, other members of the panel as to whether they want
15 to elaborate or ask questions of each other on the
16 presentations so far this afternoon?

17 Are there any questions on the part of the people
18 on the dias?

19 (No response.)

20 DR. CHU: I will now ask for questions from the
21 floor. I will practice what Dick Cunningham called the
22 non-democratic response to questioning.

23 Yes, sir.

24 MR. SINDERBRAND: My name is Carl Sinderbrand,
25 I'm from the State of Wisconsin. I have two questions for

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1 Ms. Economides.

2 The first has to do with routing decisions. As I
3 understand the first inconsistency ruling that DOT ever
4 issued related to the City of New York prohibition on
5 highway shipments, the basic essence of it was that in the
6 absence of DOT rules covering a particular subject area,
7 state regulations or local regulations were to be deemed
8 inconsistent.

9 In light of the fact that--

10 VOICES FROM THE AUDIENCE: We can't hear. Use
11 the mike, please.

12 MR. SINDERBRAND: I won't repeat the introductory
13 comment. My question is:

14 In light of the fact that to date DOT has only
15 promulgated routing rules for the highway mode of
16 transportation, would it be DOT's position that with respect
17 to other modes, and particularly rail shipments, that the
18 states would have the flexibility to establish regulatory
19 requirements which are now preempted under HM-164 for
20 highways; and those would be such things as accident
21 reporting, route designation, driver training and perhaps
22 contingency planning for unintentional interferences with
23 the shipment.

24 I have a second question, but maybe you could
25 respond to that one first.

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1 MS. ECONOMIDES: Well, your question addresses
2 routing requirements, information selection and other
3 things. Clearly, in some instances these do have the effect
4 of routing restrictions. I can only speak hypothetically
5 here. I will say that it is within the realm of also a
6 different standard of preemption in the Federal Railway
7 Safety Act which does contemplate state action, so long as
8 it is compatible with the whole regulatory system and does
9 not impose an unreasonable burden on commerce.

10 I'm not in a position to put forth a binding
11 statement as to departmental policy and, therefore, I would
12 say that we have no pre-judgmental bias against such action,
13 other than pointing out that there is a different degree of
14 historical state action in highway regulation as opposed to
15 rail and other interstate modes.

16 Having identified those as some of the factors
17 that would be considered, and now getting back to your
18 original question about the standard of interpretation of
19 ~~IO~~-1, that was the first inconsistency ruling, a very narrow
20 construction of the language. We have since issued an
21 additional fifteen rulings, each one of which has expanded
22 the body of policy and interpretation.

23 Thus, while although the language of the first
24 inconsistency ruling says that there is nothing in the
25 intent of the act or regulation, we would no longer follow

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1 that standard but would look to whether the issue had been
2 addressed within the regulatory system, and does it also
3 include areas where a question had been addressed and a
4 decision had been not to impose regulations. And that's why
5 I would distinguish ~~10~~¹⁰-2 through 16 from ~~10~~¹⁰-1.

6 MR. SINDERBRAN^DZH: My second question is a little
7 shorter; that is, in the series of November 1984
8 inconsistency rulings, one of the prevalent themes in a
9 number of the rulings was that DOT considered state permit
10 and associated fee requirements to be inconsistent with the
11 HMTA. Less than six weeks after those rulings, the First
12 Circuit Federal Court of Appeals issued a decision involving
13 a New Hampshire permit and fee system which found that that
14 was in fact consistent with the HMTA.

15 In your opinion, are the inconsistency rulings in
16 the New Hampshire case reconcilable, or is it just that the
17 judicial opinions today establish a more restrictive concept
18 of preemption than DOT does?

19 MS. ECONOMIDES: No; I think those positions are
20 clearly reconcilable.

21 In the First Circuit Court case that you refer
22 to, the New Hampshire Motor Transport case, the Court upheld
23 the New Hampshire transportation permit fee that was imposed
24 on all areas of hazardous materials and hazardous wastes.
25 It was not limited to a single commodity. It was \$25 for a

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1 one-year permit and \$15 for a single trip. It was
2 applicable to all carriers of hazardous materials, and it
3 was supported by evidence of there being actual expense
4 incurred in connection with those activities.

5 So it is broad-based. It was implemented in a
6 manner which made compliance with state requirements
7 feasible and practicable.

8 The difference in the way the permit and the fee
9 requirements that we examined in the context of
10 non-inconsistency rulings was that those were limited in
11 their scope, and it was clearly targeted at a particular
12 commodity, radioactive material, despite the presence of
13 other hazardous materials which posed at least equal and, in
14 many cases, far greater risks of transportation and
15 accidents.

16 The impact of the manner in which the permits
17 were required to be applied for, it was not a simple matter
18 of plunking money out on the table, it was a permit that was
19 granted at the discretion of the issuing authority. So that
20 for many reasons it was clearly different from the type of
21 permit the First Circuit upheld in the State of New
22 Hampshire.

23 The words identified and pointed to why they had
24 the effect of being routing restrictions. There were
25 routing rules which were for the purpose of discouraging

1 WRBeb the form of transportation of this particular identified
2 class of material.

3 So I would say there are clear differences
4 between the First Circuit case which -- in that case you
5 could say that what they were dealing with was a record
6 collection device as opposed to a form of routing
7 restriction. And that's the difference.

8 So I will say that they can be reconciled.

9 DR. CHU: We'll take one more question.
10 Are there any more questions?

11 MS. MCNABB: I have another question about how
12 the Department of Energy under the Nuclear Waste Policy Act
13 works into the regulatory scheme.

14 This is the equivalency regulations for DOE. .
15 This statement doesn't sound to me like HM-164. Maybe there
16 is some way ^{to} interpret it such that it may become HM-164.

17 This is the statement: "They always should, to
18 the maximum practicable extent, use interstate or limited
19 access highways." It doesn't say state alternate routes.
20 It doesn't sound like HM-164.

21 MS. ECONOMIDES: Can you further identify what
22 you're reading from?

23 MS. MCNABB: This is the Department of Energy
24 equivalency rules for their transportation, for spent fuel.

25 MS. ECONOMIDES: Are we talking about safeguards

1 WRBwrb 1 requirements here, because the equivalency is with
2 certification, and evaluation which goes with the
3 certification.

4 Are we talking equivalent safeguards
5 requirements?

6 MS. MCNABB: Well, it seems logical that we're
7 talking safeguards requirements; but I'm not sure myself.

8 MS. ECONOMIDES: Right. And we have to accept
9 the relationship between the safeguards requirements and the
10 routing rule. Where it is necessary to deviate from the
11 routes required by HM-164 for safeguards purposes, that is a
12 recognized allowable deviation, and HM-164 provides for this
13 contingency.

14 MS. MCNABB: Okay; that helps. Thank you.

15 Really, my question is for civilian spent fuel,
16 not for spent ^{fuel} shipments by DOE. Does HM-164 apply?

17 MS. ECONOMIDES: Yes, it does.

18 MS. MCNABB: Thank you.

19 DR. CHU: I want to thank the panelists on the
20 dias for a very instructive session.

21 Let me remind you about a couple of things.
22 Mayor Smith made reference to the local's concern about
23 emergency response as one of the prime topics of interest.
24 We will be having as the next session emergency responses.
25 Also, tomorrow in one of the break-out sessions emergency

WRBwrb 1 responses will be discussed: I want to remind you about
2 that; as well as routing.

3 Let me now turn this over to John. I suspect
4 that people are getting ready to do the break already.

5 Thank you.

6 MR. COOK: I want to thank all the speakers for
7 their participation, and to all of you for your cooperation
8 in this session.

9 We will reconvene for the next session in fifteen
10 minutes.

11 Thank you.

12 (Recess.)

13 MR. LICKUS: My name is ^{Poland} Lickus and I'm with the
14 NRC Region III Office which is out in Glen Ellyn, Illinois.
15 My function at Region III is basically ^{state} ~~safety~~ liaison
16 officer. In that capacity it's my job to promote dialogue
17 with the states. I'm really happy to see the attendance at
18 this particular conference because I think this kind of a
19 session is going to do just that, promote dialogue between
20 the states and the NRC and other federal agencies on items
21 that are of particular interest to states.

22 This final session we have today is going to deal
23 with shipping activity in general and emergency response
24 from the federal perspective.

25 Since I saw what happened to the last chairman

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1 who tried to make some administrative announcements at the
2 end of his speech, mine are going to come at the beginning
3 while you're all here.

4 (Administrative announcements.)

5 Since we're running behind schedule I think I'll
6 forego my joke on regulators. You can see me afterwards in
7 the back if you want to hear it.

8 To not take up any more time, since we're behind
9 schedule, I've asked our speakers also to keep their remarks
10 as brief as possible. We'll follow the same format as the
11 other presentations so far today, and we will hold all our
12 questions until the end, and hopefully we will be able to
13 give you brief but very informative information on the
14 subjects at hand.

15 Our first speaker is Robert Luna from Sandia
16 National Laboratories. Mr. Luna is going to give you a
17 characterization of the type and amount of spent fuel that
18 is being shipped, and he is also going to substitute for
19 Mr. Allen who is second on the agenda during this session,
20 and he's going to talk to you about the analyzed
21 characteristics of a spent fuel accident.

22 Mr. Luna.

23 MR. LUNA: Thank you. And I want to thank the
24 DOT and the NRC for asking me to speak today. It's always
25 good to talk to people from the states and localities and

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1 find out what is on their mind and what's happening in the
2 area, so that we can be more responsive to their needs and
3 interests.

