UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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September 6, 2002

EA-02-123

R. T. Ridenoure
Division Manager - Nuclear Operations
Omaha Public Power District
Fort Calhoun Station FC-2-4 Adm.
P.O. Box 550
Fort Calhoun, Nebraska 68023-0550

SUBJECT: FORT CALHOUN STATION - NRC SUPPLEMENTAL INSPECTION REPORT 50-285/02-10

Dear Mr. Ridenoure:

On May 17, 2002, the NRC completed a supplemental inspection at your Fort Calhoun Station. The enclosed report documents the inspection findings, which were discussed on August 28, 2002, with Mr. Phelps, Division Manager, Engineering, and other members of your staff at the completion of the inspection.

NRC Inspection Report 50-285/02-08 documented a preliminary White finding and apparent violation that involved the failure to prevent radiation levels from exceeding the Department of Transportation limits at any point on the external surface of a radioactive waste shipment package. On July 30, 2002, the NRC issued its Final Significance Determination and Notice of Violation for NRC Inspection Report 50-285/02-08. The significance of the violation was determined to have low to moderate (White) importance to safety when processed through the public radiation safety significance determination process.

This supplemental inspection was conducted to provide assurance that the root cause and contributing causes of the White finding were understood, the extent of conditions was identified, and the corrective actions for risk significant performance issues were sufficient to address the cause and prevent recurrence. To accomplish these objectives, the inspector reviewed your root cause analysis, evaluation of extent of condition, and corrective actions.

Based on the results of this inspection, the NRC determined that the identification of the root causes, contributing causes, and corrective actions associated with the White finding were comprehensive and broad-based.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/RA/

Elmo E. Collins, Director
Division of Reactor Safety

Docket: 50-285
License: DPR-40

Enclosure:
NRC Inspection Report No.
50-285/02-10

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket:	50-285
License:	DPR-40
EA No.	EA-02-123
Report No:	50-285/02-10
Licensee:	Omaha Public Power District
Facility:	Fort Calhoun Station
Location:	Fort Calhoun Station FC-2-4 Adm P.O. Box 399, Hwy. 75 - North of Fort Calhoun Fort Calhoun, Nebraska
Dates:	August 26-28, 2002
Inspector:	Daniel R. Carter, Health Physicist
Approved By:	Elmo E. Collins, Director Division of Reactor Safety

SUMMARY OF FINDINGS

Fort Calhoun Station
NRC Inspection Report 50-285/02-10

IR 05000285-02-10; Omaha Public Power District; on August 26-28, 2002; Fort Calhoun Station; IP 95001; Supplemental Report.

The inspection was conducted by a regional health physics inspector. The inspection identified no findings of significance. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

Cornerstone: Public Radiation Safety

- This supplemental inspection was performed by the NRC to assess the licensee's evaluation of a finding involving processing and transportation of radioactive material. A finding previously characterized as having low to moderate safety significance (White) was documented in the Final Significance Determination for NRC Inspection Report 50-285/02-08. During this supplemental inspection performed in accordance with Inspection Procedure 95001, the inspector determined that the licensee performed a thorough, broad-based evaluation of the causes of the radioactive material processing and transportation issue and correctly identified the extent of the conditions that led to the shipping problem. The licensee's evaluation identified one root cause and two contributing causes. Corrective actions included: (1) procedural revisions that implement a formal radioactive waste load plan that is commensurate with the susceptibility of the material shifting during transport; (2) implementation of a formal method of tracking and controlling the location within the container commensurate with the radiological risk (dose rate) of radioactive materials being packaged for shipment; (3) the requirement that the Manager-Radiation Protection will approve all radioactive waste shipment releases excluding limited quantity shipments; (4) the requirement that all shipments, except limited quantity shipments, have two independent exit surveys performed; and, (5) the performance of an effectiveness review of implemented corrective actions to be completed by December 15, 2002.

  Because of the licensee's acceptable performance in addressing the processing and transportation of radioactive material, the White finding associated with this issue will only be considered in assessing plant performance for a total of four quarters, in accordance with the guidance in IMC 0305, "Operating Reactor Assessment Program."

