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September 17, 2002

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318
Reply to a Notice of Violation – NRC Inspection Report 50-317/02-04;
50-318/02-04

REFERENCES:

- (a) Letter from Mr. A. R. Blough (NRC) to Mr. P. E. Katz (CCNPP), dated July 30, 2002, Calvert Cliffs Nuclear Power Plant - NRC Inspection Report 50-317/02-04; 50-318/02-04
- (b) Letter from Mr. H. J. Miller (NRC) to Mr. P. E. Katz (CCNPP), dated August 19, 2002, Final Significance Determination for a White Finding and Notice of Violation at Calvert Cliffs Nuclear Power Plant (NRC Inspection Report 50-317/02-04; 50-318/02-04)

This letter provides Calvert Cliffs Nuclear Power Plant's response to References (a) and (b), which identified a Notice of Violation associated with a white finding. This Notice of Violation involved a failure to adequately prepare a radioactive material shipment to a waste processing facility in a manner such that, under conditions normally incident to transportation, the radiation level at any point on the external surface of the package would not exceed 200 millirem per hour, as specified in the Department of Transportation regulation set forth in 49 CFR 173.441(a). The response to this Notice of Violation is provided in Attachment (1).

Should you have questions regarding this matter, we will be pleased to discuss them with you.

Very truly yours,

A handwritten signature in black ink that reads "Peter E. Katz".

Handwritten initials "JEO" in black ink, slanted upwards to the right.

PEK/MJY/bjd

Attachment: (1) NRC Inspection Report 50-317(318)/02-04; Response to Violation 02-004-01

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cc: J. Petro, Esquire
J. E. Silberg, Esquire
Director, Project Directorate I-1, NRC
D. M. Skay, NRC

H. J. Miller, NRC
Resident Inspector, NRC
R. I. McLean, DNR

ATTACHMENT (1)

NRC INSPECTION REPORT NO. 50-317(318)/02-04

RESPONSE TO VIOLATION 02-004-01

ATTACHMENT (1)

**NRC INSPECTION REPORT NO. 50-317(318)/02-04
RESPONSE TO VIOLATION 02-004-01**

10 CFR Part 71.5, "Transportation of Licensed Material," requires, in part, that licensees who transport licensed materials outside the site of usage or on public highways comply with the requirements in 49 CFR Parts 170 through 189.

49 CFR Part 173.441(a), "Radiation Level Limitations," requires, in part, that each package of Class 7 (radioactive) material offered for transportation be designed and prepared for shipment, so that under conditions normally incident to transportation, radiation levels do not exceed 200 millirem per hour at any point on the external surface of the package.

Radiation Safety Procedure (RSP)-2-204, "Packaging, Labeling, and Shipment of Radioactive Materials," was used to prepare Radioactive Material Shipment 02-087 for shipment to a vendor's waste processing facility in Oak Ridge, Tennessee. RSP-2-204, Section 6.8.L requires the Preparer of LSA packages to "BRACE or CUSHION the material to ensure that, under conditions normally incident to transport, the package does not exceed the following DOT [Department of Transportation] dose rates on the external surface of the package:

- 1. 200 mrem/hr (2.0 mSv/hr) under the following conditions:
 - a. Package is secured within the vehicle, so that its position remains fixed during transportation."**

Contrary to the above, on May 28, 2002, personnel at the vendor waste processing site notified Calvert Cliffs Nuclear Power Plant, Inc. (CCNPP) personnel that shipment 02-087 had been received with a dose rate greater than 200 millirem per hour on contact with the container.

REASON FOR THE VIOLATION

Failure to properly prepare Radioactive Material Shipment 02-087 to ensure that, under conditions normally incident to transportation, the package did not exceed the DOT dose rate limit of 200 millirem/hour on the external surface of the package was the result of human error. Shipment 02-087 was surveyed and independently verified to be in compliance with DOT dose rate limits prior to release from CCNPP on May 23, 2002. Subsequent investigation at the vendor's facility by vendor personnel revealed that some radioactive material (RAM) bags in the shipment contained shielded material within the bag that exhibited higher dose rates than were recorded on the outside of the bags. Movement of the material within the bag to a position closer to the external surface of the package (the sealand trailer) is suspected as the cause for the increase in dose rates after the shipment was released from CCNPP.

