

January 18, 1982



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SECY-82-23

**RULEMAKING ISSUE**  
(Affirmation)

For: The Commissioners

From: William J. Dircks  
Executive Director for Operations

Subject: DENIAL OF PETITION FOR RULEMAKING CONCERNING EMERGENCY PLANNING AND RESPONSE FOR TRANSPORTATION ACCIDENTS INVOLVING RADIOACTIVE MATERIALS (PRM-71-6)

Purpose: To obtain Commission approval of denial of the petition.

Category: This paper covers a minor policy matter requiring Commission approval.

Issue: Whether NRC licensees should be held responsible for emergency planning and response for transportation accidents involving radioactive material.

Discussion: By letter dated October 31, 1977, Mr. Richard P. Pollock, on behalf of the Critical Mass Energy Project, Congressman Theodore S. Weiss, Congressman Timothy E. Wirth, and eleven citizen organizations, filed a petition for rulemaking. The petitioners requested that the Commission adopt regulations requiring all NRC licensees (a) when offering shipments of radioactive materials to carriers for transport, to be responsible for requiring carriers to take special routes to avoid densely populated areas and mountainous terrain; (b) to devise emergency response plans and to possess capabilities to deploy emergency response units promptly to an accident scene following transportation accidents; (c) to assume financial responsibility for any shipping accident involving dispersal of their radioactive cargo; and (d) to provide information to drivers.

Contact:  
A.N. Tse, RES  
443-5825

J.C. Malara, RES  
443-5825

8202010383 XA

Receipt of the petition was noticed in the Federal Register (42 FR 61089) in December 1977. Forty public comments were received and considered. The majority of the commenters opposed the petition.

The staff notes that actions have been taken in the same four areas requested by the petitioners although they do not necessarily place requirements on NRC licensees (shippers):

- (a) The DOT has published a rule on highway routing of radioactive materials requiring carriers to use an interstate highway or an alternate route that minimizes radiological risk. The DOT rule is based in part on NRC advice and studies concerning transportation risks and was subject to considerable public review and deliberation. The staff does not believe it is necessary or practicable to require further restrictions beyond the DOT rule.
- (b) Several organizations are responsible for responding to transportation accidents: State and local personnel such as fire and police for emergency actions immediately following the accidents; shippers for providing shipment hazard information, carriers for isolating and cleaning up the spilled radioactive materials; and Federal agencies for providing assistance to State and local governments. At the Federal level, FEMA coordinates such Federal assistance; DOT and NRC provide assistance to FEMA; and DOE maintains radiological assistance teams that respond to radiological emergencies when requested. It is not practicable nor necessary for shippers to have immediate emergency response capabilities to respond to the scene of a transportation accident since the accident could be far away.
- (c) The financial liability for damages resulting from transportation accidents is determined by the courts. Under the Motor Carrier Act of 1980, the DOT published a rule requiring motor carriers to establish minimum financial requirements for matters such as cleanup after accidents.
- (d) The DOT requires shippers to provide descriptions of radioactive materials in each package. In the routing rule, the DOT requires additional driver training, including procedures to be followed in case of accidents.

The staff concludes (as more fully discussed in the enclosed Federal Register Notice) that promulgation of a regulation in response to the petition would not serve the public interest because it would add regulations that unnecessarily duplicate existing requirements and practices. Furthermore, it would not be practical or necessary to make NRC licensees (shippers) responsible by regulation for some of the proposed activities. Therefore, the staff recommends that the petition be denied.

Recommendation: That the Commission:

- (a) Approve the notice of denial of the petition for rulemaking (Enclosure 1).
- (b) Note
  1. Letters will be sent to Mr. R. P. Pollock, Congressman Weiss, and Congressman Wirth notifying them of the denial (Enclosure 2);
  2. Appropriate Congressional Committees will be informed by letter (Enclosure 3);
  3. The issuance of denial will be published in Nuclear Regulatory Commission Issuances;
  4. A public announcement will be issued (Enclosure 4);
  5. The petition and the staff response to public comments are enclosed (Enclosures 5 and 6, respectively); and
  6. Denial of the petition does not significantly affect the quality of the human environment or involve unresolved conflicts concerning available resources. Accordingly, no environmental impact statement, negative declaration, or environmental impact appraisal need be prepared.

William J. Dircks  
Executive Director for Operations

Enclosures:

1. Draft FR Notice of the Denial
2. Draft letters to Pollock, Congressmen Weiss and Wirth
3. Draft letter to Congressional Committees
4. Draft Public Announcement
5. The Petition
6. Draft Staff Responses to Public Comments

Commissioners' comments or consent should be provided directly to the Office of the Secretary by c.o.b. Wednesday, February 3, 1982.

Commission staff office comments, if any, should be submitted to the Commissioners NLT January 27, 1982, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional time for analytical review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

This paper is tentatively scheduled for affirmation at an open meeting during the week of February 8, 1982. Please refer to the appropriate weekly Commission Schedule, when published, for a specific date and time.

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ENCLOSURE 1

NUCLEAR REGULATORY COMMISSION

10 CFR Part 71

Critical Mass Energy Project, et al.

[Docket No. PRM-71-6]

Denial of Petition for Rulemaking Concerning  
Emergency Planning and Response for Transportation Accidents Involving  
Radioactive Materials

AGENCY: Nuclear Regulatory Commission.

ACTION: Denial of Petition for Rulemaking.

SUMMARY: The Nuclear Regulatory Commission is denying a petition for rulemaking (PRM-71-6) from Richard P. Pollock of the Critical Mass Energy Project on behalf of the Critical Mass Energy Project, Congressman Theodore S. Weiss, Congressman Timothy E. Wirth, and eleven citizen organizations. The petitioners requested that the NRC adopt regulations requiring NRC licensees (a) when offering shipments of radioactive materials to carriers for transport, to be responsible for requiring carriers to take special routes to avoid densely populated areas and mountainous terrain; (b) to devise emergency response plans and to possess capabilities to deploy emergency response units promptly to an accident scene following transportation accidents; (c) to assume financial responsibility for any shipping accident involving dispersal of their radioactive cargo; and (d) to provide information to drivers.

The NRC notes that actions have been taken in the same four areas requested by the petitioners although they do not necessarily place requirements on NRC licensees (shippers):

(a) The Department of transportation (DOT) has published a rule on highway routing of radioactive materials requiring carriers to use an interstate highway or an alternate route that minimizes radiological risk. The DOT rule is based in part on NRC advice and studies concerning transportation risks and was subject to considerable public review and deliberation. The NRC does not believe it is necessary or practicable to require further restrictions beyond the DOT rule.

(b) Several organizations are responsible for responding to transportation accidents: State and local personnel such as fire and police for emergency actions immediately following the accidents; shippers for providing shipment hazard information, carriers for isolating and cleaning up the spilled radioactive materials; and Federal agencies for providing assistance to State and local governments. At the Federal level, Federal Emergency Management Agency (FEMA) coordinates such Federal assistance; DOT and NRC provide assistance to FEMA; and Department of Energy (DOE) maintains radiological assistance teams that respond to radiological emergencies when requested. It is not practicable nor necessary for shippers to have immediate emergency response capabilities to respond to the scene of a transportation accident since the accident could be far away.

(c) The financial liability for damages resulting from transportation accidents is determined by the courts. Under the Motor Carrier Act of 1980, the DOT published a rule requiring motor carriers to establish minimum financial requirements for matters such as cleanup after accidents.

(d) The DOT requires shippers to provide descriptions of radioactive materials in each package. In the routing rule, the DOT requires additional driver training, including procedures to be followed in case of accidents.

The NRC concludes that promulgation of a regulation in response to the petition would not serve the public interest because it would add regulations that unnecessarily duplicate existing requirements and practices. Furthermore, it would not be practical or necessary to make NRC licensees (shippers) responsible by regulation for some of the proposed activities. Therefore, the NRC has denied this petition.

ADDRESSES: Copies of the petition for rulemaking, the public comments thereon, and the NRC's letter of denial are available for public inspection and copying in the NRC Public Document Room, 1717 H Street NW., Washington, D.C.

FOR FURTHER INFORMATION CONTACT: Anthony N. Tse, Transportation and Materials Risk Division of Risk Analysis, Office of Nuclear Regulatory Research (301-443-5825).

SUPPLEMENTARY INFORMATION:

The Petition

By letter dated October 31, 1977, Mr. Richard P. Pollock of the Critical Mass Energy Project; on behalf of the Critical Mass Energy Project; Congressman Theodore S. Weiss; Congressman Timothy E. Wirth; the California Citizen Action Group; Community Action Research Group of Ames, Iowa; Environmental Action of Colorado; Massachusetts Public Interest Research Group; Michigan Public Interest Research Group; National Intervenor, Inc; New York Friends of the Earth; New York Public Interest Research Group; North Carolina Public Interest Research Group; Southwest Research and Information Center; and Vermont Public Interest Research Group, filed with the NRC a petition for rulemaking to amend NRC regulations.

The petitioners requested that the NRC adopt regulations that would, at a minimum, impose the following conditions on NRC licensees:

1. The use of special routes for the transportation of radioactive materials of all types to ensure that the shipments avoid densely populated areas and mountainous terrain.
2. The adoption of emergency plans for transportation accidents involving radioactive materials, including (a) the organization of emergency response units to carry out the plans and (b) semiannual drills with local and State law enforcement officials.
3. The assumption of financial responsibility for any shipping accident that involves the dispersal of radioactive materials.
4. The adoption of a plan for informing drivers of vehicles about the nature of the materials they are shipping and about emergency actions they should undertake in the event of an accident.

#### Basis for the Requests

As a basis for the requested action, the petitioners stated that experts both inside and outside the Federal Government have concluded that there is a need for emergency response plans to protect the public in the event of an accident in transporting radioactive materials.

The petitioners also stated that although there has not yet been a transportation accident resulting in widespread injury to the public, the experience of the September 27, 1977, accident in southeastern Colorado shows that the present system is "wholly inadequate to deal with the risk to the public health from a transportation accident, and that regulations by the Commission are essential."

The petitioners further stated that the NRC requires nuclear power reactor licensees to adopt emergency response plans, but "there is no

similar requirement for licensees of nuclear materials to be transported, even though a transportation accident would involve shippers [meaning carriers or transporters] and localities wholly unfamiliar with radioactive materials."

#### Public Comments on the Petition

A notice of filing of petition for rulemaking was published in the Federal Register on December 1, 1977 (42 FR 61089). Interested persons were invited to submit written comments or suggestions concerning the petition by January 30, 1978. NRC received 40 comments in response to the notice: 35 from industries, industrial representative organizations, and industrial associations; three from individuals; and two from governmental agencies.

A majority of the commenters (34) opposed the petition. The main reasons cited by these commenters were:

1. The petitioners failed to provide sufficient safety, environmental, or legal justifications for implementing the actions proposed.
2. The implementation of the actions proposed would be extremely costly without corresponding public benefits.
3. Consideration should be given to transportation accidents for all hazardous materials, not just radioactive materials, and therefore, the Department of Transportation is the proper agency to address the overall transportation problem.
4. The current regulatory system is adequate to protect the public health and safety and, therefore, it is unnecessary to implement the actions proposed.

Of the remaining six commenters, four suggested that the proposed actions should exempt shipments containing small amounts of radioactive



materials for medical, research, or industrial uses. The fifth commenter stated that the proposed actions should apply to all hazardous materials. The sixth commenter disagreed with parts of the petition but suggested that action on the petition be deferred until NUREG/CR-0743 (Transportation of Radionuclides in Urban Environs: Draft Environmental Assessment) had been completed and issued for comment. The report was published in July 1980.

#### Staff Actions on the Petition

1. In June 1978, the NRC notified the petitioners that action on the petition would be delayed pending completion of a related NRC/DOT study on packaging requirements for yellowcake (uranium concentrate) shipments and on emergency response to transportation accidents.

This study was begun after a truck accident on September 27, 1977, near Springfield, Colorado, resulted in a spill of a large amount of yellowcake onto a highway. Members of the U.S. Congress representing the State of Colorado and other officials of that State expressed concern about the integrity of packages containing yellowcake and the emergency response to transportation accidents involving radioactive materials. Representatives of NRC and DOT met with Congressman Timothy E. Wirth at his request. As a result of the discussions, the two agencies agreed to conduct a special joint study on package integrity and emergency response to transportation accidents. The study considered, among other things, all four areas addressed by the petitioners.

The study group published a draft report for comment in April 1979. The comments received on this draft were incorporated in the final study group report, "Review and Assessment of Package Requirements (Yellowcake) and Emergency Response to Transportation Accidents" (NUREG-0535), which

was published in July 1980. The study group recommended that the carrier be required to prepare, maintain, and execute an emergency response plan for promptly notifying the shipper (licensee) and government authorities in the event of an accident, controlling the spread of radioactive material in the cargo, segregating the radioactive material from the populace, and cleaning up any spilled radioactive material. The study group also recommended that the shipper be required to prepare and maintain an emergency response plan for promptly distributing information and advice to the carrier and to government authorities on the hazards of the shipment and safe methods for controlling and cleaning up spilled radioactive material.

2. In April 1979, the NRC notified the petitioners that a copy of the petition and the 40 public comments received had been transmitted to the Materials Transportation Bureau (MTB) of the Department of Transportation (DOT). Since the first part of the petition concerned the use of special routes for highway transportation of radioactive materials, the NRC believed that the petition and the comments thereon should be considered by MTB in its rulemaking proceeding on highway routing of radioactive materials.

The MTB published an Advance Notice of Proposed Rulemaking on highway routing of radioactive materials on August 17, 1978 (43 FR 36492). The notice stated that the MTB was considering promulgating routing requirements, under the authority of the Hazardous Materials Transportation Act, for highway carriers of radioactive materials. The MTB invited public comments on what Federal action would be justified. The large number of comments were reflected in the Notice of Proposed Rulemaking, published January 31, 1980, in the Federal Register (45 FR 7140). Public

meetings on this proposed rule were held in several major cities. The final rule was published on January 19, 1981 (46 FR 5298), and becomes effective on February 1, 1982.

#### Reasons for Denial

The petitioners' concerns basically relate to that portion of transportation when radioactive materials are in the care of the carriers. The Congress has authorized both the NRC and the DOT to regulate all parts of the transportation process within certain bounds. These two agencies have agreed, by Memorandum of Understanding (executed June 8, 1979), to partition their regulatory responsibilities. Generally, the DOT is responsible for regulating safety in transportation of all hazardous materials, including radioactive materials, and the NRC is responsible for regulating safety in receipt, possession, use, and transfer of byproduct, source, and special nuclear materials. The DOT does have regulations in place regarding the matters in petition requests 1, 3, and 4, as discussed below. An NRC/DOT study group addressed request 2, also as discussed below, and recommended appropriate regulations.