4 (Slide.)

5 The first item I'm supposed to talk about today
6 is the question of what spent fuel is and how much goes
7 where.

8 We have heard a lot of definitions of spent fuel
9 already this morning, so I really don't intend to spend a
10 lot of time on an official definition of spent fuel. I'll
11 kind of give you a thumbnail sketch, and there is a legal
12 definition on the screen. So I'm not going to spend a great
13 deal of time on that.

14 The first Vu-graph kind of gives you an
15 indication of where spent fuel is generated in this country
16 today. And while I realize that we were talking about LWR,
17 light water reactor, fuel, in general I think it is useful
18 to remember that there are other sources of spent fuel being
19 shipped around the country. And we're going to talk a
20 little bit about those later and how much there is.

21 Spent fuel arises out of research reactors that
22 are typically associated with universities and research --
23 R&D facilities; production reactors for producing
24 radio-pharmaceuticals that are used in -- preparing
25 radio-pharmaceuticals for use by commercial companies;

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1 military reactors produce spent fuel which is shipped
2 around; likewise the primary subject which I think most
3 people are interested in today is produced by LWRs, light
4 water reactors, from boiling water reactors and pressurized
5 water reactors. And, in addition, there is also a HTGR, a
6 gas-cooled reactor spent fuel campaign which you'll see
7 later, shipping fuel from Colorado to Idaho.

8 All of these reactor types generate spent fuel,
9 and the spent fuel that is generated is of fairly diverse
10 shapes and forms, but it all is united by the fact that it
11 is typically thermally hot and is a potent source of
12 radioactive contamination.

13 (Slide.)

14 The key issue here, the reason why spent fuel is
15 spent is that the fissile content is too low to keep the
16 reactor going in an efficient manner, or there are too many
17 fission products, or for some reason you can't meet the
18 economic and research needs of a facility that's going on.

19 And while I don't think it is really necessary to
20 point out, I want to point out that "spent" does not
21 necessarily mean benign; spent fuel, in fact, produces a
22 great deal of thermal energy and produces a great deal of
23 radiation, alpha, beta, and gamma, if the material is
24 unclad.

25 The principal key, as somebody talked about this

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1 morning in one of the questions, to how hot it is relates to
2 how much burnup there is, what the energy level was at which
3 the fuel was operating, and how long it has been out of the
4 reactor. Very high burnup fuel that has been in a reactor
5 pool cooling off for a long period of time may be less
6 energetic than newer fuel of lower burnup.

7 There's a trade-off among these various
8 parameters that specify what the fuel is like. One of the
9 more important ones in shipping campaigns is how old the
10 fuel is, how long has it been out of the reactor.

11 Typically, spent fuel casks are designed for
12 180-day fuel; that is, that's been out of the reactor for
13 180 days: it's typically very hot, produces a lot of thermal
14 energy and produces a lot of radiation. After five years'
15 cooling or ten years' cooling, which is typical of the NWCA^P
16 type shipments, the levels are down considerably from those
17 levels.

18 (Slide.)

19 The material that is in spent fuel are things
20 like fissile materials. And here's a spectrum of the
21 fissile materials you might find in reactor fuel elements,
22 U-235, plutonium-239, uranium-233. You have typically
23 encapsulating materials to control and contain the fission
24 products, and these encapsulating materials have very high
25 integrity normally -- stainless steel, Zircaloy, aluminum

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1 and magnesium are typical materials that you might find as
2 encapsulants for the fuel. That makes the fuel what is
3 known typically in DOT parlance as a "special form"
4 material; that is, the material is not subject to being
5 ground into a powder or releasing the constituents as a
6 whole, but it remains to be just a radiation source.

7 There are structural materials that hold the
8 various fuel pins together. These can be made out of
9 Zircaloy or stainless steel or other materials. And in the
10 reactor, under irradiation, these materials become
11 radioactive in themselves and produce additional kinds of
12 radiation doses that are different from what the fission
13 products are.

14 And then we have the fission products, which
15 typically are classed as the inert gases like krypton;
16 volatile materials -- volatile fission products: cesium,
17 rubidium, iodine, and some others; and refractory materials,
18 europium, uranium, plutonium, things like that. In oxide
19 form those materials are very, very high melting and not
20 typically able to be vaporized, except at extraordinarily
21 high temperatures.

22 And then, as I indicated earlier, the radiation
23 products, the neutron activation products -- cobalt-60,
24 plutonium-238, plutonium-239 -- that are produced in the
25 process of irradiation of the fuel.

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1 (Slide.)

2 This circular is out on the table there, some
3 samples. I don't know if all of you in the front have
4 received copies of it. But it, in fact, answers all of the
5 information I think I was asked to present today, and so I'm
6 going to show you a little bit of what is inside the
7 document that you may have seen out front.

8 (Slide.)

9 One of the things it has in it is a list of the
10 states that have spent fuel -- approved spent fuel shipment
11 routes; that is, the states are shown.

12 (Slide.)

13 Here's a map which shows the various routes among
14 states -- among reactors, responsitories and/or
15 inter-reactor transshipment.

16 (Slide.)

17 This will blow you away: in a Vu-graph it is
18 really hopeless. If you get your own copy I'm sure you will
19 enjoy this table as much as I.

20 (Laughter.)

21 I have circled some areas that I think are
22 somewhat interesting. The two circles up here in the corner
23 kind of give you an indication of research reactor fuel that
24 is shipped from university reactors to reprocessing plants
25 that the DOE operates in South Carolina. The number in the

WRBwrb 1 first box up there is six shipments of 10 kilograms, and the
2 second box down, under Columbia, Missouri, is eight
3 shipments of 42 kilograms. So that is one of the kinds of
4 spent fuel that is going around -- being shipped around the
5 country.

6 Down here at the bottom where I have imports,
7 for instance, at Ogdensburg, New York, is shown one, and
8 Portsmouth, Virginia. The Ogdensburg shipments you heard
9 about today with regard to the DOT rulings and the import
10 shipments. And, again, these imports are spent fuel from
11 research reactors, in general, that are coming back to the
12 United States who supplied the fuel for the various
13 reactors.

14 The numbers in those boxes, the first one is 14
15 shipments of...it looks like 69: I can't even read it
16 myself, it is so small. And then the next one is 120
17 shipments of 708 kilograms. And then down at the bottom,
18 for instance, down here under Tuxedo, New York, is
19 listed, I think, a production reactor where
20 radio-pharmaceutical materials are produced by operation of
21 the reactor. And, again, this material, the spent fuel, is
22 shipped back to Savannah River. And it's four shipments of
23 12 kilograms each.

24 I've also highlighted some of the shipments
25 across the middle, back and forth from Morris, Illinois,

WRBwrb 1 where you're going to be tomorrow, indicating Morris to
2 Genoa, Wisconsin, for instance: there were four shipments of
3 938 kilograms.

4 You get the picture.

5 On this side are the places where the fuel is
6 coming from, and at the top are the places where the fuel is
7 going to, so you can get a box score of where material is
8 coming from and going to. And these can be related to the
9 routes that are shown on the map that I showed earlier.

10 (Slide.)

11 Another source of information on where spent fuel
12 is coming from and going to is the DOT data base in this
13 area. This is a printout, albeit not a very clear one,
14 of the output of that data base, which is a publicly
15 available piece of information. This comes from the
16 post-notification of material under HM-164 in which you can
17 find out who's carrying it, who owns it, where it comes
18 from, where it goes to, when it went, and what the material
19 was that was being shipped.

20 In this particular series I don't have a spent
21 fuel shipment, but it gives you the route of the shipment at
22 the bottom.

23 (Slide.)

24 If you take the data from that -- and we've had
25 one of our contractors, IAL, look into the DOT data base --

WRBwrb

1 you can extract information like this to learn what has
2 transpired in the past.

3 For instance, common carriers: there's a number
4 of shipments there; private carriers are indicated here.

5 (Slide.)

6 And then there are shipments by the NRC licensees
7 and DOE related shipments shown here.

8 I'm just passing through this quickly because of
9 the time. If you're interested, I can answer questions or
10 provide you with copies of the report when it gets
11 published.

12 (Slide.)

13 You can do some breakdowns on whether it's a
14 large quantity of spent fuel or DOE shipments. And remember
15 that the HM-164 data base only has highway route controlled
16 quantities in it which can be spent fuel or some other
17 stuff. So you have to pick and choose among the entries.

18 (Slide.)

19 This one is points of origin, showing New York,
20 no doubt as a result of West Valley; Idaho, because it's the
21 center of nuclear development for DOE; Illinois, which is no
22 doubt related to Morris; Pennsylvania, related to Three Mile
23 Island; Tennessee, Oak Ridge; Maryland -- I don't know why;
24 Colorado, because of the HTGR; Virginia, because of
25 shipments out of Surry, I guess, and then others.

WRBwrb

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(Slide.)

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Now, if you're interested in the future, what shipments are going to occur in the future of spent fuel, I would say that in the longer run-- In the short run you might expect shipments of spent fuel to be about the same as they were in the last few years; that is, perhaps as many as a couple of hundred shipments, and it will go among the same kind of places we've seen before.

If you're interested in future information, what kind of fuel is going to go on, I suggest that you look at the responsitory EAs, environmental assessments, that are getting written for the NWPA by DOE; which is a string of initials that won't quit.

