

Docket No. 50-220
and 50-410

JAN 19 1988

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The Honorable Frank Horton
Member, United States
House of Representatives
314 Kenneth B. Keating
Federal Building
Rochester, New York 14614

Dear Congressman Horton:

This is in response to your December 7, 1987 letter to Mr. John Bradburne, Director, Office of Congressional Affairs, Nuclear Regulatory Commission, concerning the two letters of October 29, 1987, that you received from your constituents, Barb Stanski and Larry Munger (Enclosure 1).

In response to the concerns raised in these two letters, I have enclosed two papers dealing with the handling of nuclear waste: "Transportation of Nuclear Fuel and Waste" (Enclosure 2), and "Onsite Storage and Handling of Spent Fuel" (Enclosure 3).

In addition to the information provided in Enclosures 2 and 3, two additional points of clarification should be made. First, no nuclear waste is shipped to the Nine Mile Point facility. Only low-level waste is shipped from the facility. Second, in the United States three facilities are licensed to receive and dispose of low-level nuclear waste. These are located in Barnwell, South Carolina; Beatty, Nevada; and Richland, Washington. While the NRC is not involved in the licensee's decision as to which of these facilities it utilized, it is my understanding that the majority of low-level waste from Nine Mile Point is shipped to Barnwell.

I trust that this information is responsive to your request. If I may be of any further assistance, please contact me.

Sincerely,
(Signed) T. A. Rehm
for Victor Stello, Jr.
Executive Director
for Operations

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Enclosures:

1. Letters from Ms. Barb Stanski and Mr. Larry Munger dated October 29, 1987
2. Paper entitled "Transportation of Nuclear Fuel and Waste"
3. Paper entitled "Onsite Storage and Handling of Spent Fuel"

* SEE PREVIOUS CONCURRENCE

PDI-1	PDI-1	Tech Ed*	D:PDI-1	AD:DRP	D:DRP
CVogan*	JRidgely*		RCapra*	BBoger*	SVarga*
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MR. FRANK HORTON
ROCHESTER OFFICE

3 Centre Street

Rochester, N.Y. 14609

NOV 23 1957

10:00 AM '57

RECEIVED
Congressman Frank Horton
House of Representatives
Washington, D.C. 20515

Dear Mr. Horton:

I am writing in concern of the Nuclear waste problem in Oswego County and would like some more information on the subject.

I would first like to know how it has been handled up to this point, I would also like to know the means in which it is being transported from and to the nine-mile plant and the precautions which are being taken.

Please return information as soon as possible. Thank you for your time.

Sincerely,
Dorothy Winger
Local Council



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1856 MILLER ROAD
MILLTON, N.Y. 13069

CONG. FRANK HORTON
ROCHESTER OFFICE

NOV 23 1987

RECEIVED

OCTOBER 29, 1987

CONGRESSMAN HORTON;

I am writing due to the safety of residents in the Oswego County area. I am interested in how nuclear waste is transported from the NINE MILE-1 Nuclear Power Plant. I would like to know if safety precautions are being used when the waste is being transported? And to where is it transported? I hope you can help me in answering my ques-tions, thank you for your time.

Cordially yours,
Burt A. Stanski
Burt A. Stanski

ENCLOSURE 1



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TRANSPORTATION OF NUCLEAR FUEL AND WASTE

The transportation of nuclear fuel and waste is regulated by the Department of Transportation (DOT) and by the Nuclear Regulatory Commission (NRC).

The DOT regulations are provided in Title 49 of the Code of Federal Regulations (49 CFR), Parts 170-189, "Hazardous Materials Regulations." These regulations are applicable to persons who ship radioactive materials and to carriers of radioactive material. Shippers, such as the Department of Energy (DOE), package and offer such materials for transportation; carriers load and transport such materials. The NRC regulations are provided in 10 CFR Part 71, "Packaging and Transportation of Radioactive Material" and in 10 CFR Part 73, "Physical Protection of Plants and Materials." These regulations are applicable to licensees¹ who deliver licensed material to a carrier for transport or transport the material outside the licensee's facility. The regulations also provide the safeguards to ensure the security of designated shipments against sabotage and protection to transport workers and the general public from the hazards of radiation.