The NRC has considered the petition, the public comments thereon, the conclusions reached by the NRC/DOT study group, the DOT's rules on highway routing and financial responsibility, and other related information and has decided to deny the petition. The reasons for this decision are discussed below for each part of the petition:

Part 1: The use of special routes for the transportation of radioactive materials of all types to ensure that the shipments avoid densely populated areas and mountainous terrain.

The NRC has denied this part of the petition because this issue has been considered in a rulemaking proceeding by another Federal agency with

concurrent subject matter jurisdiction. The Materials Transportation Bureau of the Department of Transportation has conducted a rulemaking proceeding on highway routing of radioactive material shipments. The final rule was published on January 19, 1981, and becomes effective on February 1, 1982. The rule requires carriers to use an interstate highway or an alternate route that minimizes radiological risk. The DOT rule is based in part on NRC advice and studies concerning transportation risks and was subject to considerable public review and deliberation. The NRC does not believe it is necessary or practicable to require further restrictions beyond the DOT rule.

Part 2: The adoption of emergency plans for transportation accidents involving radioactive materials, including (a) the organization of emergency response units to carry out the plan and (b) semiannual drills with local and State law enforcement officials.

The NRC has denied this part of the petition because the public health and safety are adequately protected by current requirements for emergency response. Several organizations are involved in emergency response to transportation accidents: State and local personnel such as fire and police are responsible for emergency actions immediately following the accidents; shippers are responsible for providing shipment hazard information, carriers are responsible for isolating and cleaning up the spilled radioactive materials; and Federal agencies are responsible for providing assistance to State and local governments. At the Federal level, FEMA coordinates such Federal assistance; DOT and NRC provide assistance to FEMA; and DOE maintains radiological assistance teams that respond to radiological emergencies when requested. It is not practicable

nor necessary for shippers to have immediate emergency response capabilities to respond to the scene of a transportation accident since the accident could be far away.

The NRC/DOT study group considered the question of carrier's and shipper's emergency plans for transportation accidents. The study group found that, in general, the carrier (transporter) is responsible for proper care of cargo in transit. In an accident, the carrier is responsible for notifying the shippers and government authorities, isolating any spilled material from the public, and cleaning up any spilled material.

Since, in many cases, the carrier will have neither the technical expertise nor the experience and equipment to handle radioactive materials, the carrier may find it necessary to make arrangement with others to accomplish these duties. The carrier could make contractual arrangements with the shipper or any other organization that is capable of handling cleanup activities. However, the basic burden of ensuring that these provisions are made remains with the carrier.

Under existing DOT regulations (49 CFR 177.861), the highway carrier is responsible for promptly notifying the shipper (licensee) and the Federal Government of accidents; for isolating spilled radioactive material; and for ensuring that vehicles, buildings, areas, or equipment in which radioactive material has been spilled are not used until the radiation dose rate of any accessible surface is less than 0.5 millirem per hour and there is no significant removable radioactive contamination on the surfaces.

The shipper, on the other hand, is required by DOT regulations to comply with all applicable provisions concerning packaging, labeling, marking, and otherwise preparing the goods for transportation. For

hazardous materials, the shipper is required to certify on the shipping papers that the goods are properly classified, described, packaged, marked, and labeled, and are in proper condition for transport (49 CFR 172.204). The shipper has no specific responsibilities for sending expert personnel to the accident scene but should provide expert advice on the hazards of the shipment and any necessary precautions. However, since the shipper could be involved in a liability suit later, it may offer assistance in confining and cleaning up spills from any accident involving its shipment.

From these findings, the study group recommended: (1) that the DOT require carriers "to prepare, maintain, and in the event of an accident execute an emergency response plan for promptly notifying the shipper and government authorities, controlling the spread of radioactive material in the cargo, segregating the radioactive material from the populace, and cleaning up any spilled radioactive material;" and (2) that an unspecified agency require shippers "to prepare and maintain an emergency plan for promptly conveying hazards information about the shipment to the carrier and government authorities."

Concerning the request for semiannual drills with local and State law enforcement officials, it is impractical and probably not cost-effective to require each shipper or carrier to conduct semiannual drills with local and State personnel in localities through which the shipment travels. However, the training of local and State first-on-the-scene responders (such as law enforcement, fire fighting, and rescue personnel) on handling transportation emergencies involving radioactive materials is important. Neither NRC licensees nor DOT-regulated shippers and carriers



should be responsible for such a training function. The Department of Transportation, with assistance from other Federal agencies, including NRC, is developing guidance and training materials for such first-on-the-scene responders. For these reasons, the NRC will not adopt the petitioners' suggestion concerning semiannual drills with local and State law enforcement officials.

Part 3: The assumption by licensees of financial responsibility for any shipping accident that involves the dispersal of radioactive materials.

The NRC has denied this part of the petition because the liability for damages should be determined by the courts considering both the applicable State tort law and the particular circumstances associated with the accident.

If the origin or destination of the radioactive material being transported were a facility (for example, a nuclear power plant) for which the NRC required the licensee to have and maintain financial protection, the provisions of the Price-Anderson Act (Sec. 170 of the Atomic Energy Act of 1954, as amended) would ensure a source of funds up to \$560 million for personal injury or property damage resulting from the transportation accident. The Price-Anderson Act does not preempt applicable State tort law, but in the event of an "extraordinary nuclear occurrence" a facility licensee may be required to waive certain defenses that would otherwise be available.

In the "Motor Carrier Act of 1980" (Pub. L. 96-296, enacted July 1, 1980), the Secretary of Transportation is required, among other things, to establish regulations on minimum levels of financial responsibility for the transportation of hazardous materials by motor vehicles. A rule

implementing this act on minimum financial responsibility was published by DOT on June 11, 1981 (46 FR 30974). For radioactive materials, the minimum levels of financial responsibility are \$1 million (\$5 million after July 1, 1983) for any vehicle transporting large quantities of radioactive materials and \$500,000 (\$1 million after July 1, 1983) for transporting radioactive materials in other than large quantities.

Aside from the question of ultimate financial responsibility, the carrier should be prepared to assume the initial costs required to discharge its responsibilities in performing emergency response actions such as confining or cleaning up the spills. In terms of costs for emergency or protective actions that may be taken by the State or local governmental agencies, these agencies can reasonably be expected to be prepared to assume initial costs incurred as in other emergency situations such as fires and floods.

Part 4: A plan for informing the drivers of the vehicles about the nature of the material they are shipping and emergency actions they should undertake in the event of an accident.

The NRC has denied this part of the petition because it considers existing DOT regulations for driver information to be adequate. Present DOT regulations require that a shipment of radioactive materials be accompanied by a description of each radionuclide contained in the shipment including: the name and radioactivity of each radionuclide, the physical and chemical forms, and other information regarding labels, external radiation levels, and fissile class (49 CFR 172.203). These requirements involve a system of labels for packages, placards for vehicles, shipping paper descriptions, and other package markings.

Under a guide published by the DOT on hazardous material transportation ("Hazardous Materials Transportation - Guide for Carriers," Information Services Division, Materials Transportation Bureau, DOT, reprinted March 1980), the carriers should train their personnel in handling emergencies and should have specific procedures prepared for use when transportation accidents involving hazardous materials occur. Vehicle operators should understand the proper procedures and should know what actions to take and what information to pass on to firemen, police, and others, should an emergency arise.

In the final rule on highway routing of radioactive materials published by DOT in January 1981 (46 FR 5298), specific training requirements are mandated for persons transporting large quantities of radioactive materials. The training includes, among other things, a requirement that the driver receive training on properties and hazards of the radioactive material transported and procedures to be followed in case of accidents or other emergencies.

In view of the DOT requirements, there does not appear to be a need for NRC to require shippers to provide and carriers to maintain during transport additional detailed emergency procedures for the driver to undertake in case of accident.

For the above reasons, the NRC has denied this petition.

Dated at Washington, D.C. this \_\_\_\_ day of \_\_\_\_\_, 1982.

For the Nuclear Regulatory Commission.

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Samuel J. Chilk  
Secretary of the Commission

Enclosure 2

PRM-71-6

Mr. Richard P. Pollock, Director  
Critical Mass Energy Project  
P.O. Box 1538  
Washington, D.C. 20013

Dear Mr. Pollock:

This refers to your letter, dated October 31, 1977, petitioning the Nuclear Regulatory Commission (NRC) to amend its regulations concerning emergency planning and response for transportation accidents involving radioactive materials.

In a letter to you dated June 16, 1978, the NRC stated that action on your petition would be delayed pending completion of a related joint NRC/DOT special study requested by Congressman Timothy E. Wirth. The final report of the study, "Review and Assessment of Package Requirements (Yellowcake) and Emergency Response to Transportation Accidents" (NUREG-0535), was published in July 1980. A copy of this report is enclosed for your information. This study considered, among other things, all four areas addressed by your petition.

The NRC notes that actions have been taken in the same four areas requested in your petition although they do not necessarily place requirements on NRC licensees (shippers):

- (a) The Department of Transportation (DOT) has published a rule on highway routing of radioactive materials requiring carriers to use an interstate

highway or an alternate route that minimizes radiological risk. The DOT rule is based in part on NRC advice and studies concerning transportation risks and was subject to considerable public review and deliberation. The NRC does not believe it is necessary or practicable to require further restrictions beyond the DOT rule.

- (b) Several organizations are responsible for responding to transportation accidents: State and local personnel such as fire and police for emergency actions immediately following the accidents; shippers for providing shipment hazard information, carriers for isolating and cleaning up the spilled radioactive materials; and federal agencies for providing assistance to State and local governments. At the Federal level, Federal Emergency Management Agency (FEMA) coordinates such Federal assistance; DOT and NRC provide assistance to FEMA; and Department of Energy (DOE) maintains radiological assistance teams that respond to radiological emergencies when requested. It is not practicable nor necessary for shippers to have immediate emergency response capabilities to respond to the scene of a transportation accident since the accident could be far away.
  
- (c) The financial liability for damages resulting from transportation accidents is determined by the courts. Under the Motor Carrier Act of 1980, the DOT published a rule requiring motor carriers to establish minimum financial requirements for matters such as cleanup after accidents.



- (d) The DOT requires shippers to provide descriptions of radioactive materials in each package. In the routing rule, the DOT requires additional driver training, including procedures to be followed in case of accidents.

The NRC concludes (as more fully discussed in the enclosed Federal Register Notice) that promulgation of a regulation in response to the petition would not serve the public interest because it would add regulations that unnecessarily duplicate existing requirements and practices. Furthermore, it would not be practical or necessary to make NRC licensees (shippers) responsible by regulation for some of the proposed activities. Therefore, your petition has been denied.

Sincerely,

Samuel J. Chilk  
Secretary of the Commission

Enclosures:  
"A" - NUREG-0535  
"B" - Federal Register Notice

PRM-71-6

The Honorable Theodore S. Weiss  
United States House of Representatives  
Washington, D.C. 20515

Dear Congressman Weiss:

This refers to your petition for rulemaking forwarded to the Nuclear Regulatory Commission (NRC) by Mr. R. P. Pollock of Critical Mass Energy Project on October 31, 1977. This petition requested the NRC to amend its regulations concerning emergency planning and response for transportation accidents involving radioactive materials.

In a letter to Mr. Pollock dated June 16, 1978, the NRC stated that action on your petition would be delayed pending completion of a related joint NRC/DOT special study requested by Congressman Timothy E. Wirth. The final report of the study, "Review and Assessment of Package Requirements (Yellowcake) and Emergency Response to Transportation Accidents" (NUREG-0535), was published in July 1980. A copy of this report is enclosed for your information. This study considered, among other things, all four areas addressed by your petition.

The NRC notes that actions have been taken in the same four areas requested in your petition although they do not necessarily place requirements on NRC licensees (shippers):

- (a) The Department of Transportation (DOT) has published a rule on highway routing of radioactive materials requiring carriers to use an interstate

highway or an alternate route that minimizes radiological risk. The DOT rule is based in part on NRC advice and studies concerning transportation risks and was subject to considerable public review and deliberation. The NRC does not believe it is necessary or practicable to require further restrictions beyond the DOT rule.

- (b) Several organizations are responsible for responding to transportation accidents: State and local personnel such as fire and police for emergency actions immediately following the accidents; shippers for providing shipment hazard information, carriers for isolating and cleaning up the spilled radioactive materials; and Federal agencies for providing assistance to State and local governments. At the Federal level, Federal Emergency Management Agency (FEMA) coordinates such Federal assistance; DOT and NRC provide assistance to FEMA; and Department of Energy (DOE) maintains radiological assistance teams that respond to radiological emergencies when requested. It is not practicable nor necessary for shippers to have immediate emergency response capabilities to respond to the scene of a transportation accident since the accident could be far away.
  
- (c) The financial liability for damages resulting from transportation accidents is determined by the courts. Under the Motor Carrier Act of 1980, the DOT published a rule requiring motor carriers to establish minimum financial requirements for matters such as cleanup after accidents.

(d) The DOT requires shippers to provide descriptions of radioactive materials in each package. In the routing rule, the DOT requires additional driver training, including procedures to be followed in case of accidents.

The NRC concludes (as more fully discussed in the enclosed Federal Register Notice) that promulgation of a regulation in response to the petition would not serve the public interest because it would add regulations that unnecessarily duplicate existing requirements and practices. Furthermore, it would not be practical or necessary to make NRC licensees (shippers) responsible by regulation for some of the proposed activities. Therefore, your petition has been denied.

Sincerely,

Samuel J. Chilk  
Secretary of the Commission

Enclosures:

"A" - NUREG-0535

"B" - Federal Register Notice

PRM-71-6

The Honorable Timothy E. Wirth  
United States House of Representatives  
Washington, D.C. 20515

Dear Congressman Wirth:

This refers to your petition for rulemaking forwarded to the Nuclear Regulatory Commission (NRC) by Mr. R. P. Pollock of Critical Mass Energy Project on October 31, 1977. This petition requested the NRC to amend its regulations concerning emergency planning and response for transportation accidents involving radioactive materials.

In a letter to Mr. Pollock dated June 16, 1978, the NRC stated that action on your petition would be delayed pending completion of a related joint NRC/DOT special study you had requested. The final report of the study, "Review and Assessment of Package Requirements (Yellowcake) and Emergency Response to Transportation Accidents" (NUREG-0535), was published in July 1980 (a copy of this report is enclosed). This study considered, among other things, all four areas addressed by your petition.

The NRC notes that actions have been taken in the same four areas requested in your petition although they do not necessarily place requirements on NRC licensees (shippers):

- (a) The Department of Transportation (DOT) has published a rule on highway routing of radioactive materials requiring carriers to use an interstate

highway or an alternate route that minimizes radiological risk. The DOT rule is based in part on NRC advice and studies concerning transportation risks and was subject to considerable public review and deliberation. The NRC does not believe it is necessary or practicable to require further restrictions beyond the DOT rule.