WRBeb

1 I suggest that you also look at the mission plan
2 for the commercial waste management program, again a product
3 of DOE. And this document here, for instance, is a source
4 of some information with regard to what reactor discharges
5 are going to be, and that is input information to the kind
6 of shipment data that is going to have to be handled in
7 terms of the Nuclear Waste Policy Act.

8 So that is sort of a bird's eye view, as quickly
9 as I can, of what spent fuel is and where it has gone, and
10 where it might go is still up in the air until a repository
11 and MRS questions are settled in greater detail.

12 (Applause.)

13 By popular acclaim I am going to come back and do
14 an encore.

15 The next talk I am doing ^sit for George Allen, and
16 George regrets not being able to be here, since his travel
17 schedule finally caught up ~~with~~ n him and he wasn't able to
18 get on the airplane to ~~come~~ Chicago because he couldn't
19 get off the airplane coming from somewhere else.

20 (Slide.)

21 The first Vugraph here gives you my expectation
22 of the answer to the question of what might an accident
23 involve, and I would like to explain this a little bit.

24 My expectation of what an accident involving
25 spent fuel involves is that an accident involving a

WRBeb

1 shipment is likely to involve some amount of damage,
2 economic damage, to the vehicle that is carrying the spent
3 fuel.

4 It is likely to involve-- A serious accident is
5 likely to involve injuries to the driver of the truck or to
6 anyone or anything it happens to run into, since it is
7 carrying the 80,000 -- it will be carrying the 80,000-pound
8 maximum load in all probability that is allowed under
9 current state laws.

10 And I wouldn't be surprised that in some
11 situations there wouldn't be some deaths as a result of the
12 accident, but I don't expect that any of those deaths or
13 injuries or the damage is going to be a result of the
14 nuclear material that is contained.

15 I expect that if there is an accident that there
16 will be delays in the shipment getting from one place to
17 another, and those delays are translated into greater
18 exposure to the people surrounding the cask. The cask after
19 all, by law, is allowed to have a emanation rate of ten
20 millirems per hour at six feet from the cask.

21 The longer that cask sits someplace, not going
22 anywhere, and as long as it is surrounded by people, then
23 the people nearby are going to be receiving a dose of
24 whole-body radiation, and that mounts up. And while it is a
25 relatively low level, it is part of the radiation hazard

WRBeb

1 picture.

2 When you start talking about the kind of
3 accidents that you-all are really interested in, and the
4 kind we've been hearing about this morning, you enter into
5 what I would consider -- you get out of the expectation
6 business and you get into the postulation business in which
7 you say to yourself how is it that I am going to receive
8 harm from the contents of the spent fuel cask?

9 And in that regard we are really talking
10 risk-analysis kinds of evaluations where we're talking about
11 events that happen or are likely to happen so infrequently
12 that I think few of us are ever likely to see a spent fuel
13 accident that causes a release of radioactive material.

14 In the first place, the accident rates for
15 ordinary truck transport are on the order of three-tenths to
16 one accident per million miles -- per million kilometers.
17 And that depends on the roadway type, and is heavily biased
18 by reportability. Trivial accidents with ten- to
19 twenty-dollar fender bending or something like that
20 typically don't get reported so they are not in this data
21 base. In some states reporting is better than others, so it
22 is hard to say exactly where this number is, but
23 three-tenths to one accident per million kilometers is not a
24 bad number.

25 Also remember that this is ordinary heavy truck

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1 transport and not the kind of escorted shipments that we're
2 talking about for spent fuel, with special drivers and
3 constraints on how and where they might operate. So the
4 number of basic accidents you'd expect is probably high for
5 this special type of shipment.

6 Now at current shipment levels, which is a few
7 hundred shipments a year, where you might have a million or
8 so kilometers of travel in five years or so, you expect to
9 see one or two spent fuel accidents or accidents involving
10 spent fuel transport. And in fact, if you look at the HMIR,
11 the Hazardous Material Incident Reports, again a
12 publicly-available source of information from the DOT, what
13 you find is that there have been a couple accidents
14 involving spent fuel transportation in the last five to ten
15 years.

16 So the information that we have from the Incident
17 Reports kind of confirms what the basic accident rates are
18 that we're working from.

19 Now at 3,000 metric ton shipments, 3,000 metric
20 tons of spent fuel being shipped every year, as might occur
21 after NWPA happens, -- and that's a ballpark number -- you
22 might expect to be doing a million kilometers of shipment
23 a year. That means you might expect one accident involving
24 spent fuel in each year of shipment at those rates.

25 So now what we are saying is as sure as you're a

WRBeb

1 foot high, there is going to be an accident involving spent
2 fuel transport some time in every year that we see the
3 shipping at this high rate.

4 However, one of the things that gets to be fairly
5 important is the fact that because of the way that spent
6 fuel casks are certified, and Chuck MacDonald went into this
7 in some detail this morning, there is reasonable reason to
8 believe that in more than 99.9 percent of cases of the
9 accidents that are likely to be seen, the accident
10 environment, crush, puncture, impact, fire, are unlikely to
11 get over the threshold of the certification tests to start
12 with for fire and impact.

13 So we're talking about one chance in a thousand
14 or so that given an accident occurs, that you will see
15 anything, any kind of environment that might even lead to a
16 release. So what I say to you is that since there is a
17 possibility now to be like a 26-year campaign of moving
18 spent fuel to a repository, and given the probability of
19 getting up to environments that are serious, my expectation
20 is that we are probably not going to see any serious spent
21 fuel accidents.

22 I would say my own personal expectation is that
23 there will be none. As an engineer I have to reckon with
24 the probabilities that say there's going to be a tenth or a
25 hundredth of an accident over that 26-year period. I don't

WRBeb 1 get too excited about that hundredth of an accident.

2 So we are in this position where we're
3 postulating, where we're talking about the event that might
4 occur.

5 (Slide.)

6 In the description of technical activities,
7 having postulated the fact that an accident is possible, we
8 then look into trying to decide how it might occur, what its
9 probability is, what its releases might be. And that kind
10 of information was considered in this document which was
11 turned out by Sandia in-- Well, it started in '80 and was
12 produced in-- I don't know when it was first printed but it
13 was reprinted in '84.

14 This document contains the results of a seminar
15 which we got together, a dozen or so experts in spent fuel
16 cask accident environments and things like that, to try to
17 get their best estimate, their best wisdom with regard to
18 what kinds of environments might breach a cask and how big
19 those breaches might be.

20 (Slide.)

21 The panel of experts talked about the maximum
22 hole is something that they postulated in this workshop as
23 being the most they could imagine would occur under any
24 accident they could imagine or have ever thought about.

25 They looked at environments leading to release,

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1 particularly impact and fire. They also looked at the
2 question of crud, which is one which I haven't discussed
3 before.

4 Crud is the stuff that gets on the outside of the
5 spent fuel rods as the result of being in the reactor. It
6 consists principally of activation products, cobalt-60,
7 things like that that are gamma emitters. That material is
8 on the outside of the rods, and in a heavy shock or a heavy
9 thermal environment, it might be dislodged and it might come
10 out of the cask with the water that is in the cask, if there
11 is any, or it might come out of the cask if the cask is
12 pressurized.

13 And then we talked about the breaching of the
14 fuel elements and the release of the volatiles and the other
15 materials that are in there.

16 (Slide.)

17 The methodology that was used is on the next
18 slide. And there will be a quiz on this after the program.

19 (Laughter.)

20 Has everybody got that?

21 This is basically a fault-tree way of looking at
22 the events that can lead up to a release of material. This
23 is all in the report, and if you are interested in this you
24 can get the report and eyeball it.

25 But it starts down here at basic events, fire,

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1 impact, et cetera, and works up with the conditional
2 probabilities and the conditions that have to be present in
3 order to get to the top event, which is the release of the
4 crud in this case.

5 (Slide.)

6 This one is-- Actually the last one dealt with
7 both crud and fission products.

8 And this one is the same thing except it deals in
9 longer-term effects; that is, what happens if nobody goes
10 after the cask after a couple of hours of whatever
11 environment it is in. And again, it works up through these
12 various conditional probabilities to the top event.

13 Let's have the next one.

14 (Slide.)

15 The postulations then go into looking at the
16 kinds of materials that come out, looking at inhalation of
17 air-borne material, cloud shine, the radiation that comes
18 from the clouds and passes over, ground shine, what is on
19 the ground, ingestion of material, and direct radiation from
20 exposure of the fuel.

21 (Slide.)

22 And it leads to numbers that you can use in a
23 risk analysis which show that the probability of this event
24 is so small -- that the risks become very small compared to
25 the normal risks, the normal risks you get in just

WRBeb

1 transporting from place to place where nothing happens, and
2 you expose a lot of people to very, very low levels of
3 radiation.

4 From the standpoint of emergency response, which
5 was the other thing I was supposed to talk about, is these
6 kinds of motherhood statements which relate to the event,
7 that if you have an accident -- if there is an accident
8 with the spent fuel transport, what is it that you would
9 like to see happen at that accident?

10 Well, what you would like to see happen is you
11 would like to see it reported promptly, and you would like
12 to see there be good crowd control, and you would like there
13 to be some kind of survey capability that somebody could
14 employ to verify that radiation levels were at the proper
15 level for the shipment, and you would like to have fire
16 fighting go on to cool things off and get a fire that might
17 occur out very rapidly.