Report Details

01 Inspection Scope

This supplemental inspection was performed to assess the licensee's evaluation of the root causes, contributing causes, and corrective actions associated with the "White" radioactive material processing and transportation finding. This performance issue was previously characterized as "White" in the Final Significance Determination for NRC Inspection Report 50-285/02-08 and is related to the public radiation safety cornerstone in the radiation safety strategic performance area.

The inspector interviewed radiation workers and reviewed the following documents and compared them to regulatory and licensee requirements:

- Condition Report 2002-01009 and associated root cause evaluation which documented the radioactive material processing and transportation issue identified in NRC inspection report 50-285/02-08,

- Station Procedures RW-300, "Shipping Radwaste and Radioactive Materials," Revision 7; RW-304, "Radwaste Shipments to Barnwell," Revision 7, and RW-315, "Shipments to Vendor Processing Facility of Radioactive Materials," Revision 4,

- Standing Order SO-R-2, "Condition Reporting and Corrective Action," Revision 20; Nuclear Operations Division Procedure NOD-QP-19, "Cause Analysis Program," Revision 22; and Corrective Action Group "Root Cause Analysis Guideline," Revision 0,

- Radiation Protection Cycle 2 continuing training Industry Events.

02 Evaluation of Inspection Requirements

02.01 Problem Identification

a. Determine that the evaluation identifies who (i.e. licensee, self revealing, or NRC), and under what conditions the issue was identified.

The licensee documented the event; however, the event was self revealing in that the licensee received a phone message from its waste processing vender stating that shipment FCS-NW-02-08 exceeded regulatory limits. The NRC was notified of the event by the State of Tennessee after the state was contacted by the waste processing vendor.

b. Determine that the evaluation documents how long the issue existed, and prior opportunities for identification.

The evaluation documented that the licensee was notified of the event on April 24, 2002, the day the shipment arrived at the waste processing vendor. The shipment departed the licensees facility on April 22, 2002. The evaluation determined that this was the first time this type of event had happened.

c. Determine that the evaluation documents the plant specific risk consequences (as applicable) and compliance concerns associated with the issue.

A plant specific probabilistic risk assessment is not applicable to this radioactive material transportation finding. However, the evaluation did determine that nuclear safety was not impacted by the event and that neither the driver's safety nor public safety were compromised during the shipment due to the location of the radiation source. The evaluation identified that the licensee's procedures incorporated regulatory requirements, and in some cases implemented procedural limits more restrictive to ensure that regulatory limits are not exceeded.

02.02 Root Cause and Extent of Condition Evaluations

a. Determine that the problems were evaluated using a systematic method(s) to identify root cause(s) and contributing cause(s).

The inspector concluded that the root cause analysis was performed in a systematic manner which correctly and completely determined the root cause and contributing factors. The evaluation team performed the root cause analysis using an industry accepted methodology which employed the following techniques: records review, personnel interviews, and barrier analysis.

The licensee's root cause evaluation identified one root cause and two contributing causes. The evaluation determined that the root cause was the failure to package radioactive material within the sea/land container in such a manner that it could not shift during transport. Contributing causes were failures to: (1) establish a formal loading plan that requires an increasing level of management oversight for materials that have a higher risk of shifting during transport, and (2) implement a formal method of documenting the location of more highly radioactive materials within the container.

The inspector determined that the above root cause evaluation was performed in accordance with Station Procedure NOD-QP-19, "Cause Analysis Program," Revision 22, and "Root Cause Analysis Guideline," Revision 0.

b. Determine that the root cause evaluation was conducted to a level of detail commensurate with the significance of the problem.

The root cause evaluation detailed the performance of a safety evaluation of the event. The safety evaluation determined neither the shipment driver nor public safety were compromised during the shipment. The inspector determined that the root cause evaluation focused on the overall event and was conducted to the appropriate level of detail commensurate with the significance of the problem. The evaluation was thorough, broad-based, and conducted to a sufficient level of detail to enhance the radioactive material processing and transportation program.

c. Determine that the root cause evaluation included a consideration of prior occurrences of the problem and knowledge of prior operating experience.

The inspector concluded that the root cause evaluation considered similar events associated with the problem of radioactive material processing and transportation for the past two years. From a review of the evaluation and discussions with the licensee's

staff the inspector determined that industry experience was reviewed to help improve their program.

d. Determine that the root cause evaluation included consideration of potential common cause(s) and extent of condition of the problem.