- (b) Several organizations are responsible for responding to transportation accidents: State and local personnel such as fire and police for emergency actions immediately following the accidents; shippers for providing shipment hazard information, carriers for isolating and cleaning up the spilled radioactive materials; and Federal agencies for providing assistance to State and local governments. At the Federal level, Federal Emergency Management Agency (FEMA) coordinates such federal assistance; DOT and NRC provide assistance to FEMA; and Department of Energy (DOE) maintains radiological assistance teams that respond to radiological emergencies when requested. It is not practicable nor necessary for shippers to have immediate emergency response capabilities to respond to the scene of a transportation accident since the accident could be far away.
  
- (c) The financial liability for damages resulting from transportation accidents is determined by the courts. Under the Motor Carrier Act of 1980, the DOT published a rule requiring motor carriers to establish minimum financial requirements for matters such as cleanup after accidents.



- (d) The DOT requires shippers to provide descriptions of radioactive materials in each package. In the routing rule, the DOT requires additional driver training, including procedures to be followed in case of accidents.

The NRC concludes (as more fully discussed in the enclosed Federal Register Notice) that promulgation of a regulation in response to the petition would not serve the public interest because it would add regulations that unnecessarily duplicate existing requirements and practices. Furthermore, it would not be practical or necessary to make NRC licensees (shippers) responsible by regulation for some of the proposed activities. Therefore, your petition has been denied.

Sincerely,

Samuel J. Chilk  
Secretary of the Commission

Enclosures:  
"A" - NUREG-0535  
"B" - Federal Register Notice

Enclosure 3

DRAFT CONGRESSIONAL LETTER

Dear Mr. Chairman:

Enclosed for the information of the Subcommittee is a copy of a Notice of Denial of Petition for Rulemaking to be published in the Federal Register. By letter dated November 22, 1977, the Subcommittee was provided with copies of the petition (PRM-71-6) filed by Mr. Richard P. Pollock on behalf of the Critical Mass Energy Project, Congressman Theodore S. Weiss, Congressman Timothy E. Wirth, and eleven citizen organizations.

The petitioners requested that the NRC adopt regulations requiring NRC licensees, when offering shipments of radioactive materials to carriers for transport: (a) to be responsible for requiring carriers to take special routes to avoid densely populated areas and mountainous terrain; (b) to devise emergency response plans and to possess capabilities to deploy emergency response units promptly to an accident scene following transportation accidents; (c) to assume financial responsibility for any shipping accident involving dispersal of radioactive materials; and (d) to provide certain information to drivers.

The NRC notes that actions have been taken in the same four areas requested by the petitioners although they do not necessarily place requirements on NRC licensees (shippers):

- (a) The Department of Transportation (DOT) has published a rule on highway routing of radioactive materials requiring carriers to use an interstate highway or an alternate route that minimizes radiological risk. The DOT rule is based in part on NRC advice and studies concerning transportation risks and was subject to considerable public review and deliberation. The NRC does not believe it is necessary or practicable to require further restrictions beyond the DOT rule.
- (b) Several organizations are responsible for responding to transportation accidents: State and local personnel such as fire and police for emergency actions immediately following the accidents; shippers for providing shipment hazard information, carriers for isolating and cleaning up the spilled radioactive materials; and Federal agencies for providing assistance to State and local governments. At the Federal level, Federal Emergency Management Agency (FEMA) coordinates such Federal assistance; DOT and NRC provide assistance to FEMA; and Department of Energy (DOE) maintains radiological assistance teams that respond to radiological emergencies when requested. It is not practicable nor necessary for shippers to have immediate emergency response capabilities to respond to the scene of a transportation accident since the accident could be far away.
- (c) The financial liability for damages resulting from transportation accidents is determined by the courts. Under the Motor Carrier Act of 1980, the DOT published a rule requiring motor carriers to establish minimum financial requirements for matters such as cleanup after accidents.

(d) The DOT requires shippers to provide descriptions of radioactive materials in each package. In the routing rule, the DOT requires additional driver training, including procedures to be followed in case of accidents.

The NRC concludes, as more fully discussed in the enclosed Federal Register Notice, that promulgation of a regulation in response to the petition would not serve the public interest because it would add regulations that unnecessarily duplicate existing requirements and practices. Furthermore, it would not be practical or necessary to make NRC licensees (shippers) responsible by regulation for some of the proposed activities. Therefore, the NRC has denied the petition for rulemaking.

Sincerely,

Robert B. Minogue, Director  
Office of Nuclear Regulatory Research

Enclosure: Federal Register Notice

Enclosure 4

NRC DENIES PETITION TO AMEND REGULATIONS ON  
TRANSPORTATION OF NUCLEAR MATERIALS

The Nuclear Regulatory Commission has denied a petition asking that the agency amend its regulations on the transportation of radioactive materials. The Commission believes that the suggested changes would unnecessarily duplicate existing requirements and practices and that making NRC licensees responsible for some of the proposed activities would not be practical or necessary.

Critical Mass Energy Project, Rep. Theodore S. Weiss (New York), Rep. Timothy E. Wirth (Colorado) and eleven citizen organizations from nine states and the District of Columbia submitted the petition in November 1977, asking that the NRC amend its regulations to impose four conditions on licensees.

The NRC noted that actions have been taken in the same four areas mentioned by the petitioners, although the actions do not necessarily place requirements on NRC licensees who ship the radioactive materials. The conditions sought by the petitioners and related practices and requirements already in existence are:



(1) Special routes should be used for the transportation of radioactive materials to ensure that the shipments avoid densely populated areas and mountainous terrain.

However, the Department of Transportation (DOT) has published a rule on highway routing of radioactive materials requiring carriers who transport the materials to use interstate highways or alternate routes that minimize radiological risk. The DOT rule is based partly on NRC advice and studies concerning transportation risks and was subject to considerable public review and deliberation. The NRC does not believe it is necessary or practical to require further restrictions beyond the DOT rule.

(2) Emergency plans should be adopted for transportation accidents involving radioactive materials, with emergency response units to be organized to carry out the plans and semiannual drills to be conducted with local and state law enforcement officials.

Several organizations are responsible for responding to transportation accidents. State and local personnel such as fire and police officers are responsible for emergency actions immediately following accidents, shippers for providing shipment hazard information, carriers for isolating and cleaning up the spilled radioactive materials, and federal

agencies for providing assistance to state and local governments. The NRC believes that it is not practical or necessary to require licensees to provide additional immediate emergency response capabilities to respond to the scene of a transportation accident because the accident could be far away from the licensee's offices.

(3) Licensees should be required to assume financial responsibility for any shipping accident that involves the dispersal of radioactive materials.

However, the financial liability for damages resulting from transportation accidents is determined by the courts. Under the Motor Carrier Act of 1980, DOT published a rule requiring motor carriers to establish minimum financial requirements for matters such as cleanup after accidents.

(4) A plan should be adopted to inform the drivers of vehicles about the nature of the material they are shipping and emergency actions they should undertake in case of an accident.

In response to this suggested change, the NRC noted that DOT requires shippers to provide descriptions of radioactive materials in each package. In its routing rule, DOT requires additional driver training, including procedures to be followed in case of accidents.

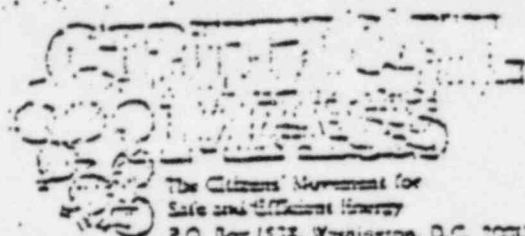
Enclosure 4

A notice of filing of the petition for rulemaking was published for public comment in the Federal Register on December 1, 1977. Interested persons were invited to submit written comments by January 30, 1978.

The eleven citizen organizations that submitted the petition jointly with the congressmen and Critical Mass Energy Project are California Citizen Action Group, based in Sacramento; Community Action Research Group, Ames, Iowa; Environmental Action of Colorado, based in Denver; Massachusetts Public Interest Research Group, Boston and Amherst; Michigan Public Interest Research Group, Lansing; National Intervenors, Incorporated, Washington, D.C.; New York Friends of the Earth, New York City; New York Public Interest Research Group, New York City; North Carolina Public Interest Research Group, Charlotte; Southwest Research and Information Center, Albuquerque, New Mexico; and Vermont Public Interest Research Group, Montpelier.

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Enclosure 5



SECRET  
OFFICE FILE #

The Citizens' Movement for  
Safe and Efficient Energy  
P.O. Box 1532, Washington, D.C. 20013, Phone 202-946-4790

October 21, 1977

Secretary  
US Nuclear Regulatory Commission  
Washington, DC 20555  
Attn: Chief Contracting and  
Service Section

Dear sir/madam:

Enclosed is a formal rulemaking petition to amend the regulations  
pertaining to licensing and the transportation of their radioactive  
materials.

We wish to be informed by letter of the assignment of the docket  
number for the petition and of the division that will be initially handling  
the case.

Your cooperation in this matter is greatly appreciated.

Yours truly,

*Richard P. Pollock*  
Richard P. Pollock,  
Director,  
Critical Mass Energy Project



Enclosure "3"

Before the  
UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of Amending the  
Commission's Regulations  
Pertaining to Licensee  
Responsibility for Emergency  
Response Planning and  
Transportation Accidents

PNR No.



PETITION FOR RULEMAKING

Pursuant to sections 2.000-2.008 of the Commission's rules and regulations, the Critical Mass Energy Project, the Honorable Theodore S. Weiss, the Honorable Timothy J. Wirth and eleven citizens organizations from nine States and the Director of Columbia petition the US Nuclear Regulatory Commission (or NRC) to initiate rulemaking to promulgate regulations compelling all NRC licensees to devise emergency response plans for transportation accidents involving radioactive materials. The regulations would require each licensee to demonstrate to the Commission within sixty (60) days of the regulation's effective date that the licensee possesses the capability to develop emergency response plans promptly to an accident event and to otherwise successfully carry out the plan. The proposed regulations would place on each licensee the responsibility of requiring the holder of the licensee's nuclear material to adopt the licensee's emergency plan, including taking special routes to avoid densely populated regions and mountainous terrain.

Petitioners

The Critical Mass Energy Project, a branch of Public Citizen, [hereinafter known as Critical Mass] is a public interest organization dedicated to the development of safe and efficient energy technology. Critical Mass is based in Washington, D.C., and has participated as a party to other nuclear regulation to nuclear energy, including a petition now before the Commission in the matter pertaining to Nuclear Power Plant Licensing.

The Honorable Theodore S. Weiss is a Member of the US House of Representatives from the Thirtieth District of New York. Rep. Weiss has been active on the issue of the transportation of radioactive materials and has introduced legislation [H.R. 9005] prohibiting the transportation of nuclear waste through areas with a population density greater than 12,000 persons per square mile.

The Honorable Timothy E. Wirth is a member of the House of Representatives from the Second District of Colorado. Rep. Wirth recently authored an amendment to the Fiscal Year 1978 US Energy Research and Development Administration Authorization Bill (P.L. 95-187) prohibiting the Department of Energy from shipping plutonium by air unless in crash proof containers. This restriction has been adopted by the Senate-House conference as part of the authorization bill.

The California Citizens Action Group, based in Sacramento, California is a state-wide consumer organization involved in energy matters, including public utilities, energy conservation, solar, geothermal and nuclear matters.

Community Action Research Group of Iowa, Iowa is a non-profit citizens research group actively involved in state and federal matters. They have petitioned this Commission before on a number of issues involving nuclear power reactors and have participated before the Iowa State Citizens Commission on energy, power plant and nuclear station issues.

Environmental Action of Colorado, based in Denver, Colorado is a non-profit research and education organization. They have published numerous periodicals and books on the issues of energy and nuclear energy and were co-sponsors of the Nuclear Safeguards Act, a ballot measure that was placed before the public in November, 1975.

Massachusetts Public Interest Research Group, based in Boston and Amherst, Mass., is an independent public interest student and community organization deeply involved in nuclear energy matters. In July, 1977 the organization published a report on emergency response planning for fixed nuclear facilities entitled, Nuclear Emergency Planning: Stumbling for Chaos.

Michigan Public Interest Research Group has been involved in nuclear questions as a student and community organization. In January, 1974 they published Fallout on the Freeway: The Hazards of Transporting Radioactive Waste in Michigan. The organization also has a seat on the Advisory Task Force on the Transportation of Radionuclides in Urban Environments. Organized by Sandia Laboratories under contract to the US Nuclear Regulatory Commission, The Task Force oversees Sandia's drafting of an environmental impact statement on the transportation of radioactive materials in cities. It is based in Lansing, Michigan.



12

National Intervention, Incorporated, based in Washington, D.C. is a non-profit organization that has participated in rulemaking and regulatory intervention on nuclear power plant construction.

New York Friends of the Earth is an environmental organization that has long been involved in nuclear energy issues and has participated in state and federal rulemaking proceedings. Most recently, the organization has been involved in US Department of Transportation proceedings on the transportation of radioactive materials in, through and around the City of New York. It is based in New York City.

New York Public Interest Research Group is an independent public interest organization supported by contributions from college students in New York State. The group is active on a wide range of consumer issues, including nuclear energy and reactor decommissioning. It is based in New York City but has offices throughout the State.

North Carolina Public Interest Research Group, based in Charlotte, North Carolina is a research and advocacy organization. In April, 1977 the group published a report on the transportation of radioactive wastes in North Carolina entitled, Nuclear Waste in North Carolina: What Are the Risks? The organization has petitioned state and federal agencies on energy matters.

Southwest Research and Information Center, based in Albuquerque, New Mexico has undertaken a study of transportation radioactive substances in their state, which is tentatively stated to be the site for disposing of military-generated liquid high-level radioactive wastes.

Vermont Public Interest Research Group, based in Randolph, Vermont is a student and community research and action group. The organization has investigated transportation issues involving radioactive waste and has petitioned before state commissions on energy, electric rates and nuclear power plant-related issues.

1. EXPERTS BOTH INSIDE AND OUTSIDE THE FEDERAL GOVERNMENT HAVE ESTABLISHED THAT THERE IS A NEED FOR EMERGENCY RESPONSE PLANS TO PROTECT THE PUBLIC IN THE EVENT OF AN ACCIDENT IN TRANSPORTING RADIOACTIVE MATERIALS.

The Federal Preparedness Agency (FPA) reported almost two years ago that there is a need for emergency response planning for transportation accidents. As General Leslie H. Inoy, Jr., Director of the FPA noted in December, 1975, "fully aware of substantial occurrence of an accident the probability of

incidents involving radioactive materials in fixed nuclear facilities and in the transportation of these materials, the anticipated proliferation of nuclear power plants and materials in the near future requires early consideration of this problem and adequate emergency planning for such contingencies." [40, Fed. Reg. 248, Dec. 24, 1973]

Both Dr. Leonard Seimon, Director of the New York City Bureau for Radiation Control<sup>1</sup> and the US Environmental Protection Agency have studied the problem and have reached conclusions similar to the EPA opinion.