18 Fires, by the way, only account -- only occur in
19 about 1.6 percent of all serious accidents.

20 And what you would like to see happen is
21 preventing the spread of the material that's involved by
22 damping the fluids that come out or covering the dusts that
23 come out.

24 You would like to have some level of hospital
25 awareness; that is, where they are and who can treat

WRBeb

1 radiation accident people, or people suspected of radiation
2 contamination.

3 And you would like to have then some cleanup
4 procedures.

5 Now if this sequence of events seems to look
6 familiar, I would suggest to you that it corresponds
7 one-to-one with the kind of things you would like to do in
8 any emergency response to a hazardous material. And that I
9 think is one of the things that we need to make very, very
10 clear.

11 So in summary of this part of the program, I want
12 to make a couple of points:

13 First, there will be accidents and incidents, but
14 I expect that they will not be very frequent, on the order
15 of one a year perhaps, under the heaviest shipment scenarios
16 that you might imagine.

17 The radioactive label on the shipment involved in
18 an accident, even a trivial one, will make it especially
19 noteworthy and probably greatly increase the potential for
20 chaos to reign at the accident site.

21 Prompt action, typical of any emergency response
22 activity, will be important to save lives that are acutely
23 in dangered, to put out fires, to channel the material that
24 might be leaking, to control the crowds and to control their
25 distance from the event, and to call in experts to get an

WRBeb 1 idea of what you're really faced with, to be sure that you
2 don't have a leak.

3 And my expectation is that if you have a good
4 emergency response capability in existence to handle
5 hazardous material accidents, and if it is exercised very
6 frequently as I certainly expect it will be, that you are 99
7 percent of the way to being able to handle a radioactive
8 emergency.

9 Thank you.

10 (Applause.)

11 MR. LICKUS: Thank you, Robert. Thank you twice.

12 Our next speaker is a co-worker of mine in the
13 Region III office in Glen Ellyn. His name is Monte
14 Phillips.

15 Monte is chief of the Emergency Preparedness
16 Section in NRC's Region III. And Monte is going to be the
17 first on the agenda here in this particular session, to give
18 you a perspective on the NRC's role in emergencies and, in
19 particular, in responding to transportation emergencies.

20 MR. PHILLIPS: Good afternoon.

21 (Slide.)

22 Basically what I would like to do is to go over
23 the NRC's Statement of Policy regarding our response to any
24 type of transportation accident, of which a spent nuclear
25 fuel accident would come under that heading.

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1 The first thing to remember is that we are not in
2 charge. The states are in charge, or the local government.
3 Therefore, our response is strictly limited to what we are
4 requested to provide.

5 The initial phone call would come in through our
6 Headquarters Operations Center or, if it came into the
7 regional office, it would be forwarded to the Headquarters
8 Operations Center. Their phone number is Area Code
9 202-951-0550.

10 When we get a notification from either a carrier
11 or a state government or a local police agency that there
12 has been an accident or that there has been an event
13 involving the transportation of spent nuclear fuel or any
14 other type of transportation accident, our first response is
15 to call up the state agency that is responsible for that
16 general radiation monitoring program in the state. For
17 example, in Illinois that would be the Department of Nuclear
18 Safety.

19 When we make that phone call we make sure that
20 they're aware of the accident because that is not always the
21 case.

22 We also make sure that we offer to provide
23 assistance, whatever they may request. We are capable of
24 evaluating quite a few things. We have a rather large cadre
25 of health physicists, instrumentation, and we have the

WRBeb 1 availability to get that accessed to the state as soon as
2 possible.

3 We also notify the other federal agencies that
4 are involved or can be involved in an accident. The
5 Department of Energy has monitoring equipment. The
6 Department of Transportation would want to be aware of the
7 event. And the Federal Emergency Management Agency.

8 A lot of this activity is specified in the
9 Federal Radiological Emergency Response Plan, FRERP, and I
10 think Vern is going to talk with you about that later on.

11 We try to gain an understanding of what occurred,
12 why it occurred, whether there has been any type of
13 container breach. If there is any suspected leakage or
14 potential for leakage from the container, we will send a
15 team.

16 Now that may sound contradictory to what I said
17 earlier about not coming unless we're invited. We are
18 actually performing two separate roles. The team that will
19 be sent will be a fact-finding team under our Memorandum of
20 Understanding with the Department of Transportation to
21 investigate the cause of the suspected leakage.

22 One of the other aspects, the last one on the
23 slide here, is to respond to a lot of requests for
24 information. Whether we like to admit it or not, as soon as
25 the press or the public hears that there has been an

WRBeb

1 accident involving radioactive material, we are one of the
2 first agencies called, on the presumption we know everything
3 there is to know about radioactive materials. It is not a
4 safe presumption but they still make it.

5 So one of the activities that we will be trying
6 to do is to gain information on what has gone on and what is
7 going on.

8 (Slide.)

9 We also want to ensure that the state or whoever
10 is responding to the event is made aware of exactly what
11 that shipment contains. As you already know, all shipments
12 contain shipping papers and the shipping papers are fairly
13 explicit as to exactly what the material and activity is.
14 However, in not all cases can the shipping papers be found
15 or identified as the result of an accident.

16 We can identify through different channels the
17 name of the shipper, the destination of the cargo, the name
18 of the carrier, and determine exactly what that activity
19 was.

20 I have already touched on the next subject which
21 is the Memorandum of Understanding where we go through and
22 investigate anything that involves potential leakage.

23 The last one on there, "Provide recommendations
24 for emergency response personnel on radiological issues if
25 requested, or if the need is recognized," I would like to

WRBeb

1 kind of focus on what we mean by "if the need is
2 recognized."

3 If we have a site team or a team of individuals
4 that is responding to the site, or if we are notified that
5 "Well, there is no real need; we don't think it is a big
6 problem but of course it is leaking this green fluid out of
7 the side of the container," we may in fact make a
8 recommendation, based on that information, to whoever the
9 responsible individual is at the site. That's a
10 take-it-or-leave-it type recommendation.

11 But primarily our response with resources is
12 based strictly on their request. When we are requested we
13 respond. If we are not requested, then it depends on
14 whether or not the container has been breached. And this
15 doesn't just apply to spend nuclear fuel; this applies to
16 any transportation accidents involving any radioactive
17 material.

18 Now the details of how we would respond and who
19 gets activated and that kind of stuff I am going to talk
20 about when we talk about our transportation drill which
21 comes up in about two more talks.

22 (Applause.)

23 MR. LICKUS: Thanks, Monte.

24 Next we are going to hear about the role of DOT
25 in responding to emergencies. And presenting that speech

WRBeb 1 will be Elvin P. Sill who is with the Office of Emergency
2 Transportation, Department of Transportation.

3 MR. SILL: Thank you.

4 Good afternoon, ladies and gentlemen.

5 What I would like to do very briefly this
6 afternoon is to give you a short overview of the
7 Department's emergency preparedness program organization and
8 functions, and then try to relate that to you in order that
9 you can understand how it will hopefully help you in
10 responding to radiological emergencies.

11 (Slide.)

12 This basically is the DOT emergency preparedness
13 coordination channels. And I apologize for the
14 Copernicus-ness nature of the rank of the Office of
15 Emergency Transportation position in OET. I assure you we
16 are not the center of the DOT universe.

17 The reason I wanted to show you this chart
18 basically is to explain to you that the Department does have
19 an extensive and operational emergency preparedness
20 program. One of the key elements as far as emergency
21 response to radiological emergencies would be the role of
22 the Emergency Coordinators. These people are located in
23 each of our ten regions, and also in each of our major
24 departmental administrations.

25 The Department's emergency preparedness program

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1 is basically designed to meet two types of emergencies, a
2 national defense emergency and the natural or the
3 technological disaster type emergency. We are prepared to
4 do both of those programs.

5 The primary categories of emergency response
6 functions for the purpose of this briefing I am going to
7 divide up into three areas: the emergency transportation
8 program, which I will discuss at length; the hazardous
9 materials transportation program, which the hazardous
10 materials folks have discussed in detail all day and will
11 continue to discuss; and the Department's emergency medical
12 service program, which I am not going to say much about. I
13 do think it is worth mentioning.

14 Many of you at the state and local level have had
15 access to the National Highway Traffic Safety
16 Administration's program with regard to medical helicopters
17 actuation, state training programs, and so forth for
18 emergency medical services. This is an ancillary program
19 and it is available, and in a radiological emergency it
20 would be a very, very potent management tool to address the
21 problem.

22 What really is the U. S. DOT role in emergency
23 response situations? Well, as I said, there were the three
24 main categories. I am going to talk primarily about the
25 Office of Emergency Transportation and what we do. We could

WRBeb

1 do several things.

2 First of all, we assist the state and local
3 governments if requested in major non-defense radiological
4 emergencies.

5 We participate in the Federal Radiological
6 Emergency Response Plan, FRERP. And I am not going to go
7 into great detail on the concept or the structure of that
8 plan because my FEMA colleague will address that following
9 my presentation.

10 We participate in the Federal Radiological
11 Emergency Coordinating Committee. This is a committee of 12
12 or 13 principal federal agencies who have been instructed to
13 work together in conjunction with the outcome of the Three
14 Mile Island disaster several years ago, and develop a
15 coordinated federal response to these types of emergencies.

16 This committee had several subcommittees which
17 are working subcommittees that are working in important areas
18 such as the standardization of approaches in training.
19 There is an emergency response subcommittee. They have an
20 agenda. They are working very hard to come to grips with
21 many of the problems that you have heard discussed here
22 today.