The licensee's evaluation considered the potential common causes and extent on the conditions associated with the processing and transportation of radioactive material. Common causes included no formal loading plan for the loading of elevated dose rate items in a sea/land container, and the tracking of radioactive material placed in the sea/land container was informal and not diligently maintained.

The root cause evaluation extent of condition identified that the problem was a unique event. The licensee determined that no similar transportation events had occurred in the past. The inspector determined that the evaluation did not detail the applicability of the root cause across other disciplines or departments, of similar programmatic activities or human performance issues. The inspector interviewed the root cause evaluator and determined that an evaluation of these issues was conducted in accordance with the licensee's Root Cause Analysis Guideline; however, the evaluator did not document this fact in the evaluation. The licensee initiated Condition Report 2002-03028 to address this issue.

02.03 Corrective Actions

a. Determine that appropriate corrective action(s) are specified for each root/contributing cause or that there is an evaluation that no actions are necessary.

The inspector concluded that the corrective actions appropriately addressed the associated root/contributing causes. Corrective actions included: (1) procedural revisions that implement a formal radioactive waste load plan that is commensurate with the susceptibility of the material shifting during transport; (2) implementation of a formal method of tracking and controlling the location within the container commensurate with the radiological risk (dose rate) of radioactive materials being packaged for shipment; (3) the requirement that the Manager-Radiation Protection will approve all radioactive waste shipment releases excluding limited quantity shipments; (4) the requirement that all shipments, except limited quantity shipments, have two independent exit surveys performed; and, (5) the performance of an effectiveness review of implemented corrective actions.

The inspector determined that the corrective actions appeared to be appropriate to prevent similar occurrences.

b. Determine that the corrective actions have been prioritized with consideration of the risk significance and regulatory compliance.

The inspector concluded that the corrective actions were properly prioritized. A completion date and priority were assigned for each corrective action.

c. Determine that a schedule has been established for implementing and completing the corrective actions.

From a review of the root cause evaluation, the inspector determined that a schedule had been developed for the completion of each corrective action. As of June 30, 2002 all corrective actions were completed with the exception of the effectiveness review that has a due date of December 15, 2002.

d. Determine that quantitative or qualitative measures of success have been developed for determining the effectiveness of the corrective actions to prevent recurrence.

An effectiveness review evaluation of the corrective actions implemented to prevent recurrence of the event is scheduled to be completed by December 15, 2002. The effectiveness review will include the following:

- Review implemented requirements to ensure radioactive material will not shift during shipment.
- Review of shipping container load plans to verify sufficient detail and quality such that field personnel have clear direction on the proper loading of materials.
- Field observations to determine the quality of preparing material for shipment.
- Interview personnel whose tasks support the shipment of radioactive material to ensure an understanding of the requirements that must be adhered to.
- Review the process implemented to track radioactive material placed into a sea/land container for completeness and accuracy.

The inspector concluded that the proposed effectiveness review will adequately assess the corrective actions implemented to prevent recurrence.

4. OTHER ACTIVITIES

4OA3 Event Followup

(Closed) Violation (VIO) 50-285/0208-01

The Final Significance Determination for NRC Inspection Report 50-285/02-08 documented a violation of NRC and Department of Transportation requirements. The inspector reviewed the licensee's root cause evaluation, associated corrective action document, and reply to a notice of violation, dated August 26, 2002, pertaining to the 10 CFR 71.5 violation. The licensee's evaluation identified corrective actions taken to correct the violation and prevent recurrence. The licensee is currently in full compliance.

The inspector concluded that the licensee's corrective actions adequately addressed the root cause and two contributing causes.

4OA6 Management Meetings

Exit Meeting Summary

The inspector presented the inspection results to Mr. R. Phelps, Division Manager, Nuclear Engineering, and other members of licensee management at the conclusion of the inspection on August 28, 2002. The licensee acknowledged the findings presented. This meeting constituted the regulatory performance meeting specified in the Inspection Manual Chapter 0305 action matrix.

The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT

Supplementary Information

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R. Westcott, Manager, Training

NRC:

J. Kramer, Senior Resident Inspector

ITEMS OPENED AND CLOSED

Closed

50-285/0208-01	VIO	Failure to prevent radiation levels from exceeding regulatory requirements on the external surface of a shipment package (EA-02-123)