According to Dr. Seimon's calculations, which are based on a February, 1977 NRC report<sup>2</sup>, a transportation accident in "hypurban environs such as New York City where population densities range up to 500,000 person/mile<sup>2</sup>," the result "of a one percent release from a container containing on the order of ten megacuries of fission product activity would be some 10,000 early deaths and 200,000 to 1,000,000 latent cancer fatalities." Seimon's results were contained in a letter dated April 11, 1977 to Dr. J. Peter McInerch of the Fuel Cycle Risk Analysis Division at Sandia Laboratories. The calculations were also presented before a Working Group Meeting on Transportation of Radioactive Material of the NRC's Advisory Committee on Reactor Safeguards, held in New York City on August 23, 1977.

The Environmental Protection Agency has also studied the merits of proper emergency planning and like the petitioners has concluded that evacuations, as part of an emergency response, could be carried out successfully if needed -- but only with advanced, detailed emergency planning.

Although there apparently has not yet been a transportation accident resulting in widespread injury to the public, the experience of the recent accident in southeastern Colorado shows that the present system is wholly inadequate to deal with the risk to the public health from a transportation accident, and that regulations by the Commission is essential.

During the early morning hours of September 27, 1977 a tractor-trailer truck carrying over 40,000 pounds of uranium concentrate, collided at high speed with several horses and spilled over 15,000 pounds of radioactive ore, called "yellowcake." About 10,000 pounds of the material was released over a 5,000-square foot area, and according to police officials the uranium concentrate

<sup>1</sup>Dr. Seimon is also a member of the Advisory Task Force on the Transportation of Radionuclides in Urban Environments and serves as a consultant to Sandia Laboratories to assist them in developing an environmental impact statement on transportation of radionuclides in cities.

<sup>2</sup>See, for example, NRC Report, "Safety of Uranium Concentrate Transportation," NRC-77-100, (1977).

was a foot deep.

Robert D. Siek, Associate Director of Environmental Programs for the Colorado Department of Health, in an October 1, 1977 letter to Sheldon Heyart, Director of the NRC Fuel Cycle and Materials Safety Division discussed some of the problems caused by the lack of preparation for an accident. First, the "[t]wo people from Union [who] arrived at the scene about 2:30 p.m. on September 27" were under "the misconception that cleanup would be supervised and carried out by the Colorado Health Department Personnel. They were not only improperly instructed by inadequately trained and equipped for their mission." According to Siek, [a]n "Union Co. Industrial Hygienist who arrived on September 28, 1977 was similarly inadequate for the mission."

Because the Colorado Health Department required the Union Co. (the licensee of the spilled nuclear material) to furnish "adequately trained and equipped personnel," the cleanup did not commence until September 30, 1977, more than three days after the accident.

The citizens of Colorado were fortunate that the trailer-trailer truck was carrying one of the least dangerous nuclear materials. Further, the shipper for the Union Company was prepared for a transportation accident. Not only was it unclear to the Union Co. whether it or the Colorado Health Department had the primary responsibility for the cleanup, but Union had no emergency plan.

The Commission presently requires nuclear power reactor licensees to adopt emergency response plans (10 CFR 50.14b, and Appendix G). And yet there is no similar requirement for licensees of nuclear materials to be transported, even though a transportation accident would involve shippers and localities wholly unfamiliar with radioactive materials. Petitioners urge the Commission to follow its own lead, and to require its licensees to adopt emergency response plans for transportation accidents.

#### 11. Emergency Regulations

The petitioners propose that the Commission adopt regulations which, as a minimum, impose the following conditions on its licensees:

1. The use of special routes for the transportation of radioactive materials of all types to ensure that such shipments avoid densely populated

The State of Colorado has submitted a number of these recommendations to the Commission as part of their October 1, 1977 letter to Mr. Sheldon Heyart, NRC Director of Fuel Cycle and Materials Safety. The substance of these recommendations is outlined in proposed items 10, 11, and 4.

areas and mountainous terrain.

2. The adoption of emergency plans for transportation accidents involving their cargo.

a. The organization of emergency response units to carry out the plans.

b. Semi-annual drills with local and state law enforcement officials.


3. The assumption by licensees of financial responsibility for any shipping accident that involves the dispersal of their radioactive cargo.

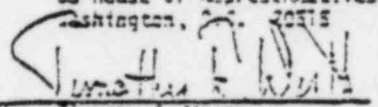
4. A plan for informing the drivers of the vehicles about the nature of the material they are shipping and emergency actions they should undertake in the event of an accident.

The regulations should require that all licensees are in compliance within sixty (60) days of their promulgation.


CONCLUSION

Timely action by the Commission can help to avoid a recurrence of the September 27, 1977 accidents, allow for speedy recovery and cleanup of contaminated areas, provide all parties with certainty about the methods and devices needed for such emergency action, minimize property loss and loss of life, and otherwise protect the public health and safety. We therefore urge the US Nuclear Regulatory Commission to adopt the recommendations of the State of Colorado and the proposals included above by granting this petition.

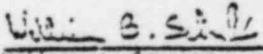
  
\_\_\_\_\_  
Hon. Richard S. Weiss

Member of Congress  
US House of Representatives  
Washington, D.C. 20515  
  
\_\_\_\_\_  
Hon. Timothy S. Wirth

Member of Congress  
US House of Representatives  
Washington, D.C. 20515

Respectfully submitted,  
  
\_\_\_\_\_  
Richard F. Pollock

Critical Mass Energy Project  
122 G Street, SE  
Washington, DC 20003

  
\_\_\_\_\_  
William G. Lawrence

Attorney for Critical  
122 G Street, SE  
Washington, D.C. 20003

Enclosure 6

CRITICAL MASS PETITIONABSTRACTS OF PUBLIC COMMENTS AND STAFF RESPONSES1. R. R. Langner, (Dow Chemical, Midland, Michigan)

COMMENT 1.1: "All types of radioactive materials include radiopharmaceuticals for medical facilities, check sources and tracer isotopes for educational and research laboratories, density and level gauges, and instrument devices such as electron capture detectors, luminescent switches and dials, smoke detectors, and static eliminators. This is only a partial list of items that would be impractical to provide special routes for transportation, especially to avoid densely populated areas and mountainous terrain. Their proposal is also prohibitive for interlaboratory transportation of materials."

STAFF RESPONSE: The staff agrees that it is not practical to use special routes for shipments containing only a small amount of radioactive material. In fact, the DOT's rule on highway routing of radioactive materials provides exemptions for such shipments.

COMMENT 1.2: "Shipping papers include the shipper's name and address so that the shipper can be notified in an emergency. Shippers of radioactive materials have health physics staffs which can respond to emergencies. Training of all local and state law enforcement officials by every shipper would be unnecessary."

STAFF RESPONSE: It is impractical for every shipper to train all local and State law enforcement officials. However, training of local and State "first-on-the-scene responders" such as law enforcement, fire fighting, and rescue personnel on handling transportation emergencies involving radioactive materials is important. The Department of Transportation (DOT), with assistance from other Federal agencies, including the NRC, is developing training materials for this purpose.

COMMENT 1.3: "Also, it is not clear whether a licensee would be responsible for training law enforcement officials in every state in which the shipment travels."



STAFF RESPONSE: Licensees should provide information on the hazard of their materials and on procedures to handle the materials following accidents. It is not the responsibility of the licensee to train law enforcement officials in every state in which the shipment travels.

COMMENT 1.4: "The NRC's Radiological Assistance Program is adequate for emergencies."

STAFF RESPONSE: The NRC does not maintain a Radiological Assistance Program to handle transportation emergencies. The Department of Energy, under the Interagency Radiological Assistance Plan, maintains radiological assistance teams. These teams will provide technical advice to local or State government or to shippers or carriers.

COMMENT 1.5: "Drivers have the necessary information about the nature of the material they are shipping and who to contact in an emergency from the shipping papers."

STAFF RESPONSE: DOT regulations require certain information on radioactive material to be shown on shipping papers, labels, and placards. The carrier should train its vehicle operators in handling emergencies and on properties and hazards of the radioactive material being transported. However, the staff believes an emergency telephone number of the shipper could be added on shipping papers. This is desirable in the event the driver should be incapacitated by the accident. Also, the shipper should be encouraged to include emergency instructions with shipping papers, especially on exclusive-use shipments.

2. Lester A. Slaback, Jr. (Gaithersburg, Maryland)

COMMENT 2.1: "President Carter has clearly stated his aim to simplify the impact of regulatory bodies on the U.S. The states and the Department of Transportation currently are responsible for the vast majority of the transportation process and in particular, the vast majority of radioactive material shipments. Is it appropriate that the NRC initiate an action in this area



which is already governed by other agencies and which is contrary to the President's guidance?"

STAFF RESPONSE: The staff agrees that the NRC should not duplicate the DOT's regulations on highway routing of radioactive materials. However, the NRC has the responsibility to regulate its licensees in emergency planning and implementation.

COMMENT 2.2: "In the interest of minimizing the cost to the U.S. consumer (which must ultimately bear all costs) such planning and support should be done on a centralized state or federal basis. It would be extremely expensive and duplicative in effort to do this at the licensee level."

STAFF RESPONSE: The staff agrees that certain activities, such as training of State or local emergency response personnel, should not be duplicated by every licensee whose radioactive materials are transported through a specific State or locality. However, activities for which the shipper is responsible, such as providing hazard information, must be carried out by the individual licensee.

COMMENT 2.3: "Further, if this requirement were applied to the shipment of many small sources the economics would make many useful applications of radioactive materials uneconomical to the point that it would be all out of proportion of the minimal hazards involved and to the point that many useful applications simply would not be done."

STAFF RESPONSE: For shipments with small sources and with minimal hazard, special routes may not be practical or necessary. However, if highway accidents involving these shipments occurred, proper emergency response should be initiated to prevent spread of contamination.

COMMENT 2.4: "These proposed requirements are unrealistic in view of the current extremely stringent packaging requirements. If these were adopted would there be some trade off in the form of a loosening the packaging requirements? This would seem only reasonable in view of the presumption underlying the formulation of the packaging specifications that such planning and emergency support is not readily available. Specifically the requirements related to long durations under water or in fire could be greatly relaxed."

STAFF RESPONSE: Stringent packaging requirements do not mean that a package could not be ruptured under extreme transportation accident conditions, although such extreme accidents are very unlikely. Emergency response planning is primarily designed to protect public health and safety in the event of serious accidents. A well prepared emergency response system can not be used as a justification for relaxing the packaging requirements.

COMMENT 2.5: "I object to this piecemeal approach to state and federal reactions to transportation accidents. This rather narrow area of the hazardous materials transportation spectrum should not be singled out for special consideration because it will just further delay appropriate state and federal action on the broader problems. Further, if a narrow area were to be singled out there are far more hazardous materials which should receive immediate attention than radioactive materials."

STAFF RESPONSE: It is preferable to treat a broad problem as a whole when feasible. However, it is not always possible to do so. Because of the special characteristics of radioactive material and the increased public and Congressional concern over the safe transportation of radioactive materials, the staff believes that it is justified in considering radioactive material separate from other hazardous materials. In its rulemaking proceeding on highway routing of radioactive materials, the DOT has indicated that the routing of other hazardous materials will be addressed in the 1980s.

COMMENT 2.6: "Because this general area is not within the scope of NRC's authority this petition should be rejected as misdirected and forwarded to DOT for consideration."

STAFF RESPONSE: Federal responsibilities for regulating transportation of radioactive materials are shared principally by the DOT and the NRC. The roles of both agencies in the regulation of transportation of radioactive materials are described in a Memorandum of Understanding executed between these two agencies in June 1979. With regard to the items contained in the petition,

the item related to highway routing is not being considered by the NRC because the DOT has promulgated regulations on highway routing of radioactive materials. The other items in the petition should be addressed by the NRC because these items are related to licensee requirements.

3. William A. Brobst, (Department of Energy, Washington, D.C.)

COMMENT 3.1: "Routes could be required to be selected so as to avoid mountainous terrain, or any other geographical area. Although such a restriction might reduce the probability of a traffic or transportation accident en route, the accident frequency might be increased if the shipping distance was increased as a result of the rerouting. In the case of rail shipments accidents quite frequently occur because of faulty roadbeds. It should be noted that the better maintained main line tracks of the railroads generally connect the major centers of population; branch or off-the-main-line roadbeds which bypass these centers of population, are not likely to be as well maintained."

STAFF RESPONSE: The staff agrees that in considering routing requirements these factors should be taken into account.

COMMENT 3.2: "Ordinarily the carrier may be held liable for damages to persons or property resulting from the accident. If it develops that the shipper (licensee) or any other person in some way contributed to the accident, that other person also may be held liable for damages arising from the accident. In addition, the Price-Anderson Act provides Governmental indemnity to complement private (carriers/shippers) financial protection for the payment of public liability claims for personal injury and property damage resulting from a nuclear incident arising out of a transportation accident."

STAFF RESPONSE: The staff agrees that legal financial liability for damages resulting from a transportation accident depends on the particular circumstances associated with the accident and would be decided according to the applicable State tort law. The Price-Anderson Act provides a system of private insurance and governmental indemnity to compensate injured persons for damages resulting from transportation accidents where the radioactive materials involved are being transported either to or from an NRC-licensed facility for which the NRC has required the licensee to maintain financial

protection (for example, a nuclear power plant). The Price-Anderson Act does not preempt applicable State tort law; but in the event of an "extraordinary nuclear occurrence," generally a facility licensee must waive certain defenses that would otherwise be available to the licensee.

In a final rule published in the Federal Register on June 11, 1981 (46 FR 30974) the DOT established minimum levels of financial responsibility for motor carriers transporting hazardous materials, including radioactive materials, in intrastate or interstate commerce.

COMMENT 3.3: "Additionally, under the present Federal regulations certain prescribed hazard information is required to be placed on shipping papers covering hazardous materials shipments. This provides appropriate notice to the driver and others that a hazardous material which is subject to Federal regulation is being handled."

STAFF RESPONSE: Same as response to Comment 1.5.

4. John M. Arras, (Defense Nuclear Agency, Bethesda, Maryland)

COMMENT 4.1: "One such aspect is the assumption that the total radionuclide shipment program can be rigorously controlled under our current system of government. 'The use of special routes for the transportation of radioactive materials of all types' would work a hardship on transport corporations and unionized workers which would be vigorously opposed. Only a denial of due process could make enforcement feasible."

STAFF RESPONSE: Same as response to Comment 1.1.

COMMENT 4.2: "Another aspect is the exclusion of all radionuclides from densely populated areas. This proposal, as stated, would eliminate the use of nuclear medical procedures from urban hospital centers, since such procedures require frequent radionuclide shipments."

STAFF RESPONSE: The staff believes that the exclusion of all shipments of radioactive material from densely populated areas is not practical.

COMMENT 4.3: "The most dangerous aspect is the assumption that semi-annual drills with local and state law enforcement officials would reduce the hazards. Half trained personnel can do a great deal of damage in radiological incidents, and with the current financial condition of most state and local governments, the assumption of adequate training systems is unreasonable."