23 The Department is very active in all of those
24 subcommittees as well as the committee.

25 We can assist the states through the threat in

WRBeb

1 the evaluation of local emergency response plans and
2 exercises. One of the major roles of the DOT Regional
3 Coordinators that I have mentioned earlier is to work with
4 the states in both the exercise mode and the development of
5 state emergency evacuation plans, the transportation leg of
6 those plans.

7 We also participate in a group known as the
8 Regional Assistance Committees, or RACs, which are basically
9 committees of local federal officials who participate under
10 the general aegis of the FEMA regional official, who come
11 together and work closely with the states in evaluating the
12 various aspects of the FRERP emergency response plans, and
13 they are also available to state and local officials as
14 required.

15 What is the DOT part of the FRERP national plan?

16 The FRERP national plan requires that major
17 participating agencies also have their own emergency
18 response plan for non-defense emergencies. The DOT has such
19 a plan. It is an operational plan. It is effective, and it
20 is part of the overall planning and guidance materials
21 furnished through the FRERP.

22 What does it do?

23 Well, it outlines DOT's response role. It makes
24 organizational assignments. It says who will do what, when,
25 where and how. It provides for the allocation of

WRBeb 1 capabilities as required in various types of emergencies.
2 It includes and is built upon this earlier concept that I
3 was talking to you about concerning the DOT emergency
4 preparedness program.

5 Within the structure of that program is a Crisis
6 Coordinator concept. That concept is basically functional
7 in nature. If there is a major mobile disaster, crisis, or
8 whatever, and it is determined that it is of a magnitude of
9 a regional or national nature that requires the Department
10 to go into an emergency mode, we will determine, based as I
11 said on a functional decision, a Crisis Coordinator for the
12 Department. That person will be responsible for pulling
13 together and deploying the departmental assets in addressing
14 whatever the problem is at hand.

15 The DOT portion of the FRERP plan incorporates
16 that concept, so we can move quickly and we can move
17 efficiently to deploy Department assets as necessary.

18 The DOT role is primarily, if not 100 percent, an
19 offsite role. They are not involved in the actual concerns
20 associated with an accident within the confines of a nuclear
21 power plant. We address the transportation leg.

22 Okay, what are our capabilities? What can we do
23 for you if you are in trouble out there?

24 Well, we can do several things. First of all,
25 our Emergency Coordinators, our ten Regional Coordinators,

WRBeb 1 are on the ground. They are working daily with state and
2 local officials. They know each other. The contacts are
3 built up. They know what the requirements are. They know
4 what the resource capabilities of the localities are.

5 If transportation is needed and it is impossible
6 or difficult to get through local consignments, then the DOT
7 local Emergency Coordinator can assist state and local
8 people in obtaining these assets. We can supply
9 specialized transportation-related expertise and guidance as
10 required.

11 And you have already heard several of the NPD
12 people talk about their emergency hazards guides. They
13 have the training programs that are going on. They have the
14 DOT Emergency Information Center for reporting accidents.
15 They have a data base which is available to assist in the
16 management of an emergency.

17 We can provide technical transportation inputs
18 into the state emergency plans. We do that all the time.
19 One of the best preemptive emergency response techniques I
20 know of is to make sure every^{one} has a good effective state
21 and/or local emergency plan. This is doubly important
22 because in many cases these plans have to be effective to
23 hold up in court, and we do work with the state and local
24 people and are continuously working with them.

25 We^{do} liaison with state and local agencies

WRBeb 1 constantly. And we provide a myriad of special assistance
2 through on-going DOT emergency and safety programs. So
3 these are some of the things that we can do and are doing
4 under our responsibilities of the FRERP plan.

5 We also have extensive on-going emergency as well
6 as safety relationships and interfaces with all of the major
7 federal agencies including FEMA, NRC, DOE, EPA, Health and
8 Human Services, the DOD, and many other federal agencies,
9 federal interagency committees, states and local
10 governments.

11 In summary, what can we say that DOT stands for?

12 Well, I think it is safe to say that the
13 U. S. DOT is committed to a coordinated, effective federal
14 radiological response program to assist state and local
15 governments and to protect the public health and safety.

16 Thank you very much.

17 (Applause.)

18 MR. LICKUS: Thank you.

19 Next on our agenda we have Vernon Wingert, who is
20 the Emergency Management Officer, Technological Hazards
21 Division of the Federal Emergency Management Agency. Vernon
22 is going to give us a presentation on emergency response
23 programs and planning.

24 Vernon.

25 MR. WINGERT: Thank you.

WRBeb

1 (Slide.)

2 I would like to thank the NRC and DOT first of
3 all for allowing FEMA to be a participant in this seminar.

4 I would like to refer also to comments that John
5 Eaton of Ohio, the State of Ohio, made earlier in a former
6 panel presentation. He cited three aspects of federal
7 assistance that the State of Ohio ^{ere} was actually using. One
8 was staff salaries for emergency personnel. The second was
9 the guidance document, FEMA ^{REP -} Rev. 5. And thirdly was some of
10 FEMA's radiological training programs.

11 John, you gave my speech, so thank you very
12 much.

13 (Laughter and applause.)

14 Don't you wish.

15 (Laughter.)

16 As you can see, the focus of my presentation will
17 be on FEMA's role in providing assistance and coordinating
18 federal assistance to state and local government. My aim is
19 that after I get through with this presentation, you will
20 have an understanding really of two things:

21 One, a better understanding of the framework in
22 which we view our coordination business with other federal
23 agencies, and we do a lot of that;

24 And secondly, that you will be aware perhaps of
25 some assistance from FEMA that you weren't aware of before

WRBeb

1 that you might be able to utilize in order to develop and
2 add to your own state and local government programs.

3 I will look at FEMA's role in providing this
4 assistance in three contexts. The first one is the
5 integrated approach to managing emergencies.

6 Just a few minutes ago Bob Luna was talking about
7 wouldn't it be nice to integrate radiological transport
8 planning of hazardous material. I'd say Amen to that, and
9 that is precisely the direction that we're heading for under
10 this concept of IEMS.

11 Secondly, we look at the coordination framework
12 for providing federal assistance in two respects:

13 First is the day-to-day assistance that we
14 provide state and local governments, most of which you are
15 probably aware of, in terms of training resources, FEMA
16 ^{REP-} Rev. 5, the guidance document, financial assistance, and
17 many other types of assistance. That is coordinated through
18 a committee that ^{ELVIN} ~~Allen~~ mentioned, the Federal Radiological
19 Protection Coordinating Committee, -- Try saying that quite
20 a few times -- what we call FRPCC for short.

21 And the second context which is associated with
22 the FRERP. Again Elvin and Monte both mentioned that.
23 That's the Federal Response Plan for all radiological
24 emergencies including transport accidents.

25 And then finally I will go into an explanation

WRBeb 1 and a description of some six types of federal assistance.
2 And I understand that you are mainly interested in money and
3 training resources, so those are two I will emphasize. I
4 will just briefly mention the other four.

5 (Slide.)

6 The basis for FEMA's broad coordination with
7 other federal agencies is not only for transport accidents
8 involving radioactive material which, by the way, I am going
9 to refer to as transportation accidents from now on. It is
10 given under the Executive Order 12148. And under this
11 order, it gives FEMA authority to do two things really:

12 One, to coordinate all civil emergency and civil
13 defense functions of executive agencies on behalf of the
14 President;

15 And two, to try to seek the active participation
16 of state and local governments and the private sector, in
17 this case shippers and carriers, in building a national
18 emergency management system.

19 One other direction^{ve}~~ion~~ I would like to mention which
20 is not listed there, and that is the directive of December
21 7th, 1979. That one I believe mentions the fact that after
22 the Three Mile Island accident, authority was given to FEMA
23 to do coordination in the radiological area, and that is
24 true. There was a Presidential Directive given and endorsed
25 by the Office of Management and Budget that gave FEMA the

WRBeb

1 lead role in coordinating all radiological emergency
2 planning and response.

3 So based upon really those two authorities and
4 selected other statutes, that is why we are in this
5 business.

6 Again to emphasize the IEMS concept, the
7 Integrated Emergency Management System, this is ^Nmethod which
8 has evolved over the last three years, and this is the
9 method that we use to implement the proper coordination,
10 including the coordination of radiological emergencies.

11 Conceptually IEMS refers to the integrated
12 approach to emergency management wherein both common and
13 unique elements of emergency preparedness are addressed for
14 all emergency phases: mitigation prior to the emergency,
15 preparedness prior to the emergency, response, and recovery
16 if that is needed.

17 Heretofore FEMA and other federal agencies have
18 developed hazard-specific programs. For example, we
19 developed hazard-specific guidance for state and local
20 governments for dam safety, hurricanes, FEMA response to
21 transport accidents, NUREG-0^b254 for power plant accidents,
22 and so forth. So the entire approach up to now has been
23 hazard-specific emergency management.

24 So what we are trying to do is to get away from
25 that approach and to look at the integrated framework for

WRBeb 1 emergency management and identify the common elements that
2 are basic to managing any emergency.

3 For example, we helped state and local
4 governments build emergency operating centers. We helped
5 pay for that at a hundred percent. We helped build
6 emergency operation centers and the communications and
7 capabilities in those centers, both fixed facilities and,
8 in some cases, mobile in vans. They are applicable to any
9 kind of emergency for directing the control function.
10 Whether it's a hurricane in Miami, a transport accident,
11 a hazardous material accident, a power plant accident, it
12 really doesn't matter; that is the core capability common to
13 all emergencies.

