

Detroit
Edison

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NRC-90-0170



Nuclear
Operations

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555

- Reference: 1) Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43
- 2) NRC Inspection Report No. 50-341/90018,
dated November 23, 1990
- 3) NRC Notice of Violation, dated
November 30, 1990

Subject: Response to Notices of Violation 90-018-06/07

Attached is Detroit Edison's response to the Notice of Violation (NOV) in References 2 and 3 for failure to perform an adequate radiation survey and exceeding Department of Transportation limits on the contact dose rate on a radioactive materials shipment. The major factor that contributed to the errors in radioactive material shipment preparation was a communication failure between the personnel involved.

Detroit Edison has conducted an investigation and has initiated corrective actions to resolve this matter and to prevent recurrence. The results of the root cause determination are discussed herein. Also included in the response is a discussion of: (1) the reason for the violation; (2) the corrective actions taken and the results achieved; (3) the corrective actions to be taken to avoid further violations; and (4) the date when full compliance will be achieved.

The two violations are related and so have similar root causes and corrective actions, but are addressed individually since they are separate violations.

Should you have any questions regarding this response, please contact Barbara Siemasz, Compliance Engineer, at (313) 586-1683.

Sincerely,

cc: A. B. Davis
R. W. DeFayette
W. G. Rogers
J. F. Steng
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DETROIT EDISON RESPONSE TO
NRC NOTICES OF VIOLATION 90-018-06/07
REGARDING FAILURE TO FOLLOW REGULATORY REQUIREMENTS
RELATED TO SHIPMENT OF RADIOACTIVE MATERIALS

Statement of Violation 90-018-06

"10 CFR 20.201(b) requires that each licensee make such surveys as may be necessary to comply with the requirements of Part 20 and which are reasonable under the circumstances to evaluate the extent of radiation hazards that may be present. As defined in 10 CFR 20.201(a), "survey" means an evaluation of the radiation hazards incident to the production, use, release, disposal, or presence of radioactive materials or other sources of radiation under a specific set of conditions.

Contrary to the above, as of September 17, 1990, when a shipment of radioactive material left the Fermi Plant for Chem-Nuclear System, Inc., Barnwell, South Carolina, the licensee had not made surveys to assure compliance with 10 CFR 20.101 [sic]. Specifically, the licensee failed to perform an adequate radiation survey on the bottom external surface of the box."

Reasons for the Violation:

During mid-September 1990, radioactive materials shipment 90-064 was prepared and shipped to Chem-Nuclear Systems, Inc., Barnwell, South Carolina. This shipment consisted of six boxes containing contaminated equipment used in the control rod processing project. Upon arrival at the receiver, a radiation survey was performed that found one of the boxes having a contact dose rate on the bottom of the box that exceeded Department of Transportation (DOT) limits.

Investigation by Fermi 2 personnel revealed that the final survey performed was not adequate in that the bottom of the box was not appropriately surveyed prior to loading for shipment. In addition, a preliminary survey document was inadvertently included in the final shipping documentation.

The root cause of the failure to perform an adequate radiation survey that included the bottom external surface of the shipping box was a communication failure between personnel involved in shipment preparation. The radiation protection technicians involved in performing the surveys did not effectively communicate what surveys needed completion or who was to complete them. Each assumed that the other would perform or had performed the required surveys, when, in fact, the final survey on the bottom of the box was not completed.

An additional factor was identified that contributed to this incident. Although the radiation protection technicians involved knew what was required to perform the job, proceduralized instructions that clearly defined the tasks necessary to prepare a radioactive materials shipment were lacking.

Corrective Actions Taken and the Results Achieved

Upon discovery, a Deviation Event Report was initiated in order to investigate this event. This investigation determined the root cause of the event and corrective actions.

To emphasize the need for complete surveys, a memorandum was issued to radiation protection personnel that addressed the findings of the investigation and the immediate corrective actions. This memorandum established several immediate requirements for radioactive shipment preparation. They are as follows:

- o All package and vehicle surveys intended to document compliance with shipping regulations shall be labelled appropriately.
- o All such surveys shall receive a supervisory review prior to inclusion as shipment documentation.
- o The supervisor who signs the shipping manifest shall ensure the adequacy of these surveys with respect to regulatory compliance.