STAFF RESPONSE: The staff believes that State and local "first-on-the-scene responders" should be trained to handle emergency work such as keeping bystanders away from the scene, rescuing injured personnel, and fighting fires. However, it may not be reasonable to expect the first-on-the-scene responders to adequately assess radiological problems.

COMMENT 4.4: "Finally, it should be noted that hazardous materials shippers and carriers currently have a great deal of financial responsibility for any shipping accident involving their cargo. If the term, 'licensee' in the petition includes recipients, as well, then it is unlikely that such a law would pass any legal test of constitutionality; it includes a supposed condition of, 'guilty, until proven guilty'"

STAFF RESPONSE: A recipient of radioactive material shipments would not be, in general, liable for damages resulting from transportation accidents incurred before the shipments reach the recipient's facility. (Also see Comment 3.2)

#### 5. LeBoeuf, Lamb, Leiby and MacRae, (Washington, D.C.)

COMMENT 5.1: "The Commission should dismiss the Petition, because it does not comply with 10 CFR § 2.802 which requires that a petition for rulemaking state the substance or text of any proposed regulation and state the basis for the request. Critical Mass has not proposed the text or adequately identified the substance of any suggested regulation. More importantly, Critical Mass has not demonstrated an adequate basis for its Petition and specifically why existing NRC regulations are inadequate."

STAFF RESPONSE: The staff believes that the petition included sufficient information for consideration by the Commission.

COMMENT 5.2: "The NRC Staff specifically found that the alternative of restricting radioactive material transport to avoid high-population zones is clearly not cost effective since there is a saving of \$1.5 million associated with the decreased radiological impact but a cost of \$33 million associated



with the additional secondary mode distance. Id. at 6-11 to 6-12. Critical Mass has made no showing why the Commission's Final Environmental Statement should be modified."

STAFF RESPONSE: The savings and costs derived in the Final Environmental Statement on the Transportation of Radioactive Material by Air and Other Modes (NUREG-0170) are based on the consideration of using airports in suburban population zones rather than major metropolitan airports. The cost-benefit ratio may be different when considering highway transport of radioactive materials.

COMMENT 5.3: "Critical Mass proposes that the designation of special routes extend to all types of radioactive materials. This proposal is overbroad in that there are obvious differences in the characteristics of various radioactive materials."

STAFF RESPONSE: Same as response to Comment 1.1

COMMENT 5.4: "Critical Mass does not identify any reason why mountainous terrain should be avoided. For this reason alone, the Commission should reject this aspect of the proposal. 10 CFR § 2.802. Furthermore, the term "mountainous terrain" is vague and thus does not permit a reasoned response. Under some definitions of the term, it might be impractical or even impossible to ship radioactive materials in and through certain regions of the country."

STAFF RESPONSE: The staff agrees that the petition does not identify explicitly any reason why mountainous terrain should be avoided. During the DOT's rule-making proceeding on highway routing, the staff transmitted the petition (PRM 71-6) and the public comments thereon to the DOT in April 1979 for its consideration in conjunction with the rulemaking proceeding.

COMMENT 5.5: "In fact, the Commission found that the mortality risk from the practice evacuations would be far greater than that from potential reactor accidents. Critical Mass urges (at 5) that the Commission follow its own lead with respect to emergency response plans. We urge that the Commission follow the wise course it previously chose with respect to drills, and deny the request of Critical Mass for such drills."

STAFF RESPONSE: The staff believes that if actual public evacuation drills were conducted, the increase in the probability of injuries and loss of life would not be commensurate with the benefit of such evacuation drills. Therefore, in the staff's opinion, public evacuation drills should not be conducted. However, drills involving emergency response by local and State personnel and shipper or carrier personnel may be desirable.

COMMENT 5.6: "The proposal by Critical Mass would be, to some extent, duplicative of existing precautionary arrangements. The Department of Energy (including the former ERDA) has already established a Radiological Assistance Plan for advising and assisting in the event of a radiological emergency. The existence of such interagency plans undercuts the rationale for rulemaking by one agency."

STAFF RESPONSE: The Department of Energy, under the Interagency Radiological Assistance Plan, maintains radiological assistance teams. When requested by State or local authorities, shippers, carriers, or any other individual, the team will provide technical advice. However, shippers and carriers should still be prepared to handle emergency actions involving the radioactive material for which they are responsible.

COMMENT 5.7: "Alternatively, if Critical Mass is suggesting that some additional substantive financial obligation be imposed for transportation accidents, any action by the Commission in this regard would interfere with state tort law principles and exceed the NRC's legal authority."

STAFF RESPONSE: Same as responses to Comments 3.2 and 4.4.

COMMENT 5.8: "Critical Mass proposes that the Commission adopt regulations to require that drivers of vehicles be informed about the nature of the material they are shipping and the emergency actions they should undertake in the event of an accident. Again, no basis is shown for this proposal. Department of Transportation (DOT) regulations already require each person who offers radioactive material for transportation to describe the material on the shipping paper in the manner prescribed. See 49 C.F.R. §§ 172.200 et seq. DOT also requires placarding of radioactive material shipments. See 49 C.F.R. §§ 172.400 et seq."



STAFF RESPONSE: Same as response to Comment 1.5.

6. Mark J. Wetterhahn, Conner, Moore & Corber, Washington, D.C.

COMMENT 6.1: "As set forth herein, we submit that the Petitioners have not set forth any valid basis or need for the adoption of their petition for rule-making and, therefore, it should be denied."

STAFF RESPONSE: Same response to Comment 5.1.

COMMENT 6.2: "The Nuclear Regulatory Commission only has jurisdiction over shippers (those who prepare and deliver packages to a carrier for transport) and private carriers of such materials. Exempt from NRC regulations are common and contract carriers, freight forwarders, warehousemen, and the United States Postal Service when transporting or storing, as part of the transporting process, a shipper's by-product, source, or special nuclear material and when subject to DOT regulations. The authority does not exist for the Nuclear Regulatory Commission to promulgate regulations covering more than a small segment of carriers. Thus, the Nuclear Regulatory Commission cannot, by regulation, bring about the relief requested."

STAFF RESPONSE: By statute (the Atomic Energy Act and the Energy Reorganization Act), the NRC may regulate the possession, use, and transfer, including transportation, of byproduct, source, and special nuclear material. The NRC exempts common and contract carriers from NRC license requirements because the DOT regulates these carriers. The NRC could, when necessary, amend its regulations and remove the license exemption.

COMMENT 6.3: "To a large extent, safety in transportation is assured by the design and construction of the shipping containers. Nuclear Regulatory Commission Regulations covering the criteria for design, construction, and use of such shipping containers assure that, in the unlikely event that an accident should occur, the integrity of the shipping container would be maintained. The recent series of tests carried out by Sandia Laboratories confirm the very conservative nature of the requirement of the Nuclear Regulatory Commission with regard to container design."

STAFF RESPONSE: The staff agrees that the type B containers are designed to maintain package integrity under severe accident conditions. However, there

is a small probability that such packages could be ruptured under severe accident conditions.

COMMENT 6.4: "It is evident that there is already sufficient coordination and emergency response capability available. For example, the Department of Energy maintains emergency response teams at various locations throughout the country to assist in events of radiological emergency. Petitioners have not shown that the pre-planning already conducted among the various Federal, state and local agencies is not sufficient to assure the public health and safety."

STAFF RESPONSE: Although there are existing emergency response capabilities at Federal, State and local levels, the shippers and carriers should carry out their responsibilities in dealing with transportation emergencies involving radioactive material. Carriers should notify the shippers and government authorities, isolate any spilled material from the public, and clean up any spilled material. Shippers should provide expert advice on the hazards of the shipment and any necessary precautions.

COMMENT 6.5: "The Nuclear Regulatory Commission found that the use of special routes was not justified. As reflected in Table S-4 of 10 CFR Part 51, the risk of a significant accident is exceedingly small. Petitioners have presented no information which would counter these findings. The already very low exposures due to transportation of wastes would only be increased by circuitous transportation routes, without any countervailing benefit."

STAFF RESPONSE: The staff agrees that the risk is small for transportation of radioactive material to and from a nuclear power reactor, as is indicated in Table S-4 of 10 CFR Part 51. However, the consequences of a serious accident involving such a shipment could be large. In the DOT's rule on highway routing of radioactive materials, a preferred highway should be selected for minimizing risk. Where a circumferential route (a preferred highway) around a city and interstate highway through that city are both available, the circumferential route should be used for minimizing consequences in the event of a serious accident.

COMMENT 6.6: "Shipments, once they leave a facility, may travel long distances and, as a practical matter, would be beyond the communications and assistance capability of a utility. While, of course, a utility would provide whatever assistance was practicable for any incident near its facility, the basic responsibility for initial response must lie with state and local authorities."

STAFF RESPONSE: The shipper, after being notified of an accident involving this material, should promptly provide to carrier and Government authorities hazard information and details about its shipment that are necessary for its safe control and cleanup. The staff agrees that the basic responsibility for initial response to protect public health and safety lies with State and local authorities.

COMMENT 6.7: "Thus, under the Atomic Energy Act and implementing regulations, financial responsibility is already covered as it applies to power reactor facility licensees and no further rulemaking is necessary."

STAFF RESPONSE: Same as response to Comment 3.2.

COMMENT 6.8: "With regard to informing drivers of vehicles about the nature of materials they are carrying, present regulations require training of drivers of trucks which carry radioactive material in, inter alia, emergency procedures. Such drivers carry, as part of their manifest, an identification of the radioactive material shipped. Thus, there is no basis for the fourth suggestion."

STAFF RESPONSE: Same as response to Comment 1.5.

7. Nelson J. Cooney (American Trucking Association, Inc., Washington, D.C.)

COMMENT 7.1: "For many years, the U.S. Department of Transportation has enforced regulations which require that vehicles transporting hazardous materials of all classes avoid densely populated areas insofar as practicable. This rule is acceptable to and adhered to by affected carriers."

STAFF RESPONSE: The DOT stated in a Federal Register Notice dated April 20, 1978, that this specific regulation had not been codified under the Hazardous Materials Transportation Act. The DOT has since promulgated a new rule on highway routing of radioactive materials that set forth more detailed requirements.

COMMENT 7.2: "The trucking industry cannot accept a further regulatory change which would require motor carriers to avoid traversing mountainous terrain when transporting radioactive materials, or any other class of hazardous materials. Any such requirement would be totally impractical, and would require detours of hundreds of miles in some cases. The additional miles can only increase the potential exposure to accidents and add unreasonably to travel times. Detours of such magnitude are also contrary to current policies mandating fuel conservation through avoidance of excess trips and circuitous routing."

STAFF RESPONSE: The staff agrees that these factors should be considered in determining whether to require shipments of radioactive material to avoid mountainous terrain. During the DOT's rulemaking proceeding on highway routing of radioactive materials, the staff transmitted the petition (PRM-71-6) and the public comments thereon to the DOT in April 1979 for its consideration in conjunction with the rulemaking proceeding.

COMMENT 7.3: "As mentioned previously, the cleanup was carried out by personnel of the shipper. This fact indicates to us that licensees do have the requisite capability to deal with spills of their products, and that there is no need for regulatory changes in this area."

STAFF RESPONSE: The staff agrees that, in general, the shippers (licensees) have the capability to deal with their radioactive materials. However, the prime responsibility for isolating and cleaning up any spilled radioactive material lies with the carriers. Since, in most cases, the carrier will have neither technical expertise nor the experience and equipment to handle radioactive materials spills, the carrier may find it necessary to make prior arrangement with others to perform the cleanup. In many cases, the shipper will provide such expertise and equipment; however, the basic burden of ensuring that the spilled materials are removed remains with the carrier.

8. Gerald D. Ortloff (Exxon Minerals Company, U.S.A., Houston, Texas)

COMMENT 8.1: "Any rulemaking activity should recognize that licensees include not only large industrial concerns for which shipping of nuclear materials is a normal part of their activities, but also many individuals and activities

for which the imposition of significant emergency response requirements would be impractical."

STAFF RESPONSE: The staff agrees that this factor should be included when considering requirements on emergency response. However, every shipper must fulfill its responsibility to provide information on the hazards of its shipment during emergencies whether the shipper is a large industrial company or an individual.

COMMENT 8.2: "However, it is not practical or even desirable in all cases to impose this limitation as a requirement upon licensees in that (1) in certain cases, either the shipper or the receiver of a shipment of radioactive material will be located either in areas of high population density or in mountainous terrain; (2) various degrees of highway development in different areas may necessitate that transport activities be conducted in areas which might be considered densely populated or mountainous; (3) the low potential hazard of many shipments will not merit precisely dictated routes; and (4) direct routes which minimize mileage via well developed highways might be safer than more circuitous routes which would avoid populated or mountainous areas."

STAFF RESPONSE: The staff agrees these factors should be considered in determining routing requirements.

COMMENT 8.3: While a licensee may be able to request routes that he prefers his carriers to use, rules which are imposed upon licensees calling for special routes would be difficult, if not impossible to enforce by the licensee. Many shipments are made via common carrier, and the licensee may have no control over the carrier's routing. The carrier may be in the best position to know about route conditions, and therefore must have meaningful input into routing decisions. Furthermore, implementation of routing requirements by the shipper (licensee) may conflict with requirements placed upon the carrier by other regulatory agencies, some of which accomplish the objectives desired by this proposal."

STAFF RESPONSE: The staff agrees that carriers are in a better position to control routes.

COMMENT 8.4: "Any treatment of this issue by the Nuclear Regulatory Commission should take the form of a general admonition to seek routes which could minimize risks to the public and the environment. Any requirements in the area of



routing should reflect the practicality (i.e., the location of the shipper and receiver), the cost/effectiveness, the type and activity of the radioactive material involved, and the degree of control which the licensee can exert over the carrier."

STAFF RESPONSE: The question of highway routing of radioactive material shipments has been considered by the DOT in a rulemaking proceeding. A final rule on highway routing was published by the DOT on January 19, 1981. The staff believes that it is unnecessary for the NRC to consider the same issue in a separate action.

COMMENT 8.5: "It is also necessary to consider the role to be played by governmental agencies in the area of emergency response. Most states have bodies charged with the authority to direct emergency response efforts and to mobilize manpower necessary to meet the needs of the situation. In addition there are several federal agencies which may have responsibilities to participate, depending on the situation. These include the Nuclear Regulatory Commission, the Department of Energy, Environmental Protection Agency, Department of Defense and possibly others. Such response capability should be maintained and enhanced as required. It cannot be replaced by licensee actions. For instance, logistics and other factors may cause delay or other problems in licensee response or effectiveness, or independent action on the part of the licensee may be precluded by state or federal agency authority and responsibility. On the other hand, it should continue to be recognized that the licensee may on occasion play a significant role in mitigating the effects of an accident since he may have personnel experienced in handling the material and equipment to minimize any hazards."