14 You yourselves, as emergency staff, are the most
15 important resource for emergency management. And in many
16 cases, having been a state and local emergency services
17 employee for about eight years, I'm quite familiar with your
18 work, and in many cases you have to do with what you have.
19 Many of you do double-duty; that is, you work with natural
20 hazards, man-made hazards and transport accidents.

21 Unique elements of transport accidents are more
22 in the radiological nature. That is really unique in terms
23 of having to detect -- you can't see radiation, of course,
24 so you have to be able to detect and measure radiation,
25 assess the accident in terms of its consequences, and make

WRBeb 1 actions, protective actions according to certain
2 protective-action guidelines. These are unique elements
3 that are not addressed in any other kind of emergency.

4 IEMS as an implementation strategy is reorienting
5 and reshaping many of FEMA's emergency programs and
6 activities, especially those impacting state and local
7 governments. Specifically the following IEMS initiatives
8 have been or are being implemented.

9 We have developed an integrated funding
10 mechanism, a comprehensive cooperative agreement, integrated
11 guidance, -- we're moving in that direction right now --
12 integrated planning which we're encouraging for state and
13 local governments called EOPs, or Emergency Operation Plans,
14 and integrated training. And I will explain two or three of
15 these.

16 (Slide.)

17 Okay. I am not going to spend much time on
18 this. Elvin did a good job introducing this.

19 I said there are two foci for our coordination.
20 One is the day-to-day program assistance to state and local
21 governments, apart from an actual emergency, and this is
22 coordinated through the FRPCC. There are ten agencies in
23 this coordination mechanism, and we coordinate it at the
24 national level because of policy and programs through the
25 FRPCC committee in Washington, and through RACs in the ten

WRBeb 1 centers in the regions. FEMA chairs both of these.

2 There are a variety of subcommittees attached to
3 this, including a Subcommittee on Transportation Accidents
4 that just deals in topics that we're addressing here. And
5 one of the unique things about this subcommittee that is not
6 true of the other subcommittees is we have membership on
7 this other than federal agencies, like Sandia National
8 Labs.

9 Jim McClure of Sandia is a member of this
10 subcommittee. The Western Interstate Energy Board of Denver
11 is a member of this, as well as the Southern States Energy
12 Board. And it is co-chaired by -- and this is unique, too;
13 this is the only one that is not totally chaired by FEMA.
14 It is co-chaired by DOT, Wendell Carrister^K, and FEMA,
15 myself.

16 The agency responsibilities that Elvin was
17 talking about on his Vugraphs of DOT and Monte with his
18 Vugraphs of NRC are pulled together and assigned by FEMA to
19 these agencies, and the agencies are responsible for
20 implementing these. Let me just give you one or two
21 examples.

22 In terms of technical risk analysis, the NRC,
23 because of its regulatory responsibility for transportation
24 accidents, would be the agency responsible for doing that.
25 FEMA does not do that; it does not have the technical

WRBeb 1 expertise.

2 In terms of Protective Action Guidelines or PAGs,
3 we look to the Environmental Protection Agency to do that.

4 (Slide.)

5 Okay. This is the second coordination framework
6 of FRERP. Again this has been mentioned.

7 I think I am just going to skip down to the FRERP
8 document itself.

9 The draft FRERP was developed and field tested in
10 an exercise at the St. Lucie Power Plant in Florida in March
11 of '84. This exercise demonstrated the viability of the
12 FRERP for a major radiological accident at a power plant,
13 and this was most important for our context here in the
14 viability of FRERP's concept of operation for all types of
15 radiological accidents, including transport accidents.

16 The successful test of the FRERP permitted the
17 plan to be published as the operative federal plan in
18 September of 1984.

19 Now I would like to mention just one thing that
20 we felt encouraged the state and local governments to
21 develop all these good plans and test them, and so forth. I
22 would like to note that we are trying to get our act
23 together also, that we are trying to develop effective
24 response plans, and not only that but we have put a lot of
25 resources and efforts into testing these plans.

WRBeb

1 There are over four hundred FEPs from many
2 different agencies, more than these ten here, involved in
3 that exercise at St. Lucie.

4 Now the concept of operation. The "cognizant
5 federal agency" is a fancy term for two things. One, the
6 CFA in an accident would be the agency that would have the
7 lead in terms of civil, directly-controlled response in
8 concert with state and local governments that either
9 regulate the activity -- in this case for transport actions
10 that would be the Nuclear Regulatory Commission, or an NRC
11 Agreement State. That is appropriate in this concept.

12 So it is either NRC or an Agreement State in
13 terms of regulation, depending upon what type of
14 radioactivity is involved, and secondly, the carrier or the
15 shipper involved in the accident. So if the Defense
16 Department is shipping the material they would be the CFA,
17 DOD. If the Department of Energy is the shipper of the
18 material, they would be the CFA.

19 If the basic support needed for state and local
20 governments was offsite monitoring assistance, then there is
21 a plan for that that is incorporated in Section 3 of the
22 FRERP called Federal Radiological Monitoring and Assessment
23 Plan. And you may have known about that since the old IRAP,
24 Interagency Radiological Assistance Plan, now integrated in
25 FRERP.

WRBeb

1 Finally, if multiple agencies are involved in an
2 emergency, FEMA would provide the overall coordination. In
3 the actual emergency you may have one or more of these
4 response tracks implemented by federal agencies through the
5 FRERP assisting local governments.

6 (Slide.)

7 In terms of the transportation program of FEMA, I
8 would like to emphasize three aspects of the program.

9 First of all, in terms of both FEMA and other
10 federal agencies, there is no regulatory requirement at all
11 for you to develop plans or test the plans. So the entire
12 program is voluntary.

13 Secondly, in terms of a planning basis, there is
14 a planning basis that we have developed, and it is
15 incorporated in FEMA ^{REP-}Rev. 5. This planning basis
16 encompasses a wide spectrum of transportation accidents. At
17 one end of the spectrum there are accidents with a high
18 probability of occurrence but low hazard potential
19 involving, for example, a low specific activity.

20 At the extreme end of the spectrum there are
21 accidents of very low probability but high hazard potential
22 involving, for example, a Type B shipment that may be
23 subjected to very severe accident forces which result that
24 part of its radioactive contents are released from its
25 packaging.

WRBeb

1 The guidance criteria contained in FEMA ^{-REP-}Rev. 5
2 are based on this planning basis and provide for a
3 preparedness posture which, if implemented, is applicable to
4 the whole spectrum of transport accidents, including spent
5 fuel accidents.

6 Finally, in terms of our current emphasis, we are
7 encouraging state and local governments to take FEMA ^{-REP-}Rev. 5
8 to develop and implement a transportation program in their
9 state that is commensurate with the criteria in that
10 document.

11 In terms of program assistance, I am only going
12 to address two of these, funding and training.

13 (Slide.)

14 The funding mechanism for all kind of emergencies
15 FEMA has put together is the CCA, the Comprehensive
16 Cooperative Agreement. It is like a block grant approach.
17 Okay? So we threw all the technical assistance for every
18 type of hazard into this one funding mechanism and basically
19 it is up to you as to what you're going to do with this.

20 Now you will find categories in the CCA called
21 REP, Radiological Emergency Preparedness. So if you want to
22 make use of this funding mechanism, you can do so now for
23 transportation accidents. In terms of assistance, it offers
24 emergency management assistance, assistance that is
25 basically staff salaries. That is the most important

WRBeb 1 assistance, obviously, and probably many of you -- your
2 salaries are paid 50 percent by FEMA if you are emergency
3 service officials.

4 Secondly, training and education assistance is
5 available, and money to do that at 100 percent federal
6 share, and that is to develop and operate your own training
7 programs, and that could be for transportation accidents.

8 State and local direction control and warning.
9 We don't have any funds currently projected for FY '86 for
10 this, but if we do, you can make creative use of that under
11 some circumstances and use that money to develop mobile vans
12 or emergency operation centers or vans that could be a part
13 of hazardous material emergencies.

14 Population planning and disaster improvement
15 grants. I'm just going to go ahead.

16 (Slide.)

17 Okay. Again our training program has been
18 reworked, stood on its head, and reintegrated, and there is
19 an integrated radiological training program.

20 How many of you are familiar with this training
21 program or have been a part of it already?

22 (Show of hands.)

23 Okay. Quite a few of you have. Essentially it
24 is oriented this way:

25 The training for radiological officers is to

WRBeb 1 enable them to create and develop and operate a state or
2 local radiological program.

3 A radiological monitor, as that word implies,
4 enables state and local officials to be able to use
5 radiological instruments to detect and to measure
6 radiation.

7 A radiological response team enables a team to be
8 developed and have the training capabilities to respond to
9 radiological emergencies.

10 The "train the trainer" approach is quite an
11 innovative approach. What we're doing to increase the
12 audience, the target population for these courses is to
13 train you to go out and teach the course. And so in terms
14 of our projections -- in terms of our schedule right now,
15 through the "train the trainer" approach we aim to reach
16 10,000 to 20,000 persons in the radiological monitoring
17 course over the next three to five years, 100,000 persons
18 over the next five years in radiological response teams,
19 10,000 persons over the next three to five years in terms of
20 certification for radiological officers.

21 There is a new program which was developed at Oak
22 Ridge to train hospital emergency department management.
23 This is for hospital emergency personnel that handle
24 radiation accident victims.