In addition, the Federal Emergency Management Agency is responsible for coordinating Federal and State participation in developing emergency response plans for radiological incidents. Federal assistance for radiological protection in the event of an accident is available through DOE. DOE maintains teams of technically trained nuclear safety specialists at about 30 sites throughout the country.

Primary reliance for safety in transportation of radioactive material is placed on the packaging. The DOT regulations prescribe general standards and requirements for all packages of radioactive material and for handling and storage of those packages by carriers. For packages that contain no significant fissile radioactive material and only small quantities of other radioactive materials, the DOT standards and requirements provide adequate assurance of containment and shielding of the radioactive material. While these small quantity packages, termed Type A packages, may fail in an accident situation, the radiological consequences would be limited because of the limited package contents.

When the radioactive content of a package exceeds the small Type A quantity limit, it may only be transported in a Type B package, one which will survive transportation accidents. A Type B package must be designed to withstand a series of specified impact, puncture, and fire environments, providing reasonable assurance that the package will withstand most severe transportation accidents. The design for Type B packages must be independently reviewed by the NRC engineering staff to verify its accident resistance. Finally, a certificate

¹ "Licensee" means a person who is authorized to conduct activities under a license or construction permit issued by the Commission (10 CFR §2.4(j)).



must be issued by the NRC before a Type B package fabricated from that design can be used by a licensee to transport radioactive material.

The standards which have been established in the DOT and NRC regulations provide that the Type B package shall prevent the loss or dispersion of the radioactive contents, provide adequate shielding and heat dissipation, and prevent nuclear criticality under normal and accident conditions of transportation. The normal conditions of transport that must be considered are specified in the regulations in terms of hot and cold environments, pressure differential, vibration, water spray, impact, puncture, and compression. Accident conditions that must be considered are specified in terms of impact, puncture, and fire conditions.

A licensee who wishes to use a packaging for which the NRC has issued a certificate of compliance must have a quality assurance program that satisfies the applicable NRC regulations and has been approved by the NRC. The licensee also must register with the NRC as a user of a specific packaging and is required to have a copy of the certificate of compliance, packaging drawings, and other documents referenced in the approval relating to the use and maintenance of the packaging and to the actions to be taken before shipment.

Procedures applicable to the shipment of packages of radioactive material require that a package be labeled with a unique radioactive material label. The carrier is required to exercise control over radioactive material packages, including loading and storage in areas separated from persons, and to limit the aggregation of packages to limit the exposure of persons.

The procedures the carrier must follow in case of an accident include notification of the shipper and the DOT, isolating any spilled radioactive material from personnel contact pending disposal instructions from qualified persons, and holding vehicles, buildings, areas, or equipment from service or routine occupancy until they are cleaned to specified values. Radiological assistance teams are available through a Federal interagency program to provide equipment and trained advisory personnel, if necessary, to help manage accidents involving radioactive materials.

The DOT has requirements concerning highway routing and driver training requirements for radioactive material shipments. Under the DOT rule, shipments made by truck would generally follow the most direct interstate route and would be required to avoid large cities where an interstate bypass or beltway is available. States are permitted to designate alternate routes when those routes are demonstrably as safe as the routes specified in the rule. As a related matter, the NRC regulations require timely notification to the governor or his designee of any state prior to transport of potentially hazardous nuclear waste, including spent fuel, to, through or across the boundary of the state. The NRC also approves routes for the shipment of spent fuel, taking into consideration the possibility of deliberate acts to seize or damage the shipment. The physical security requirements to prevent such acts include but are not limited to: driver and escort training, armed escorts through densely populated areas, transport immobilization features, and plans to deal with contingencies.