STAFF RESPONSE: The staff agrees that each party (e.g., shipper, carrier, State and local government, and Federal government) involved in dealing with transportation accidents has its specific responsibility. It is imperative for each party to understand its role and responsibility and be prepared to carry out its responsibility in the event of an accident. Cooperation between various parties is essential in dealing with such emergencies. The NRC staff, in cooperation with DOT staff, has studied the responsibility of these parties in dealing with transportation accidents involving radioactive materials. The conclusions and recommendations of the study group are contained in a document

entitled "Review and Assessment of Package Requirements (Yellowcake) and Emergency Response to Transportation Accidents" NUREG-0535, July 1980.

COMMENT 8.6: "Drills, except in limited and well-defined instances, are unworkable and ineffective in developing response capability, since the circumstances surrounding each incident will be highly variable. A licensee may own radioactive material which is transported in states far removed from his operations. Similarly, state and local law enforcement agencies may have many licensees involved in transporting radioactive material through their jurisdiction. The loss of productivity and the cost of drill operations would be a matter of concern to both the licensee and local or state law enforcement officials. Particularly in the case of low specific activity materials such as natural uranium concentrate, the potential risks do not warrant this scale of effort on the part of either the licensee or the law enforcement agencies."

STAFF RESPONSE: Drills of emergency response by local and State personnel and shipper or carrier personnel may be needed to familiarize each with emergency response procedures. However, it is impractical for licensees to conduct drills with local and state personnel of each state in which the licensee's materials travel.

COMMENT 8.7: The traditional goal and rationale of legislative and judicial tort law is compensation of a plaintiff or other injured party for damages suffered at the hands of the wrongdoer. The licensee is not in direct control of the carrier or his actions during transit and therefore should not be held responsible for the injurious acts of the carrier or other third parties, over whom he also has no control. The proposal to place financial responsibility on the licensee, without regard to fault is (1) unsupported facts or other data, (2) contrary to clear federal statutory law with respect to carriers, and (3) inconsistent with the general goals of tort compensation, i.e., compensation of injured party by the person responsible."

STAFF RESPONSE: Same as response to Comment 3.2.

COMMENT 8.8: "We agree that drivers should be properly informed. Exxon Minerals Company, U.S.A. has been following such a practice since we first started shipping yellowcake in 1972. The mechanism which we use is to provide the driver with a written description of the material and instructions on steps to be taken in the event of an accident. These instructions are attached to the shipping papers which are carried by the driver. They include names and telephone numbers of Exxon management whom the driver or law enforcement officials should contact for advice and assistance on immediate action to be taken and to convey information about the circumstances surrounding the accident so that appropriate additional response can be undertaken. Also described are immediate actions to be



followed to protect the public and to contain any spilled material until qualified personnel arrive at the scene. These instructions proved their value at the Colorado yellowcake truck accident in that the appropriate contacts were made almost immediately, and the spilled material was promptly and effectively contained and covered to prevent any danger to the public and the environment. We recommend that plans for informing drivers follow this effective and proven approach."

STAFF RESPONSE: The staff believes that at present there is no need to amend the transportation regulations to include requirements for shippers to provide, and carriers to maintain during transport, detailed instructions for emergency personnel to use. The existing requirements for inclusion of shipping paper descriptions appears to be adequate. However, voluntary efforts by shippers to provide such information, especially in the case of exclusive-use cargos, should be encouraged.

COMMENT 8.9: "A more appropriate course would be for the Commission to consider the need for reassessment of its current regulations which apply to transportation to determine whether revisions are in order. This should be done with full consideration of the regulations of other agencies who are involved in the transportation process. If revisions are considered necessary, they should reflect careful consideration of the above concerns, and should maintain as their principal focus the establishment and preservation of sound transportation procedures."

STAFF RESPONSE: The staff, in cooperation with DOT staff, has formed a joint study group and investigated the area of emergency response to transportation accidents. The staff plans to work with DOT to implement the recommendations made by the joint study group as indicated in the report, NUREG-0535.

9. Bill R. Teer (Transnuclear, Inc., White Plains, N.Y.)

COMMENT 9.1: "We believe the existing system of rules and regulations provide adequate coverage with respect to routing, emergency response, financial liabilities and driver notification."

STAFF RESPONSE: Although the existing system of rules and regulations provides adequate protection of public health and safety, the staff believes improvements could be made. In the area of emergency response to transportation accidents involving radioactive material, for example, the responsibilities of shipper and carrier might be further clarified.

10. Howard J. Larson (Atomic Industrial Forum, Inc., Washington, D.C.)

COMMENT 10.1: "The inclusion of radioisotope and radiopharmaceutical shipments in such a rulemaking is viewed with concern. In many instances, these materials must, of necessity, be viewed differently from the routine bulk shipment of radioactive materials. The Colorado incident referred to in the petition is simply not germane."

STAFF RESPONSE: The staff agrees that the radioisotope and radiopharmaceutical shipments have different hazards than that of yellowcake shipments. However, within the category of radioisotope and radiopharmaceutical shipments, the characteristics and hazards could also vary significantly from one shipment to another. These factors should be taken into account when considering requirements on highway routing or emergency response.

COMMENT 10.2: "The Committee strongly disagrees that 'the present system is wholly inadequate to deal with the risk to the public health from a transportation accident.' The failure of the public to be injured as a result of a release occurring during a transportation accident involving radioactive materials is an attestation to the adequacy of packaging and conservatism built into supporting safety and environmental analyses. This protection of the public has been built into the system and is not fortuitous, as the petition might imply."

STAFF RESPONSE: Same as response to Comment 9.1.

COMMENT 10.3: "In addition, state and Federal agencies have already developed radiation monitoring capability that respond to transportation accidents involving radioactive materials."

STAFF RESPONSE: Same as response to Comment 6.4.

COMMENT 10.4: "In view of its relevancy, it is the position of the Committee that any further action on the subject petition should be deferred until the Generic Environmental Assessment on Transportation of Radioactive Materials Near and Through A Large, Densely Populated Area, currently being prepared by Sandia Laboratories under contract to the NRC, has been completed and issued for comment."

STAFF RESPONSE: The report, entitled "Transportation of Radionuclides in Urban Environs: Draft Environmental Assessment" (NUREG/CR-0743) was issued in July 1980.

11. John W. Gilpin (Varian, Palo Alto, CA)

COMMENT 11.1: "Safe transportation of limited quantities of low-level radioactive materials is well-assured by present regulations. It is imperative that movements of limited quantities of materials presently exempted under Sec. 173.391 of Title 49 CFR not be hampered by excessive or unnecessary regulation. The imposition of rules along the line of those proposed could make several valuable uses of radioactive materials impractical and uneconomic, and would render impossible the current medical uses of shortlived radioisotopes."

STAFF RESPONSE: Same as response to Comment 2.3.

12. Kenneth C. O. Hagerty (WEMA - The Association Serving Electronics Industries)

COMMENT 12.1: "As you know, radioactive materials range from relatively safe nonfissionable material, such as used in smoke detectors or watch dials, to active fissionable materials used to make atomic bombs. The proposed regulations would apply the same standard of care to the transportation of smoke detectors as would apply to bombs. On its face, this is an absurd proposal. It would serve no useful purpose. It would increase the costs and availability of beneficial products in our society utilizing nonfissionable materials which do not create a significant hazard."

STAFF RESPONSE: Same as response to Comment 2.3.

13. F. D. Flowers, Sr. (General Electric, San Jose, CA)

COMMENT 13.1: "The U.S. Department of Transportation, not the Nuclear Regulatory Commission, is the proper regulatory agency designated by public law for regulation of transportation routes if, in fact, further regulations should be required."

STAFF RESPONSE: The staff agrees that the DOT is the proper regulatory agency to be responsible for carrier routing requirements. In fact, the DOT has promulgated regulations on highway routing of radioactive materials.

COMMENT 13.2: "Some States and lower jurisdictional areas regulate routes, schedules, or other condition of transportation in view of peculiar conditions or interests (e.g., States of Massachusetts, Connecticut, Vermont, New Jersey, City of New York, City of Norfolk, Virginia, City of San Francisco, and Berkeley, California, port authorities, etc., which regulate transportation of radioactive material in particular and other hazardous material in some instances.) Broad federal regulation of the proposed kind on routes is not needed."

STAFF RESPONSE: The staff believes that uniform Federal regulation on highway routing is needed to ensure free flow of interstate transport of radioactive material in a safe manner.

COMMENT 13.3: "'Mountainous Area' is a vague term. No regulation should be made unless such a term is narrowly defined and applies only where there is some genuine and specific hazard which cannot safely be coped with by prudent, careful vehicle operators."

STAFF RESPONSE: The staff believes the petition is rather vague on the term "mountainous terrain" and does not identify explicitly any reason why mountainous terrain should be avoided. However, since the DOT is conducting a rule-making proceeding on highway routing of radioactive materials, the staff transmitted in April 1979 the petition and the public comment to the DOT for its consideration.

COMMENT 13.4: "Any regulations proposed on routing should consider and treat equitably all materials defined as 'hazardous,' not just radioactive materials. The safety record for transportation of radioactive material is significantly superior to that of many, many other hazardous materials, regardless of mode. Regulations more restrictive to routing of radioactive materials than to routing of more hazardous materials certainly are not warranted."

STAFF RESPONSE: The DOT has stated that it does not rule out the development of highway routing rules or guidelines for hazardous materials other than radioactive materials. However, because of the special characteristics of radioactive material and the increased public and Congressional concern, it is appropriate to consider radioactive material transportation separately from other hazardous materials.

COMMENT 13.5: "The text of proposed regulation refers to 'Special Routes' for 'All Types' and does not differentiate whatsoever between different radioactive materials, or different quantities, or different magnitudes of radiation. It ignores a long history of careful development of regulations promulgated by NRC and DOT requiring safe packaging for radioactive materials of widely differing characteristics (e.g., Limited Quantities, Low Specific Activity, Type A Quantities, Type B Quantities, Large Quantities, Fissile Material, Source Material, etc.)."

STAFF RESPONSE: Same as response to Comment 1.1.

14. John H. Garrity III (Central Maine Power Company, Augusta, Maine)

COMMENT 14.1: "The present approach of protecting property and ensuring the safety and health of the public in the event of a transportation accident involving spent fuel by use of highly reliable shipping casks is clearly superior to the approach proposed by the petition."

STAFF RESPONSE: The purpose of emergency response is to reduce consequences in the event of an accident involving release of radioactive materials. Although such accidents are unlikely because of the stringent requirement for Type B packagings, it does not mean the package could not be ruptured under extreme accident conditions. To use high-integrity casks and to prepare for emergency response are parallel efforts to improve safety in transportation and one cannot be substituted for the other.



COMMENT 14.2: "I believe the risk of transporting radioactive materials is already low enough. I believe the risk involved in transporting such materials to be far lower than the risk associated with transporting liquid fuels, toxic chemicals, and even nonhazardous substances, and for proof one need only compare deaths, injuries, and property damage resulting from transportation of radioactive material to that resulting from transportation of other substances. In fact, in many cases, I believe the risk to be so low that imposition of further safety measures will result in negligible effect, although in such cases the cost will be non-negligible."

STAFF RESPONSE: The staff agrees that the risk involved in transporting radioactive material is low. However, the consequences of a transportation accident involving release of radioactive material could be large. Proper response during such an emergency would reduce the consequences.

COMMENT 14.3: "For example, consider the enhancement of public health and safety and property protection to be gained by requiring the special routes, emergency plans, etc., that the proposed regulations would mandate in transportation of the minute quantities of securely packaged radioactive materials contained in wristwatch luminous dials or smoke alarm devices for private residences. It would be essentially nil. Costly, bothersome, essentially nil, and yet the petition's proposed rules make no allowance for such a consideration. Such a lack of balance is unwise at best."

STAFF RESPONSE: Same as response to Comment 2.3.

15. Robert E. Schayer (Abbott Laboratories, North Chicago, Illinois)

COMMENT 15.1: "In view of the nature of radioactive medical products, it must be apparent that it is not possible to use special routes to insure that shipments avoid densely populated areas since in many cases that is exactly where the shipments are going. This again would indicate to us that the proposal was not intended to cover medical health products. Furthermore, it is essential that these products reach their destination as quickly as possible both as a result of the nature of the product involved and the critical need for the product as soon as possible for seriously ill patients.

STAFF RESPONSE: Same as response to Comment 1.1.

COMMENT 15.2: "We believe that the need for reaction to incidents involving radioactive material in transportation is one of extreme concern; however, we do believe further that the need to react to these incidents and the process

by which this is accomplished is very comprehensively dealt with in regulations of the Department of Transportation, specifically 49 CFR 171.15, 171.16, 174.45, 175.45, 176.48, and 177.807."

STAFF RESPONSE: The staff believes the responsibilities of shippers and carriers on dealing with transportation accidents involving radioactive materials could be further clarified.

COMMENT 15.3: "While the statement provided in paragraph 3 is relatively broad, we assume that it is only intended to cover those situations where the licensee was responsible for the accident as a result of failing to properly package, ship, label, or mark the package and that it would not be intended that the licensee accept financial responsibility for a shipping accident where the accident resulted from the fault of another party, for example, the carrier. It is essential that each case be considered on its merits. The implications of this type of regulation are quite substantial and it cannot possibly be that shippers can be required to accept the total responsibility for the negligence of others. Certainly, it would not be appropriate that a shipper, having carefully abided by the various statutes and regulations in the transportation of its radioactive material be held liable for a callous act committed by some other individual not connected with the shipper."

STAFF RESPONSE: Same as response to Comment 3.2.

COMMENT 15.4: "This paragraph deals with the need for informing drivers about the nature of the materials they will be handling and shipping and any emergency actions that might be necessary in the event of an accident. This regulation would seem to be superfluous in view of the Department of Transportation regulations, specifically 49 CFR 172.200, 172.202, 172.203, and 172.204 each of which provide for adequate education of the driver of any vehicle as to what they are carrying."

STAFF RESPONSE: Same as response to Comment 1.5.

COMMENT 15.5: "The last sentence of page 61089, 42 F.R., December 1, 1977, would seem to place responsibility on a licensee to provide a shipper, which is not defined but we assume means the supplier of the material, with so-called special route establishments and emergency plan. We strongly urge that if it is found necessary to implement this petition that there be a clarification. As you can imagine in the case of Abbott Laboratories ADD, we service more than 4,000 customers on a regular basis and certainly cannot be expected that these customers would need to develop such plans and special routes for the movement of the medical goods. If it is necessary at all, this burden should be placed on the shipper as is the case at the present time under the Department of Transportation regulations which clearly provide that it is the



responsibility of the shipper for shipping regulation compliance, not the consignee."

STAFF RESPONSE: The staff agrees that it is not reasonable to require the consignee (the person who receives the shipment) to be responsible for using a special route for the incoming shipment. Also, the consignee does not have legal responsibility to establish emergency response plans in dealing with potential accidents involving the incoming shipment.