CORRECTIVE STEPS THAT HAVE BEEN TAKEN AND RESULTS ACHIEVED

The following compensatory actions have been taken to address the cause of this violation and prevent future occurrences.

1. Upon notification of the violation, CCNPP immediately requested the vendor to quarantine the shipment to allow our personnel the opportunity to verify conditions and assess the package in support of a root cause analysis. This action was not effective because the vendor failed to maintain quarantine on the shipment and the trailer was partially unloaded when CCNPP personnel were provided initial access. The result of this action was the loss of our ability to verify conditions and assess the specific cause of the violation.
2. All waste shipments involving materials with dose rates greater than 100 mrem/hr were suspended to prevent recurrence until a root cause analysis was performed and corrective actions were in place. This action has been effective in preventing further violations specific to DOT dose rate limits. It has not been effective in preventing further incidents relative to movement of package contents after

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release from CCNPP. On July 12, 2002, a radioactive waste shipment of structural steel and dry active waste was received from CCNPP by the same waste processing vendor with a 2" x 2" hole in the outside of the package. Dose rates external to the package on this shipment were the same at the vendor as when the shipment left CCNPP. Movement of unbraced structural steel has been identified as the immediate physical cause of this second event. The root cause analysis for this second event is still ongoing and is tasked at looking for generic implications between these two events. Additional corrective measures have been taken in response to this event, including suspension of all radioactive material shipments except as necessary for operation of the plant until implementation of program enhancements to further improve performance.

3. Effective June 6, 2002, all dry active waste with contact dose rates greater than 150 millirem/hr has been, and continues to be, segregated for special handling by radiation safety waste processing personnel. This action, in concert with the suspension of high radiation waste shipments, has been effective in preventing the recurrence of DOT shipment dose rate violations.

Additionally, the following additional corrective measure has been put in place to prevent further violations of this type.

Special, easily identified bags have been obtained and placed in service to identify higher dose rate materials (greater than 150 millirem/hr). This action will ensure radioactive waste processing personnel can readily identify higher dose rate sources during shipment loading and properly position items to ensure compliance with 49 CFR and station procedures.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

1. Training will be developed and presented on the root cause of this event. This training will include the reasons for missing small sized sources of radiation and the potential consequences. A skill test will be included that evaluates the ability of technicians to properly find and identify potential point source items.
2. The Waste Handling Plan will be modified to require a survey of all bags as they are loaded into a preliminary waste-shipping container. Additionally, the use of special, easily identified bags to clearly identify higher dose rate items will be defined in the Waste Handling Plan.
3. The initial and continuing radiation safety technician training program will be modified to include training on the implications of small sources with high dose rates on the shipping program.
4. An Effectiveness Review will be performed on the completed corrective actions identified in the root cause analysis. Effectiveness will be measured by:
 - Checking the corrective action system for indications of improperly bagged high dose rate items.
 - Performing comparisons with the vendor on "as-released" and "as-received" dose rates of shipping containers.
 - Performing spot check surveys on low dose rate bags to determine if higher dose rate items are not being placed into the specially marked high dose rate bags.
5. Radiation Safety staff will re-evaluate and determine the appropriate survey meters to be used on primary system work.

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6. Staff Plant Health Physicists will be trained or coached to examine appropriate operating experiences more critically.
7. Survey instrumentation identical to that used by the vendor will be purchased and trained on by radioactive material processing personnel for performing future 49 CFR compliance measurements.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Calvert Cliffs is currently in compliance with 49 CFR Part 173 and 10 CFR Part 71.5 with regard to radioactive material shipments. Compensatory actions are in place to prevent further violations. Corrective actions are planned to improve performance and bases capture the need for each action planned.