25 And finally, the radiological emergency response

WRBeb 1 course. This is the ORECO, the ORECO course up in Las
2 Vegas. They use actual radioactive materials. They do
3 simulate radiological transport accidents and provide
4 intensive training and field exercise in actually addressing
5 that accident.

6 In conclusion, through the formulation and
7 implementation of IEMS, FEMA has reoriented and integrated
8 the content and delivery of assistance to state and local
9 governments on all types of hazards including transportation
10 accidents.

11 Given the availability of resources identified
12 and described in this presentation, I encourage you with
13 respect to state governments to take full advantage of
14 resources to develop and enhance your own capabilities to
15 effectively respond to transportation accidents.

16 Thank you.

17 (Applause.)

18 MR. LICKUS: Thank you, Vern.

19 Our last speaker today is going to be Monte
20 Phillips who is going to give you some information on a
21 recent transportation emergency exercise which was held in
22 our region with cooperation from the State of Illinois.

23 Monte.

24 MR. PHILLIPS: I am going to try to be brief
25 because technically I see I have all of two seconds.

WRBeb

1 First of all, let me kind of explain the NRC
2 emergency response concept: Base team operation, site team
3 operation, headquarters operation, which would apply for any
4 type of emergency, that the NRC becomes involved in, whether
5 or not it has to do with transportation or a power plant, or
6 whatever.

7 Most of the state governments have already
8 received copies of our emergency response plan, and a lot of
9 the utilities also have a copy of our emergency response
10 plan which delineates all of this stuff. But basically we
11 have three facilities.

12 In Headquarters we have what is known as the
13 Operations Center. In the region we have what is referred
14 to as the Base Team. And at the site of whatever the event
15 is we have what is known as the Site Team.

16 The Site Team is primarily involved with review
17 and evaluation of exactly what events are occurring at the
18 site, and providing information back to the Headquarters and
19 the region, providing the overall coordination of
20 activities, and in the case where what we refer to as the
21 Director of Site Operations is employed, they are in charge
22 of the overall NRC response.

23 The Headquarters Operations Center is the
24 counterpart of the NRC Headquarters group that activities
25 their Response Center and they basically are involved in

WRBeb

1 all the activities done by the Site Team. And they are in
2 charge of events until the Site Team arrives and the
3 Director of Site Operations is appointed.

4 If we don't have an emergency of a level
5 sufficient to warrant activation of both of those groups,
6 then the technical term would be "standby mode," and the
7 NRC Base Team which is located in a regional office, in our
8 case Region III -- that's in Glen Ellyn, Illinois -- would
9 be in charge of the overall response to the emergency.

10 The reason I want to kind of go over that is
11 because for transportation events what we have essentially
12 done in our regional emergency response plan is to classify
13 all types of transportation accidents into the same type of
14 a system that is used for reactor accidents, namely,
15 notification of nuclear event, alert, site emergency, and
16 based our response on those events similar to the way we
17 would base our response on reactor events.

18 So depending on the classification we would
19 assign, based on what we were notified of at the time of the
20 emergency, we would go into one of our response modes which
21 are either standby, in which case the region is in charge,
22 initial activation, in which Headquarters is in charge and a
23 Site Team is dispatched to the location of the event, and
24 then expanded activation, at which time the Director of Site
25 Operations is appointed at the site and takes over for all

WRBeb 1 responsibilities for the emergency.

2 The reason why I want to kind of go over that is
3 that before I get into the scenario for the event we used on
4 April 30th of this year, I wanted you to kind of have a feel
5 for what centers were activated, and why.

6 I have also provided a copy of the scenario. It
7 is on the back table in the other room, along with a copy of
8 the policy statement of NRC.

9 Briefly what the scenario involved was a spent
10 fuel shipment coming up along Interstate 57, which is not an
11 approved route, having an accident with a bridge abutment,
12 and the spent fuel cask coming off into Brent Lake, which is
13 a rather large lake that several communities use for
14 drinking water, and it then proceeds on down and eventually
15 joins the Mississippi.

16 (Slide.)

17 At 7:34, the Regional Office was notified of the
18 emergency, so to speak, by the Department of Nuclear
19 Safety for the State of Illinois. And the reason why I want
20 to key on the fact that we were notified by the Department
21 of Nuclear Safety which, as I talked about earlier, is the
22 cognizant agency for the State of Illinois, when we received
23 that notification we asked them at that time if they were
24 requesting assistance, and their answer was Yes. So that is
25 the reason why the rest of this exercise even takes place.

WRBeb

1 If the answer had been no, our activity would have been
2 rather brief and probably "helping hand" in nature.

3 Again the notification came to the Region. So
4 the first thing we did was to make the linkup with
5 Headquarters, the duty officer.

6 One of the primary problems that comes out of any
7 transportation accident, and for that matter, it sometimes
8 comes up with facilities accidents, too, is the matter of
9 communications. Most accidents don't happen close to a
10 phone, and even if they did happen close to a phone, the
11 odds are that the phone would be on the blink.

12 So the net result is you really only have one
13 point of contact. You can make that point of contact with
14 Site or you can make that point of contact with the state
15 agency that is in charge of the emergency and hope that they
16 have a rather extensive communication network. Most states
17 do through the State Police.

18 In Illinois they have their own emergency
19 services vehicles which contain a rather elaborate
20 communications system which they can dispatch to the scene
21 which provides several phones. So one of the reasons why we
22 chose Illinois as the state we wanted to participate with
23 us was because of the advantages of all the material
24 that Illinois had to offer.

25 Also Illinois had an Transportation Act Emergency

WRBeb

1 Plan on the books at the time, which most states didn't at
2 the time.

3 Based on the information that the cask had gone
4 into the lake, we went to what we refer to as the standby
5 mode. This was discussed with Headquarters, and you will
6 notice that at 7:51 we recommended going to standby, and
7 they concurred. And at that point the Regional Response
8 Center was in charge of the activities.

9 I don't want to go over this entire scenario in
10 total detail, because like I say, I have it on the handout,
11 and there are a lot of copies. There are about several
12 hundred on the back table -- of what type of information go
13 on.

14 But basically the decision was made to send a
15 Site Team because it did involve a spent fuel accident, and
16 it did involve material that potentially could be leaking
17 because it was in the lake.

18 As a result, a Site Team was prepared and sent.
19 We can respond just about anyplace in our region in about
20 six hours at the latest. It would depend a lot on where
21 we're going and what mode of transport we would use. In
22 this case we would use helicopters to get to Brent Lake
23 because it is in the midst of central Illinois.

24 One aspect of the scenario that did kind of throw
25 us off I have to confess, when they sent the shipment up

WRBeb

1 the unapproved route, we were very quick to pick up on that,
2 and we went off into the safeguards type emergency plan, and
3 the scenario writers promptly told us that they had made a
4 mistake and put it on the wrong road, and as a result, we
5 weren't supposed to consider that type of thing.

6 But those are the sorts of things that we do look
7 at. We look at where it is and why it's there, and how it
8 got there.

9 We contacted the shipper. You will notice that
10 the shipper contacted me at 8:25.

11 Later on we had the identification of all of the
12 material that was in the shipment, which I believe is on the
13 next line.

14 At 8:42 we got the information on the fuel
15 assembly, which goes over basically 33,000 megawatt-days per
16 metric ton burnup. Enrichment was 3.2 percent, and how long
17 the cooling was involved in that particular activity.

18 Eventually we ended up making a recommendation to
19 the state involving the use of water in the state from
20 around the lake, that under the circumstances we wanted that
21 activity basically curtailed, to go on stored water for a
22 while while we checked out the removing the cask that
23 possibly was leaking.

24 One of the features of the expertise that was
25 brought into play, since the cask was now underwater, you

WRBeb 1 need people to survey the cask with instrumentation capable
2 of going underwater, and we were using divers. A lot of
3 states don't have that capability.

4 And in fact one of the -- I think it was the
5 destination. Even Morris would have divers and
6 instrumentation that was utilized for this particular event.

7 The primary thing we learned out of this exercise
8 in Region III was that again communication was a major
9 problem. It is very difficult to communicate with only one
10 phone line.

11 You are constantly barraged by the press. I
12 assume that that problem would occur also at the site.

13 I am already onto the second slide, so you didn't
14 see it in the first slide, but the emergency starts with us
15 being notified at 7:34 and we got our first news inquiry
16 at 8:23. So it can come very quickly.

17 And you have to be in a position to be able to
18 answer the questions with factual answers. And
19 communications is a real problem. It is still a problem. I
20 hope we can get it solved.

21 I want to sum up our basic concern with any type
22 of an emergency in communications. We want to be able to
23 communicate with you, and we want to make sure you have the
24 right phone numbers, the right contacts. So if you have a
25 copy of our emergency plan, when you look over that, if you

WRBeb

1 have any change of phone number, please notify the local
2 regional office of any changes that have been made. Or if
3 there is legislation or change in the contact point, please
4 notify us so we know who the right people to talk to are.

5 For example, we would not want to call up the
6 agency that's involved in an emergency response that does
7 not handle nuclear accidents but they handle some other
8 version, but that's the contact point we would have. So I
9 want to emphasize that point.

10 I am going to try to be very brief by ending
11 now. As I said, the scenario is on a handout sheet in the
12 back, and I hope I have plenty of copies. If not, I am sure
13 Roland will take a list of names of those who didn't get one
14 and I'll have some more printed.

15 Have a nice dinner.

16 (Applause.)