16. W. N. Thomas (Virginia Electric and Power Company, Richmond, Virginia)

COMMENT 16.1: "Veeco is convinced that the measures sought by Critical Mass in its proposed rulemaking are unnecessary and that the existing regulatory requirements in this area are fully adequate. Thus, any increase in cost and/or delay in transporting Veeco's nuclear material which could result from any such rulemaking would be unnecessary and therefore would be an unreasonable cost to Veeco's customers."

STAFF RESPONSE: Same as response to Comment 9.1.

17. Allan A. Fleischer (Medi-Physics, Emeryville, CA)

COMMENT 17.1: Medi-Physics, Inc. recommends the exemption of radiopharmaceutical preparations from application of the proposed regulations, since transportation of radiopharmaceutical preparations currently meets stringent requirements already imposed and enforced by the Department of Transportation and the Interstate Commerce Commission as well as state regulatory authorities."

STAFF RESPONSE: Same as response to Comment 2.3.

COMMENT 17.2: "The section is not workable with respect to its application to radiopharmaceuticals. The end user of nuclear drugs is the patient in a hospital which is normally located in a densely populated area. The radiopharmaceutical industry could not comply with such a regulation and continue to offer its products to the medical community. We must have access to all routes leading to the medical institution. The promulgation of such a regulation would surely hinder and delay the treatment of patients with these vital, life-saving drugs."

STAFF RESPONSE: Same as response to Comment 1.1.

COMMENT 17.3: "The third regulation proposed by petitioners, which provides for 'the assumption by licensees of financial responsibility for any shipping accident that involves the dispersal of their radioactive cargo' is not easily capable of resolution by regulation and appears to be a question of law that should be properly left for the courts."

STAFF RESPONSE: Same as response to Comment 3.2.

18. David A. Bossen (Measurex, Cupertino, California)

COMMENT 18.1: "The fact is that radioactive materials range from relatively safe, non-fissionable material (such as used in smoke detectors) to active, fissionable materials used to make atomic bombs. The proposed regulations would have the same standards of care apply to the transportation of smoke detectors as would apply to bombs. On its face, this is an absurd proposal. It is totally unjustified and would serve no useful purpose. It would increase the costs and availability of beneficial products in our society utilizing non-fissionable materials which do not create a significant hazard."

STAFF RESPONSE: Same as response to Comment 2.3.

COMMENT 18.2: "Measurex is located in California and does a good portion of its business east of the Rocky Mountains. To avoid mountainous terrain would require Measurex to adopt lengthier travel routes, and, as a consequence, would result in longer transit time. Since potential radiation dispersal in transit is a function of transit time, the longer transit time would actually increase the possibility of dispersal in transit - the very antithesis of the purpose of the petition."

STAFF RESPONSE: These factors should be taken into account when considering routing of radioactive materials.

COMMENT 18.3: "Moreover, in the language proposed, Measurex would be precluded from marketing and installing digital systems with radioactive material to customers who are located in densely populated areas or mountainous terrain. Finally, since Measurex itself is located arguably in a 'densely populated' area, the adoption of the petition could result in the cessation of operations for Measurex and every other company using radioactive materials in urban areas. The resulting economic loss and unemployment in areas already suffering from high unemployment would be disastrous."

STAFF RESPONSE: Same as response to Comment 1.1.

COMMENT 18.4: "Measurex recognizes that the primary concern of the NRC with regard to the transportation of radioactive materials is safety. However, Measurex believes that the concern should be directed to accidents that cause or threaten to cause the release of radioactive material. Based upon this, however, Measurex submits that adequate regulations already exist regarding the release or threatened release of radioactive material (see e.g. 10 CFR Section 20.403). Further regulations could create not only confusion, but also create dual standards of safety."

STAFF RESPONSE: Same as response to Comment 2.3.

COMMENT 18.5: "The adoption of this section of the petition would undermine every fundamental theory of American jurisprudence relating to culpability. This blanket assumption of every conceivable type of liability is not only unwarranted, but is unjust."

STAFF RESPONSE: Same as response to Comment 3.2.

19. D. M. Dawson (General Electric, San Jose, California)

COMMENT 19.1: "Regarding the petitioners' first proposal, the shipping of spent reactor fuel and high level waste is done in massive Type B - Large quantity packages (casks), transported by rail, highway or barge. It should be evident that a regulatory requirement to '... avoid densely populated areas and mountainous terrain' as suggested is neither practicable nor required for the protection of public health and safety."

STAFF RESPONSE: Although spent fuel and high-level waste are to be shipped in massive casks, there is a possibility that the cask could be breached under extreme accident conditions. The staff believes that, in the event of such accident, the consequence will be reduced significantly if densely populated areas are avoided.

COMMENT 19.2: "The petitioners may not be aware that there exists a system for dealing with radiological emergencies administered on a national basis through the Department of Energy. This radiological assistance program provides emergency assistance teams, advice and information upon request from any person or organization in any incident believed to involve a radiation hazard. Requiring a similar plan for each licensee would be counter-productive to DOE's established system."

STAFF RESPONSE: Radiological assistance teams maintained by the DOE will provide technical advice to local or State governments, shippers, or carriers.

However, these teams will not perform actions for the industry (for example,

clean up the spills) that are the responsibility of the industry, unless such actions must be immediately taken to protect public health and safety.

COMMENT 19.3: "In their third item the petitioners have proposed regulations which would make the licensee financially responsible for any accident where there is spillage of the package contents. The financial liability for the transportation of spent fuel to or from indemnified facilities and high level waste generated as part of the reprocessing of spent fuel is the subject of NRC financial protection regulations which are required by the Price-Anderson Act (see 10 CFR 140 Financial Protection Requirements and Indemnity Agreements). Additional regulations therefore are unnecessary."

STAFF RESPONSE: Same as response to Comment 3.2.

20. Philip P. Steptoe (Isham, Lincoln & Beale, Chicago, Illinois)

COMMENT 20.1: "Petitioners have suggested that special routes be required for shipments of radioactive materials 'of all types.' However, they fail to explain why radioactive materials, which are only one of many kinds of items classified by the Department of Transportation as 'hazardous material,' should be singled out for special treatment."

STAFF RESPONSE: Same as response to Comment 2.5.

COMMENT 20.2: "The Critical Mass petition is also overboard in that it makes no distinction between high-level and low-level wastes. The Critical Mass petition would prohibit shipment through densely populated areas and mountainous terrain of such innocuous cargoes as: (1) Low specific activity shipments; (2) Empty shipping casks; (3) Empty sole use shipping vehicles which contain permissible quantities of fixed contaminations; and (4) Small quantity shipments of radioactive materials which are exempt from DOT packaging and labeling requirements."

STAFF RESPONSE: Same as response to Comment 1.1.

21. William R. Prendergast (LFE Process Control Division, Waltham, Massachusetts)

COMMENT 21.1: "The proposed regulations would serve no useful purpose in reducing the radioactive hazard to the public during the transportation of radioactive material."

STAFF RESPONSE: In the event of a serious transportation accident that causes release of radioactive material or increase in radiation levels around the shipment or vehicle, proper emergency response would reduce radiation exposure to persons in the vicinity of the accident. Furthermore, the consequences of such an accident would be lower in a less populated area than in a densely populated area.

COMMENT 21.2: "In addition, how does one make a delivery in a densely populated area if transportation routes must avoid densely populated areas?"

STAFF RESPONSE: Any requirement on routing should not prohibit delivery of radioactive material packages to a consignee who is located in a densely populated area.

COMMENT 21.3: "I draw your attention to the Commission's Final Environmental Statement on the Transportation of Radioactive Material by Air and other Modes as announced in the News Release of January 17, 1978. In this report the Commission concluded that hazards from transportation of radioactive material were small."

STAFF RESPONSE: Although the Final Environmental Statement on the Transportation of Radioactive Material by Air and Other Modes concluded that the risks were small, the consequences of a serious accident involving radioactive material may not be small. Proper emergency response following such accident would reduce consequences.

## 22. Earl Page (Troy, Michigan)

COMMENT 22.1: "The petition appears excessive in two regards. First, if it truly applies to 'radioactive materials of all types,' then many shipments of trivial amounts of radioactive material unrelated to the Nuclear Power Industry would be affected, imposing large economic penalties with negligible benefit."

STAFF RESPONSE: Same as responses to Comments 1.1 and 2.3.



COMMENT 22.2: "Secondly, in the case of highly toxic radioactive material, I would judge that the current packaging methods already in use result in a lower transportation risk than for many other non-radioactive toxic and dangerous materials. Imposing some of the suggested additional safeguards would appear to result in severe discrepancies in treatment of hazardous materials, and it is not clear that the resulting risk would be significantly lowered."

STAFF RESPONSE: Same as responses to Comments 13.5 and 21.1.

COMMENT 22.3: "I know little of the details of the 'recent accident in South-eastern Colorado,' but if it involved only yellowcake, it is difficult to relate it to severe public risk. However, there may be packaging improvements that would make sense for those specific types of shipments."

STAFF RESPONSE: The risk to public health and safety from the transportation of yellowcake is very small. At present, most yellowcake is transported in "strong, tight packages" without any detailed specification or performance criteria. To improve the packaging requirement, the DOT has issued for public comment a proposed rule that would require packages for LSA materials to be designed to withstand prescribed environmental and test conditions for normal transportation. However, assessment of the health and safety consequences of an accidental spill of such material indicates that a requirement for accident resistant packaging is not cost-effective.

COMMENT 22.4: "There would also be some benefit in increased involvement of the states in helping to enforce existing regulations and to adopt emergency plans for all types of hazardous materials in transit where no such plans exist."

STAFF RESPONSE: In a program sponsored jointly by the DOT and the NRC, several States are under contract to conduct surveillance of radioactive material transportation within their jurisdiction and to collect data on various aspects of radioactive material transportation. The DOT and the NRC have recently agreed to shift the emphasis of this program from surveillance to enforcement, whereby



the States will take enforcement action against violators of radioactive material transportation regulations. The NRC is contacting several States to learn if they are interested in such a program. In the area of emergency response to transportation accidents involving radioactive material, the NRC and the DOT are providing guidance and training materials to State and local governments.

23. Karl Amlauer (Isotope Products Laboratories)

COMMENT 23.1: "We believe that if this proposed regulation were interpreted literally it would preclude the use of radioactive materials in many important applications of medicine, research and industry."

STAFF RESPONSE: Same as responses to Comments 1.1 and 2.3.

COMMENT 23.2: "Considering the number of radioactive material shipments made daily the safety record has been extremely good. In our opinion Department of Transportation regulations are more than adequate to provide for public safety."

STAFF RESPONSE: Same as response to Comment 9.1.

24. W. G. Hendrick (Texas Nuclear Division Ramsey Engineering Company, Austin, Texas)

COMMENT 24.1: "The gaps in his logic are amazing. If we needed to supply radioactive material to the west coast without crossing mountainous terrain we would have to ship by boat through the Panama Canal."

STAFF RESPONSE: Same as response to Comment 18.2.

25. W. P. Johnson (Yankee Atomic Electric Company, Westborough, Massachusetts)

COMMENT 25.1: "We fully support and endorse the comments submitted on behalf of the Nuclear Shipper's Group dated January 27, 1978, by their representatives LeBoeuf, Lamb, Leiby and MacRae, 1757 N. Street NW, Washington, D.C. 20036."

STAFF RESPONSE: Same as responses to Comments 5.1 and 5.8.

26. Karl R. Schendel (Westinghouse Electric Corporation, Water Reactor Division, Pittsburgh, Pennsylvania)

COMMENT 26.1: "We also note that the Commission has recently issued NUREG-0170, 'Final Environmental Statement on the Transportation of Radioactive Material By Air and Other Modes.' This document, in paragraph 8-e of the Summary and Conclusions portion, states that the NRC staff has determined that the environmental impacts of normal transportation of radioactive materials and the risks attendant to accidents involving radioactive shipments are sufficiently small to allow shipments by all modes."

STAFF RESPONSE: Same as response to Comment 21.3.

27. Donald C. Stephens (Industrial Nucleonics, Columbus, Ohio)

COMMENT 27.1: "The petition approaches a single administrative agency to single out one class of hazardous material and categorically requires special restrictions of 'all types' of radioactive materials in that class without regard to its relation to all other hazardous material. To promulgate such a rule would be highly discriminatory and places an unnecessary and unjustified competitive burden on all radioactive material."

STAFF RESPONSE: Same as response to Comment 2.5.

COMMENT 27.2: Finally, the petition is inappropriate because it is unnecessary. It is illogical to conclude from a single incident, which did not result in any significant injury to the public, that a system of control, under which there has never been a significant injury to the public, is 'wholly inadequate.' Indeed, the record is clear that the hazards associated with the transport of radioactive material have been more effectively controlled than any other transportation hazards. Now is not the time to punish this industry for such a fine record by increasing the complexity of its regulatory burden and its costs of doing business."

STAFF RESPONSE: Although safety records for transportation of radioactive material have been good, there is a possibility that radioactive material could be released from packages under severe accident conditions. Proper emergency response will reduce the consequences of such an accident.

28. Terence J. Sullivan (Consumers Power Company, Jackson, Michigan)

COMMENT 28.1 "Response to an emergency situation requires locally-trained individuals under the control of appropriate enforcement agencies. As such,

the requirement of each licensee maintaining an emergency plan for his transport of radioactive material is unworkable, ineffective and may lead to a lack of response by appropriately trained individuals first on the scene of any such emergency."

STAFF RESPONSE: Same as response to Comment 6.6.

COMMENT 28.2: "Licensees generally lack authority to take any action regarding emergencies not on their property. To stipulate emergency plan actions for accidents occurring remote from a licensee's location may be an unenforceable requirement."

STAFF RESPONSE: In general, licensees (or carriers) do not have authority to take emergency actions such as conducting a survey or cleaning up spilled materials on properties belonging to a third party. However, the State or local emergency service personnel usually do have such authority. When approved or requested by State or local authorities, the licensee (or carrier) may take such action under the authority of the State or local government.

COMMENT 28.3: "We believe these state capabilities, plus the availability of ERDA radiological assistance teams, adequately cover any concerns by the petitioners."

STAFF RESPONSE: Same as response to Comment 6.4.

29. R. I. Newman (Allied Chemical, Morristown, New Jersey)

COMMENT 29.1: "Requirements should fully reflect and be based on two principal factors: a. The degree of likelihood of a release of radioactive material related to the ability of the container to resist the effects of a credible accident and to continue to provide its intended confinement capability. Important to this consideration is not only the testing which containers have undergone but also real accident experience with such containers. b. The potential hazard to the public if contained material should be released. For instance, materials such as small shipments of radiopharmaceuticals or, more importantly, material defined as 'low specific activity' (LSA) might appropriately be excluded."

STAFF RESPONSE: Same as responses to Comments 2.3 and 2.4.

