U.S. NUCLEAR REGULATORY COMMISSION

REGION III

REPORTS NO. 50-237/95011; 50-249/95011

FACILITY

Dresden Nuclear Station, Units 2 and 3

Licenses No. DPR-19; DPR-25

LICENSEE

Commonwealth Edison Company
Opus West III
1400 Opus Place - Suite 300
Downers Grove, IL 60515

DATES

August 22 through September 29, 1995

INSPECTORS

P. Louden, Radiation Specialist
R. Paul, Senior Radiation Specialist

APPROVED BY

R. J. Caniano, Chief
Plant Support 2

10/4/95
Date

AREAS INSPECTED

This report contains the details of a special review performed to evaluate the events and circumstances surrounding an incident involving a radioactive waste shipment prepared for transportation at Dresden which arrived at its destination exhibiting radiation levels in excess of Department of Transportation limits.

RESULTS

The inspectors reviewed the licensee's investigation into the incident which was discovered on August 14, 1995. Based on those reviews, the apparent cause of the excessive radiation levels was a small pipe inside one of the shipping bins. The pipe was not properly secured to ensure that it would not shift during transport. The investigation also identified several programmatic problems within the station's shipping program. Confusion had developed regarding management expectations and directions mainly due to the changing number of individuals involved in the loading and preparation of the shipment. Oversight from the radiation protection shipping group was not effective in ensuring that the shipment was properly braced for transport. One apparent violation was identified for failure to ensure that radiation dose rates on the surface of a package do not exceed 200 mrem/hr in accordance with 49 CFR 173.441(a).

INSPECTION DETAILS

1.0 Radioactive Waste Shipment In Excess of Department of Transportation Limits

1.1 Event Description

As part of the station's current Unit 2 refueling outage, the licensee undertook a major pipe replacement project for the Reactor Water Cleanup (RWCU) system. This project required the removal of piping and valves which were highly contaminated. The licensee planned to ship the removed material to an offsite vendor for processing. To help accomplish this task, the vendor provided an onsite representative to monitor the loading and preparation of the material for shipment. On August 14, 1995, the licensee was notified by a vendor representative that a shipment received at their Oak Ridge, Tennessee, facility exhibited radiation levels in excess of Department of Transportation (DOT) regulatory limits. The shipment was comprised of nine Low Specific Activity (LSA) shipping bins which contained scrap metal (valves and assorted piping) from the RWCU replacement project at the station. A small section of one of the bins exhibited radiation levels of 350 mrem/hr (3.5 mSieverts (Svs)/hr) on contact. The DOT contact radiation limit for an exclusive use open vehicle is 200 mrem/hr (2 mSvs/hr). The licensee sent a health physicist to the vendor facility the following day to identify the cause of the high radiation levels. Due to the localized nature of the excessive radiation levels and the direct route taken between the station and the processing facility, no apparent unnecessary exposures occurred to the vehicle driver or members of the public.

1.2 Licensee's Response to the Event

The licensee initiated an immediate investigation into the cause of the event. The investigation noted that the shipment left the Dresden site on August 11, 1995, and surveys performed by licensee staff prior to departure indicated that the highest contact radiation level was less than the DOT applicable limit and the 160 mrem/hr (1.6 mSvs/hr) licensee established administrative limit. It was concluded based on reviews of the shipment at the vendor facility that a 40 inch long by 1 inch diameter piece of pipe, emitting 1,000 mrem/hr (10 mSvs/hr) contact radiation levels, had shifted in transit and caused the higher radiation levels on the external surface of one of the bins. Inspection of the bin in question by the licensee revealed that the pipe had not been properly braced to prevent shifting during transport. Further, investigations revealed that the survey of the pipe was performed by radiation protection technicians at the site but this survey was not made available for review by shipping personnel.

1.3 Licensee's Corrective Actions

The licensee took immediate corrective actions which included stopping all shipping activities and reestablishing personnel responsibilities, for those individuals involved with the shipping program, through individual counseling. The licensee also initiated a schedule for more routine shipments and limited the number of shipments per day to ensure adequate oversight could be provided by radiation protection supervisory personnel.

However, subsequent to the implementation of the immediate corrective actions, a shipment of chemical decontamination equipment was released from the site on September 9, 1995, with one of the packages exhibiting radiation levels at the 200 mrem/hr (2 mSvs/hr) regulatory limit. Soon after the vehicle left the site, radiation protection personnel noted the contact dose rates during reviews of the paperwork for the shipment. The licensee recalled the vehicle to the station so that additional shielding could be placed inside the package. Wherein no regulatory limits were exceeded, the licensee's established administrative control margin (80 percent of the limit) was exceeded. Following this incident, the licensee suspended shipping activities during off hours. The September 9, 1995, incident brought into question the effectiveness of the licensee's initial corrective actions taken in response to the August 14, 1995 event.

1.4 Regional Review of the Event

The inspectors monitored the licensee's investigation process and received several in progress briefings. The inspectors noted that the licensee's responsiveness to the event and the thoroughness of the investigation was good. All relevant issues appeared to be addressed in the licensee's investigational review.

The event brought into question the amount of collateral assignments that shipping personnel were involved with during this "high traffic" shipping time during the current Unit 2 refueling outage. This high work load, in addition to the many different individuals involved in the loading process, led to a lack of any one person maintaining ownership of the shipment preparation.

The failure to ensure that radiation dose rates on the surface of a package do not exceed 200 mrem/hr (2 mSvs/hr) is an apparent violation of 49 CFR 173.441(a). Specifically, the identification of radiation levels as high as 350 mrem/hr (3.5 mSvs/hr) on the surface of one of the shipping bins indicated a failure by the licensee to properly package radioactive material to ensure shifting did not occur during transport.

2.0 Exit Meeting

The inspectors met with licensee management on September 29, 1995, to discuss the event and provide the initial NRC interpretations and characterizations of the event with respect to enforcement action. The

licensee was informed that they would be given the opportunity to request a pre-decisional Enforcement Conference to present any additional information to the NRC regarding the shipping event.

3.0 Persons Contacted

The following individuals were contacted during the course of the inspection of the incident contained within this report. An asterisk indicates those individuals in attendance at the Exit Meeting held on September 29, 1995.

*S. Perry, Senior BWR Vice President
*T. Joyce, Site Vice President
S. Barrett, Radiation Protection Manager
*J. Howland, Assistant Radiation Protection Manager
M. Marcionda, Acting Lead Technical Health Physicist
*J. Place, Lead Radiation Protection Supervisor
R. Koback, Corporate Health Physicist
E. Carroll, Regulatory Assurance, NRC Coordinator