In addition, procedure 67.000.103, "Survey of Radwaste Shipment Vehicles", has been revised to include these requirements and to provide detailed instructions for surveying packages and vehicles for radioactive material being shipped via an "Exclusive Use" vehicle. These actions have been effective in precluding a recurrence of this type of event. No problems were identified with shipments made since the memorandum was issued.

Corrective Actions to be Taken to Avoid Further Violation

Personnel assigned to survey radioactive material shipments will receive training on revised procedure 67.000.103. In addition, this event and the lessons learned will be presented to radiation protection personnel in continuing training sessions.

Date When Full Compliance will be Achieved

Detroit Edison is currently in compliance with 10 CFR 20.201.

Training of radiation protection personnel, as described previously, will be completed by the end of February, 1991.

Statement of Violation 90-018-07:

"10 CFR 71.5(a) prohibits transport of licensed material outside the confines of a plant or other place of use, or delivery of licensed material to a carrier for transport, unless the licensee complies with applicable requirements of the regulations, appropriate to the mode of transport, of the Department of Transportation (DOT) in 49 CFR Parts 170 through 189.

49 CFR 173.441(b)(1) requires that each package be prepared such that the radiation level does not exceed 200 millirem per hour at any point on the external surface of the package unless it is transported by exclusive use shipment in a closed transport vehicle.

Contrary to the above, on September 20, 1990, an external surface of a package being transported in an open vehicle had a radiation level of 380 mrem/hr on the bottom external surface."

Reasons for the Violation:

During mid-September 1990, radioactive materials shipment 90-064 was prepared and shipped to Chem-Nuclear Systems, Inc., Barnwell, South Carolina. This shipment consisted of six boxes containing contaminated equipment used in the control rod processing project. Upon arrival at the receiver, a radiation survey was performed that found one of the boxes having a contact dose on the bottom of the box that exceeded DOT limits.

Subsequent investigation by Fermi 2 personnel revealed that the final survey performed was not adequate in that the bottom of the box was not appropriately surveyed prior to loading for shipment. In addition, a preliminary survey document was inadvertently included in the final shipping documentation. The dose rates listed on the preliminary survey for the box were within DOT limits. Based upon this information, the material was authorized for release for shipment. However, the bottom of the box was not checked during this survey.

The root cause for exceeding DOT limits on a contact dose rate for a radioactive materials shipment was a communication failure between personnel involved in shipment preparation. The radiation protection technicians involved in performing the surveys did not effectively communicate what surveys needed completion or who was to complete them. They each assumed that the other would perform or had performed the required surveys, when, in fact, the final survey of the bottom of the box was not completed.

A final survey was performed after the boxes were loaded on the truck. The results of the survey showed that the dose rates at the accessible surfaces were less than 200 mrem/hr, thus meeting the requirement of 10CFR71.47.

An additional factor was identified that contributed to this incident. Although the radiation protection technicians involved knew what was required of them to perform the job, proceduralized instructions that clearly defined the tasks necessary to prepare a radioactive materials shipment were lacking.

Corrective Actions Taken and the Results Achieved:

Upon discovery, a Deviation Event Report was initiated to investigate the event. This investigation determined the root cause of the event and corrective actions.

To emphasize the need for proper surveys, a memorandum was issued to radiation protection personnel that addressed the findings of the investigation and the immediate corrective action. This memorandum established several immediate requirements for radioactive shipment preparation. They are as follows:

- o All package and vehicle surveys intended to document compliance with shipping regulations shall be labelled appropriately.
- o All such surveys shall receive a supervisory review prior to inclusion as shipment documentation.
- o The supervisor who signs the shipping manifest shall ensure the adequacy of these surveys with respect to regulatory compliance.

In addition, procedure 67.000.103, "Survey of Radwaste Shipment Vehicles", has been revised to include these requirements and to provide detailed instructions for surveying packages and vehicles for radioactive material being shipped via an "Exclusive Use" vehicle. These actions have been effective in precluding a recurrence of this type of event. No problems were identified with shipments made since the memorandum was issued.

Corrective Actions to be Taken to Avoid Further Violation

Personnel that are assigned to survey radioactive material shipments will receive training on revised procedure 67.000.103. In addition, this event and the lessons learned will be presented to radiation protection personnel in continuing training sessions.

Date When Full Compliance Will Be Achieved

Detroit Edison is currently in compliance with 10 CFR 71.5(a) and 49 CFR 173.441(b)(1).

Training of radiation protection personnel, as described previously, will be completed by the end of February, 1991.