30. Leo Macklin (Atomic Industrial Forum, Inc., Subcommittee on Transportation, Washington, D.C.)

COMMENT 30.1: "We recommend the petition of rulemaking be denied in its entirety. The Transportation Subcommittee members are actively engaged in the transportation of all types of radioactive materials and are completely familiar with the existing system of rules and regulations applicable to the packaging and transportation of radioactive materials; we believe firmly that this existing system is completely adequate and has been proven over many years to provide safe transportation of radioactive materials. We are not aware of any transportation accident of any kind which has resulted in a fatality or in any perceptible injury due to the radiological aspects of the shipment."

STAFF RESPONSE: Same as responses to Comment 14.2.

COMMENT 30.2: "The current regulations recognize that accidents will occur and require that a package be capable of withstanding increasingly severe accident conditions as the radioactivity of the contents increases. The packages meet the regulations which are intended to preclude any release where there would be a hazard to the public."

STAFF RESPONSE: Same as response to Comment 2.4.

COMMENT 30.3: "Elimination of shipments of irradiated material through densely populated areas would be an unjustifiable threat to medical research and treatment as well as to the future of nuclear generating stations, which are required to an increasing extent to meet our growing electrical energy needs."

STAFF RESPONSE: Same as response to Comment 1.1.

COMMENT 30.4: "The adoption of emergency plans for transportation accidents as requested by petitioners is unnecessary. The Department of Energy has eight operations offices throughout the country with trained radiation emergency teams. These Radiological Assistance Program teams can be dispatched quickly to the scene of an accident and can call on local agencies and the military for assistance if required. In addition nuclear facilities have emergency response capabilities which can supplement those available from the Radiological Assistance Program and many large shippers have emergency response plans in effect. The location and availability of the emergency response teams from DOE, facilities and shippers provide adequate coverage throughout the U.S."

STAFF RESPONSE: Same as response to Comment 6.4.

COMMENT 30.5: "The semi-annual drills with local and state law enforcement officials as requested by the petitioners would not be cost effective. The hundreds of licensees who ship material when multiplied by the many hundreds of local jurisdictions through which shipments pass would result in thousands of semi-annual drills."

STAFF RESPONSE: Same as response to Comment 8.6:

COMMENT 30.6: "The costs of recovery from the consequences of any accident are provided by conventional insurance and nuclear liability and property damage insurance. In many cases the Price-Anderson indemnification agreement of either the consignor or the consignee automatically provides additional coverage for the radiological consequences of an accident. Interstate Commerce Commission regulations require motor carrier to carry specified amounts of insurance. Additional regulations are not required."

STAFF RESPONSE: Public Law 96-296, "Motor Carrier Act of 1980," requires the Secretary of Transportation to impose minimum levels of financial responsibility on carriers who transport hazardous materials, including radioactive materials. A final rule on minimum levels of financial responsibility for motor carriers transporting hazardous materials was published by the DOT on June 11, 1981 (46 FR 30974). For Price-Anderson coverage, see response to Comment 3.2.

31. H. P. Williams, J. A. Werling, R. Mefuie, Jr.

COMMENT 31.1: "We frankly find this request purely another effort at obstructing other citizens labors at resolving the nation's impending energy crisis while satisfying only their obsession against nuclear power. We do not believe the hazards to the public presented by the transportation of radioactive material, with the exception of special nuclear material having the capability of achieving critical mass, are any greater than any non-radioactive toxic or otherwise classified hazardous materials. It is our considered opinion that the Department of Transportation has performed quite capably in this area relative to the transportation of toxic materials (assisted by other agencies, where applicable) and that the citing of the Colorado accident is less than poor justification for responding to this collection of usurping special interest groups."

STAFF RESPONSE: Same as response to Comment 27.2.



COMMENT 31.2: "We agree acceptable emergency plans should exist as developed by carriers to deal with all toxic materials regardless of whether they are radioactive or non-radioactive. The only specificity to the transportation of radioactive material should apply to that material capable of achieving critical mass and, from a security standpoint only, to that radioactive material which, if in the control of malevolent individuals, could be inimical to the national defense."

STAFF RESPONSE: Same as response to Comment 2.5.

COMMENT 31.3: "The requirement of special routing and liability we believe should be applicable to transporters regardless of the material being transported and are not unique to the nuclear industry (which is what appears to be the deliberate implications in this petition)."

STAFF RESPONSE: Same as response to Comment 2.5.

COMMENT 31.4: "We firmly believe that legislative bodies and particularly regulatory agencies must seek out the opinions of the general public whom they serve and be particularly vigilant to avoid both the blunt and the subtle surreptitious tactics and approaches of all special interest groups (pro or anti-nuclear or any other organizations that would usurp the general public's voice)."

STAFF RESPONSE: It is the NRC's policy and practice to actively seek the opinions of the general public on regulatory matters. All public comments are considered in making regulatory decisions.

32. William J. Cahall, Jr. (Consolidated Edison Company of New York, Inc., New York, NY)

COMMENT 32.1: "The proposed regulations are unnecessary. Current Laws and Regulations of federal agencies (Department of Transportation and Nuclear Regulatory Commission) are adequate to ensure the safety of shipments of radioactive materials and the health, safety and financial protection of the public."

STAFF RESPONSE: Same as response to Comment 27.2.

COMMENT 32.2: "The emergency response to transportation accidents and coordination of enforcement agencies are clearly governmental functions. NRC special response groups are available immediately. It is duplicative and wasteful of resources to require each licensee to have its own organization. The number of such incidents which can be expected is small; the number that would occur to the shipments of any one licensee is quite a bit smaller. There is no



justification for the existence of a hundred or so private response groups or coordinators in addition to the governmental ones."

STAFF RESPONSE: Same as responses to Comments 1.4 and 8.5.

COMMENT 32.3: "The requirement that both or either densely populated areas and mountainous terrain be avoided is likely to be a practical impossibility. It is not warranted by any reasonable safety evaluation. Furthermore, the NRC's policy of assuring the integrity of the transportation container provides better protection to the public than the suggested notion of rigid criteria for shipment routes."

STAFF RESPONSE: Same as responses to Comments 14.2 and 2.4.

33. James P. Hogan (General Atomic Company, San Diego, California)

COMMENT 33.1: "In any event, since the licensees have almost no power to control carriers, we submit that such regulations as those proposed be applied to the carriers only."

STAFF RESPONSE: Same as response to Comment 8.5.

COMMENT 33.2: "The first of the four enumerated proposed conditions--requiring the use of special routes--is wholly impractical and dangerous. The safest road available in the United States are the Interstate highways. Many pass directly through densely populated areas. To avoid such areas, the petitioners would have radioactive material travel over narrow country roads, or worse bridges, which were never designed to carry the large, heavily laden trucks required to move such a cargo as a spent fuel cask."

STAFF RESPONSE: In the DOT's rule on highway routing of radioactive materials, interstate highways are designated as preferred highways. However, if preferred highways are available both through a city and around the city, the preferred highway around the city should be used.

COMMENT 33.3: "Also, mountainous terrain cannot always be avoided. For example, any shipment of reactor fuel from our own fuel fabrication facilities in San Diego to any destination other than one in a portion of coastal Southern California requires movement through some mountainous terrain."

STAFF RESPONSE: Same as response to Comment 18.2.

COMMENT 33.4: "The suggested semi-annual drills would be impossible to organize. Since we are not aware of the location of a future transportation accident, such drills would presumably have to be conducted with law enforcement officials of all 50 states and hundreds or thousands of municipalities. Current and proposed regulations and license conditions may already overburden some local law enforcement agencies with liaison and coordination activities."

STAFF RESPONSE: Same as response to Comment 8.6.

COMMENT 33.5: "The fourth condition is gratuitous. Radioactive materials are clearly marked, and drivers of transporters of nuclear materials are specially trained and well aware of the nature of the material carried."

STAFF RESPONSE: Same as response to Comment 1.5.

34. J. E. Gilleland (Tennessee Valley Authority, Chattanooga, Tennessee)

COMMENT 34.1: "The use of special routes to avoid sending radioactive shipments through densely populated areas would require the use of less desirable highways. This would have undesirable results since it would likely increase the difficulty of getting expert radiological, medical, and fire assistance to the accident scene; and increase the distance that carriers must travel with a concomitant increase in the chance of an accident. This trade-off is not justifiable."

STAFF RESPONSE: Same as response to Comment 3.1.

COMMENT 34.2: "In addition, we do not believe the use of special routes to avoid densely populated and mountainous areas to be a concern since transportation cask construction and cask integrity test programs have been proven reliable during accident situations. Furthermore, low-level wastes which are commonly transported in 55-gallon drums or other DOT-approved containers present no significant radiological hazard during accident conditions because of their very low specific activity."

STAFF RESPONSE: Same as responses to Comments 2.3 and 2.4.

COMMENT 34.3: "If each licensee is required to conduct semiannual drills with each state through which it ships radioactive materials, the number of drills conducted each year could become excessive, unduly redundant, and costly both to the licensee and to state governments. State agencies with primary traffic law enforcement or public health and safety responsibilities should have trained manpower to respond to any emergency."

STAFF RESPONSE: Same as response to Comment 3.6.

COMMENT 34.4: "A shipping accident and the resulting dispersal of radioactive material are presently covered by the Price-Anderson Act. Under this act no separate insurance contracts or indemnity agreements are issued to cover liability arising from the transportation of nuclear materials. Carriers are covered, however, by the 'omnibus' provision in licensee financial protection contracts and by the indemnity agreement. As noted in the September 20, 1976, Federal Register (41 FR 40515), the NRC has completed a review of transportation coverage and has determined that the public is adequately protected by the present system."

STAFF RESPONSE: Same as response to Comment 3.2.

COMMENT 34.5: "We agree that the drivers of the vehicles should be aware of the nature of the cargo and what actions to take in an emergency."

STAFF RESPONSE: Same as response to Comment 1.5.

35. John R. Dukes (American National Standards Institute Committee N43-3.2., Classification of Industrial Ionizing Radiation Gauging Devices, Columbus, Ohio)

COMMENT 35.1: "We feel that the present regulations for transportation of radioactive materials, as used in our industry, are quite adequate and will assure continued safety to the public. We find Mr. Pollock's proposal to restrict 'transportation of radioactive materials of all types to insure that such shipments avoid densely populated areas and mountainous terrain' to be totally unacceptable. It is unnecessary from a safety standpoint and it represents an undue administrative and economic burden on all involved."

STAFF RESPONSE: Same as response to Comment 1.1.

COMMENT 35.2: "Finally, a 'plan to inform the drivers of the vehicles about the nature of the material they are shipping' already exists in the DOT regulations. This includes instructions for drivers, identification of the nature of the material on the shipping papers, and distinctive warning labels with descriptive information on each package containing radioactive material."

STAFF RESPONSE: Same as response to Comment 1.5.

36. H. L. Cook (Ohmart Corporation)

COMMENT 36.1: "The petitioners make no distinction between high level radioactive materials such as spent fuel elements and the relatively low level materials, such as those described above, used by manufacturers of gaging devices."

STAFF RESPONSE: The staff agrees that in considering emergency response and routing requirements, this factor should be taken into account. Also see response to Comments 1.1 and 2.3.

37. Walter P. Peeples, Jr. (Gulf Nuclear, Inc., Houston, Texas)

COMMENT 37.1: "Concerning the transportation of all types of radioactive materials [the petition] seems to be out of order because despite the fact that radioactive materials are governed, in licensing and use, by the U.S. Nuclear Regulatory Commission, the transportation of all radioactive materials comes under the jurisdiction of the Department of Transportation, Hazardous Materials Branch."

STAFF RESPONSE: Same as response to Comment 2.6.

COMMENT 37.2: "The petitioning groups should be informed that present Department of Transportation laws require that certificates be presented to carriers of any type identifying all hazardous materials, including radioactive materials, to be carried. This certificate identified as a 'Shipper's Certification form' is and has been required of all shippers for many years. This form identifies materials, quantities and specific groups of radioactive materials which are grouped for identification as well as toxicity."

STAFF RESPONSE: Same as response to Comment 1.5.

38. Elick H. Acree (Gulf Nuclear, Inc., Houston, Texas)

COMMENT 38.1: "The phrase 'transportation of radioactive materials' includes all radioactive materials. If we look at the extremes, we have wrist watches worn by citizens that contain Tritium ( $H_3$ ) activated dials. This is a radioactive substance and it is being transported. Are they to have special routes and should they avoid populated areas?"

STAFF RESPONSE: Same as response to Comment 1.1.

COMMENT 38.2: "Again, the quantity of radioactive material is the governing factor in assessing the hazard. Transportation rules should also be based on the quantity of radioactive materials and the physical form of the materials. If one set out to establish special routes for the transportation of radioactive materials, who would establish the routes, how could they be marked and maintained, how would it be enforced. The cost of management of these routes would be tremendous and would be passed on to the tax payer and again what is the purpose?"

STAFF RESPONSE: These factors have been considered in the DOT's rulemaking proceeding on highway routing of radioactive materials. The DOT estimated that the costs are expected to be small.

COMMENT 38.3: "Item 4 concerning proper information to the driver. Every shipment of radioactive materials must be accompanied by a document that is called a 'Shipper's Certification for Radioactive Materials' which specifies the radioisotope, the quantity, the physical form, the radiation level on the outside of the package and the type of package. What more information could be provided?"

STAFF RESPONSE: Same as response to Comment 1.5.

39. E. J. Hagstette, Jr. (Petroleum Equipment Suppliers Association, Houston, Texas)

COMMENT 39.1: "Therefore, we would simply like to go on record on the point that if the NRC sees fit to issue special regulations for the transportation of nuclear materials, there should be excluded from such regulations the small quantities of radioactive materials used in the logging business -- i.e., quantities of radioactive material which do not exceed the limits set forth in 10 CFR Section 71.4(f)."

STAFF RESPONSE: For highway routing of radioactive materials, the DOT's regulation gives specific provisions for shipments of large quantities of radioactive material. In addition, general provisions are given for shipments that require vehicular placards. If well-logging sources are shipped in packages that do not require Radioactive Yellow III labels, these shipments will be exempt from the proposed routing rule. In the event of a transportation accident involving well-logging sources, there is a possibility that the sources may be displaced



from the shielded position. Proper emergency response procedures would be required to avoid unnecessary exposures.

40. Andrew J. Cassell (Nuclear Research Corporation, Southampton, Pennsylvania)

COMMENT 40.1: "It appears totally unfair that this document should be directed toward radioactive material only, thereby putting the burden to a segment of industry which represents a very small portion of 'Transportation of Hazardous Material.'"

STAFF RESPONSE: Same as response to Comment 2.5.

COMMENT 40.2: "Consideration should be given to the over-all cost placed on the shipper. In almost all cases, freight costs are incurred by the shipper and when you add the additional tariff of special handling, special routing and increased shipper's financial responsibilities, the present cost of shipping could be escalated to an impossible situation."

STAFF RESPONSE: In considering requirements on routing or on emergency response, cost to the industry must be taken into account. As stated in the DOT's rule on highway routing of radioactive materials, the costs are expected to be small.