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Recent studies indicate that approximately 2.5 million packages of radioactive materials are currently being shipped in the United States each year. Within the limitations of the regulatory standards, radioactive materials may be safely transported in routine commerce using conventional transportation equipment.²

To ensure continued adequacy of measures required for the public health and safety, the NRC completed a re-evaluation of its regulations concerning transportation of radioactive materials. In the course of the re-evaluation, the NRC published a final environmental statement designated NUREG-0170 dated December 1977, which included an examination of the transportation of radioactive material by all modes of transport. Considering the information developed, the public comments received, and the safety record associated with the transportation of radioactive materials, the NRC determined that its present regulations provided a reasonable degree of safety and that no immediate changes were needed to improve safety. Nevertheless, the NRC continues to study safety aspects of transportation of radioactive materials to determine where improvements for safety should be made.

² Section 201 of the Energy Reorganization Act as amended by Public Law 94-79 imposes special restrictions on the air transport of plutonium.



ONSITE STORAGE AND HANDLING OF SPENT FUEL

Nuclear fuel that has been inside of the reactor is considered as spent fuel and is handled and stored in such a manner as to prevent the release of radioactivity. When each reactor facility is licensed by the NRC, it is reviewed with respect to the capability of the licensee to safely handle and store spent fuel.

The spent fuel is removed from the reactor and placed into a spent fuel storage facility. The spent fuel storage facility consists, in part, of a concrete pool that is lined with stainless steel to prevent leakage from the pool. Spent fuel storage racks are located on the floor of the pools. These racks are made of stainless steel. Part of the licensing review includes the ability of the spent fuel pool and the spent fuel storage racks to protect the spent fuel from the effects of natural phenomena, such as earthquakes, tornadoes, floods, and hurricanes. The water in the pool, which is kept at a depth approximately 23 feet above the fuel stored in the racks, provides shielding from the radiation emitted by the spent fuel.

Although spent fuel produces heat similar to when it was in the reactor, the heat produced is at a greatly reduced rate. This heat is removed by a spent fuel pool cooling system. The spent fuel pool cooling system is reviewed to ensure that it has sufficient capability to reliably remove this "decay heat" from the spent fuel. This review includes verifying that there are redundant cooling systems and that cooling can be provided even when there is an earthquake, or other event. The spent fuel pool cooling system removes the heat from the spent fuel and passes it on to another cooling system, such as the service water system. One such service water system uses water from Lake Ontario and returns it to the lake. The heat exchanger in the spent fuel pool cooling water system prevents the water in the spent fuel pool from coming into contact with the lake water. Furthermore, the service water system pressure is greater than the spent fuel pool cooling system water pressure, which would result in lake water entering the spent fuel pool system if any leak should develop between the two systems. Thus, radioactive water is prevented from entering the environment.

The spent fuel handling equipment has been reviewed to verify that each component is sufficiently strong so as to be capable of safely handling spent fuel. This strength is discussed either in terms of its safety factor (which is the number of times stronger than is required to handle the load) or the handling device's ability to safely handle fuel with any single component failure.

The licensee's spent fuel handling procedures are reviewed to verify that personnel are properly trained and qualified to handle spent fuel. The procedures specify a specific path to be followed for each load which will minimize the handling of the load. In addition, the fuel handling machine is limited to the speed at which the spent fuel can be raised or lowered and



moved. Furthermore, limit switches are provided which will prevent the spent fuel from being lifted higher than approximately eight feet below the surface of the pool water. This depth is required to provide the proper shielding for the operator and thus the environment. The maximum lifting force that the fuel handling machine can apply to the spent fuel also is limited such that, in the event that a fuel bundle became stuck, the fuel handling machine cannot pull the fuel bundle apart.

The licensee must meet the requirements in Title 10 of the Code of Federal Regulations, Part 50, Appendix A. Additional guidance relating to spent fuel and its storage and handling is contained in NUREG-0800, "Standard Review Plan," Sections 9.1.2, 9.1.3, 9.1.4, and 9.1.5, and in NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants." These documents are available to the public at the NRC's Public Document Room, 1717 H Street, NW, Washington, DC 20555. Arrangements can be made to have these documents sent to the local Public Document Room at the Penfield Library, State University of New York, Oswego, New York 13126.