17 MR. LICKUS: Thank you, ^{MONTE.}~~Vernon.~~

18 Before we get into the questions and answers, I
19 would like to ask either Steve ^aSolomon or Wayne: Are there
20 any last-minute administrative announcements you would like
21 to make before this thundering mass of humanity heads for
22 those doors? While we have them?

23 Steve.

24 (Administrative announcements.)

25 MR. LICKUS: Note on your agenda: this morning

WRBeb

1 we started at 9:00, and tomorrow we start at eight o'clock
2 in the morning. So set your alarms for an hour earlier and
3 don't party so hard tonight.

4 Tomorrow is a very full day, and it's a tight
5 agenda, so please be prompt, please be on time.

6 Let's take some questions while we've got this
7 fine body of expertise up here.

8 First, from the designated invitees. Does
9 anybody have any questions for these people?

10 VOICE: (Identification inaudible.) I have a
11 question for FEMA.

12 Regarding ^{FEMA-REP-}Rev. 5, three months ago I asked for a
13 copy of this and was told there was none available, that
14 they were going to make a copy by xeroxing this. It was not
15 done. They indicated to me that ^{REP-}Rev. 5 is being revised.

16 Can you give me some date at which we can get a
17 copy of it, please?

18 MR. WINGERT: If you come up here right now I'll
19 give you a copy.

20 (Handing document.)

21 We have a problem in terms of our publications.
22 Those of you who are familiar with FEMA's operations know
23 that we are short in our budget this fiscal year which ends
24 September 30th. I personally have requests for about 1500
25 copies of FEMA ^{REP-}Rev. 5. We have saturated state and local

~~end of sentence is missing~~

WRBeb 1 governments with three thousand copies. Requests are coming
2 in faster than we can handle, and we have zero money for
3 publication. We xeroxed about fifty copies of FEMA ^{REP-}Rev. 5,
4 and maybe yours is in the mail. If so, give that one back
5 to me.

6 (Laughter.)

7 VOICE: Is it being revised?

8 MR. WINGERT: Yes, it is being revised. I spend
9 quite a few hours each week in a little conference room
10 where we're putting together a revised draft based upon the
11 comments from state and local governments and from the
12 private sector, the Association of American Railroads. It
13 will go to the Subcommittee for review and will be noticed
14 in the Federal Register for your comment, and I expect the
15 final copy will be out, not as a Christmas present but in
16 January or February of '86.

17 VOICE: There was a question that came up a
18 little while ago, and the reply, about the operational
19 response to a transportation accident, was somewhat
20 controversial in that it appeared to recommend that
21 emergency responders pay a lot more attention to their own
22 radiation doses than the federal guidelines suggest.

23 Can you tell us more about that stance? Are the
24 previous federal radiation emergency response guidelines
25 still in force? Are they being looked at? Are they being

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1 revised? What's the situation there?

2 MR. WINGERT: I listened to your question for
3 about 15 seconds. At that point you hadn't identified who
4 you wanted to respond. I was hoping you wouldn't identify
5 me. But let me see if I can respond to that.

6 This package is called the brass package. The
7 concern that he's addressing is whether or not FEMA or other
8 federal agencies are recommending an emergency worker suit
9 up, wear a fully encapsulated suit to respond to a
10 radiological accident, a transport accident, even if lives
11 are endangered.

12 Now, that document has been withdrawn. There is
13 no federal policy -- there is no FEMA policy on this issue
14 right now. I am not aware of any coordinated federal
15 policy.

16 You referred to some policy, but I'm not aware of
17 that.

Mr. MILLER:

18 ~~VOICE:~~ There's a long-standing policy that
19 suggests that life-saving takes priority over concern about
20 your own radiation exposure

21 MR. WINGERT: Okay. I can give you my own
22 personal view. This is what I would recommend: if you are
23 approaching an accident in which there is the presence of
24 smoke, toxic materials, and so forth, and there are lives
25 in danger, and you have a suit you can put on very, very

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1 quickly, or you've already come with a suit, go ahead and
2 wear your suit, and do the first thing, which is to deal
3 with the person in need.

4 Second, if you don't have a suit handy, and you
5 arrive on the scene and there are lives in danger, and it's
6 a radiological transport accident, knowing everything that I
7 know about accident data and the low radiological risks
8 associated with an accident, I would first, personally,
9 attend to the victims, and not worry about my suit.

10 Third, I understand that it is becoming common
11 practice for emergency officials to impose the requirement
12 to bring suits that many of them do have, and almost
13 regardless of the incident they're going to have to have
14 them available. And if there's an indication of, not
15 radiological hazards or toxic materials but plumes, and you
16 can see smoke, for Heaven's sake wear your suit, and do the
17 first thing that is most important: care for the victims.

18 ^{Mr. M. HARR}
~~VOICES:~~ The second question is about the model
19 state's program for emergency response. The NUREG document
20 that NRC turned out suggests a model state program that
21 would cost as much as \$5 million. That study is supposed to
22 be accompanied by another study later. And I wondered
23 whether FEMA is in the process of trying to suggest anything
24 along the lines of a model state program.

25 MR. WINGERT: Let me provide the framework for

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1 your question, and perhaps somebody from the NRC can answer
2 the question better than myself, since they did the studies.

3 The NRC did two studies associated with state and
4 local governments for radiological transport accidents. For
5 the first one, NRC contracted with Indiana University to
6 review the existing capability of state and local
7 governments to address radiological transport accidents.
8 They wanted to assess what the current capabilities are; did
9 they have plans, were they testing plans, did they have
10 radiation protection, did they train, and so forth. The
11 study was done in '81, I believe.

12 Secondly, they did a study -- something to the
13 effect of an unconstrained review of state and local
14 government capabilities to respond to radiological transport
15 accidents. What they were looking at there was not the
16 existing capability within existing resources of state and
17 local governments -- money, manpower, and so forth, but an
18 unconstrained review; in other words, cancelling out any
19 consideration of manpower, money; what would be the optimum
20 state and local system for handling radiological transport
21 accidents. Rockwell in California did that study.

22 There was a third study planned, but that was not
23 done by NRC. FEMA ^{REP-}Rev. 5 really became the third option.

24 In terms of FEMA ^{REP-}doing a study or taking action
25 on that, we developed FEMA ^{REP-}Rev. 5 for coordination of the

WRBeb 1 federal agencies. And we think that represents a realistic
2 set of capabilities for state and local governments and
3 federal agencies to handle these accidents.

4 Would someone from NRC like to comment on those
5 studies?

6 (No response.)

7 MR. LICKUS: Any other questions? We can take
8 maybe one more.

9 VOICE: Jim Maher, Director of the Mississippi
10 Emergency Management Agency.

11 I'm concerned that Mr. Wingert has given a little
12 bit of a false impression about the funding levels and how
13 those funds can be used and are available to FEMA; for
14 example, the 100 percent EOC money, which, to my knowledge
15 has never been available.

16 Also, there is a very distinct line drawn between
17 the various programs that FEMA funds, and across those lines
18 it is almost impossible to pass funds.

19 So, with that, if you have any further comment
20 I'll turn it back to you.

21 MR. WINGERT: When I got to the CCA part I failed
22 to mention -- I may have mentioned, but I don't think I did
23 mention that these were all projections for FY 86, I was not
24 talking about this year. And the program levels of funding
25 matches that FEMA would apply are, at best, projections of

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1 right now what we intend to do for FY 86.

2 So in terms of your comment about FY -- about the
3 current match, that is correct.

4 There was one other point I missed that I would
5 like to respond to. There was an item I did not address in
6 terms of what you said, I believe.

7 MR. MAHER: 100 percent EOC funds. You gave the
8 impression that there was money for REP. In this context
9 REP is power plant planning for the local and state
10 governments which there is a need for on the federal side.
11 It all is funded either out of state money or out of
12 arrangements either in law or regulation or otherwise with
13 utilities to fund those things. All the other planning for
14 transportation accidents we take out of our own hide.

15 MR. WINGERT: Okay. I understand what you're
16 saying.

17 What he said is true, and what I said is true.
18 Let me tell you why both things are true.

19 There was not a category called REP until FY 85.
20 CCA started in FY 85. You do not get funding for REP
21 activities as a category. That is why in my Vu-graph I had
22 radiological emergency preparedness and CCA at the top, and
23 I said you could get funding to do REP activities through
24 the CCA programs, such as radiological protection planning,
25 training and education. I did not mention REP as one of

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1 those categories in which there is Federal Emergency
2 Management funding. So the gentleman is correct, there is
3 no line item: funding for REP. REP is funded indirectly;
4 okay?

5 What is said in those guidelines is that if you
6 want to use CCE funds for REP, do it through the other
7 program contexts, such as the emergency management system.
8 That's the most important one to you all because that pays
9 half of your salaries; that is, those of you who are funded
10 by FEMA.

11 So all you do is indicate that you want to
12 participate in this fund; have people, in terms of salaries
13 funded, and they will do certain functions such as planning
14 for transportation accidents, and I guarantee you won't have
15 any problem.

16 MR. LICKUS: Okay. I think we're about out of
17 time. There is another chance for you to discuss emergency
18 preparedness issues, and that will be during one of the
19 break-out sessions tomorrow. So please do it then.

20 Thank you for your attention, and have a good
21 evening.

22 (Whereupon, at 5:40 p.m., the seminar was
23 adjourned, to reconvene at 8:00 a.m. the following
24 day.)
25