

U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-010/77-20; 50-237/77-19; 50-249/77-19

Docket No. 50-010, 50-237, 50-249 License No. DPR-2, DPR-19, DPR-25

Licensee: Commonwealth Edison Company  
P. O. Box 767  
Chicago, IL 60690

Facility Name: Dresden Nuclear Power , Units 1, 2 and 3

Inspection At: Dresden Site, Morris, IL

Inspection Conducted: June 28-29 and July 8, 1977

Inspectors: *K.R. Phillips*  
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Fuel Facility Projects and  
Radiation Support Section

Inspection Summary

Inspection on June 28-29 and July 8, 1977 (Report No. 50-010/77-20,  
50-237/77-19, 50-249/77-19)

Areas Inspected: Special, unannounced inspection of radiation protection and radwaste activities, including: radwaste shipments, licensee event reports, noncompliance follow-up, unresolved item follow-up, and licensee commitments. The inspection involved 40 inspector-hours on-site by two NRC inspectors.

Results: Of the five areas inspected, no items of noncompliance or deviations were identified in three areas; two apparent items of non-compliance were identified in two areas (deficiency, failure to report gaseous releases, Paragraph 9; infraction, shipment without authorization, Paragraph 11).

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## DETAILS

### 1. Persons Contacted

- \*D. Adam, Radiation and Chemistry Supervisor
- \*J. Bergan, Chemist
  - D. Gamage, Engineer
  - J. Parry, Health Physicist
  - G. Romba, Engineer
  - C. Sargent, Supervising Engineer
  - T. Schneider, Chemist
- \*L. Scott, Chemist
- \*E. Shelton, Administrative Assistant
- \*B. Stephenson, Superintendent
  - J. Testa, Assistant Engineer

The inspectors also contacted several other licensee employees, including members of the technical and engineering staffs.

\*denotes those attending the exit interview.

### 2. General

This inspection, which included visual observation of selected licensee work areas, was conducted to examine the licensee's actions related to noncompliance items, unresolved items, and commitments identified during previous inspections and to review several recent events reported by the licensee.

### 3. Licensee Act on on Previous Inspection Findings

(Closed) Noncompliance (50-010/77-07, 50-237/77-07, 50-249/77-07):  
Inadequate evaluation of personal contamination. Corrective action consisted of giving the individual a whole body count and evaluating the exposure. This evaluation indicated that the exposure (assuming a single event) was less than 40 MPC-hrs. Action taken to prevent recurrence included a recemphasis to Radiation-Chemistry management of the importance of evaluating all events involving personal contamination. The inspectors also noted that the licensee had blocked off several of the openings which could have allowed, via ventilation flow reversal, airborne radioactivity to be carried from the solid radwaste barreling area to the control panel area, the latter being a normally noncontaminated area.

(Closed) Unresolved Item (50-010/7-7-07, 50-237/77-07, 50-249/77-07): Possible inadequate maintenance of NRC-4 forms for certain contractor employees. One aspect of this unresolved item involved missing NRC-4s for three contractor employees. The licensee has now located these forms. The other aspect of this unresolved item, which was related to the informal arrangement for accounting for contractor employee time spent at sites other than Dresden, has been modified to require that a Form-4 be completed when it appears that any individual's quarterly dose will exceed 1250 mrems.

(Open) Noncompliance (50-010/77-10, 50-237/77-11, 50-249/77-11): Failure to report a release in excess of the technical specification limit within 24 hours. The licensee presently is developing a procedure which permits quantification of iodine and particulate releases within 24 hours. This item remains open, pending completion and implementation of this procedure.

(Closed) Noncompliance (50-010/77-10, 50-237/77-11, 50-249/77-11): Excessive halogen and particulate release rate on April 15 and 16, 1977. The equipment problem which caused the increase in the halogen and particulate release rate was corrected. Unit 1 is currently out of service for refueling. Halogen and particulate release rates are expected to be considerably reduced when Unit 1 returns to service, due to fuel replacement and the anticipated tie-in of the augmented offgas treatment system.

4. Licensee Internal Audits

While reviewing the licensee's results of investigations of nonroutine events (Paragraph 5), the inspector noted that the licensee had identified two items requiring corrective actions per technical specifications requirements. Corrective action had been completed for both items.

5. Review of Nonroutine Events Reported by the Licensee

The inspectors reviewed the licensee's actions with respect to the radiological aspects of the following licensee event reports. No items of noncompliance or deviations were identified. The inspector noted that the licensee had identified and initiated corrective action, per technical specification requirements, for two radiation protection related items.

Halogen and particulate release rate in excess of 20% of the technical specification limit (LER 50-010/77-7, 50-010/77-8, 50-010/77-18).

Halogen and particulate release rate in excess of the technical specification limit (LER 50-10/77-10).

Fuel pool heat exchanger inlet vent line failure (LER 50-10/77-9).

Failure to follow procedures for release of a laundry drain tank (LER 50-10/77-14).

Steam jet-air ejector offgas system radiation monitor failure (LER 50-10/77-15).

Offgas system HEPA filter failure (LER 50-249/77-14).

Failure to follow procedures for reactor coolant isotopic analysis (LER 50-249/77-18).

The information contained in the LER's reviewed was not complete in all cases and was misleading in certain cases. Discussions with licensee personnel revealed that the licensee's statement in LER 50-249/77-18 that "This surveillance represents less than 1/2% of the total number of surveillances conducted during the month" did not refer solely to reactor coolant isotopic analyses, the subject of the LER, but included other analyses conducted on reactor coolant samples, including nonradiological analyses. The reactor coolant isotopic analyses are conducted monthly. The reportable occurrence (LER 50-10/77-15) pertaining to the loss of both steam jet-air ejector offgas system radiation monitors did not include sufficient information to fully evaluate the consequences of the occurrence. Review of the licensee's records revealed that the Unit 1 steam jet-air ejector offgas system radiation monitors were both out of service for approximately 22 minutes, due to a power failure. The chimney radiation monitors, which were operating during this period, did not indicate any significant changes in the release rate. The licensee agreed to submit a revised LER for this occurrence. This matter will be reviewed further during a future inspection.

The inspectors noted during review of LER 50-249/77-14 that the licensee had not included the increased gaseous releases associated with this occurrence in the daily record of gaseous releases. Licensee personnel had reviewed the strip chart associated with

the chimney gaseous monitor and had identified and quantified the anomalous release but had failed to transcribe the data to the daily release records. The gaseous release from the D 2/3 chimney for April 25, 1977 was recorded as 3.7 curies. According to licensee personnel, the gaseous release associated with the HEPA filter failure, as quantified from the offgas stack gaseous monitor, was approximately 1200 curies.

Further discussions regarding LER 50-10/77-9 and 50-10/77-14 are contained in Paragraphs 6 and 7.

6. Fuel Pool Heat Exchanger Inlet Vent Line Failure (LER 50-10/77-9)

The vent line failure resulted in a spill of about 2000-5000 gallons of Fuel Pool water onto the floor of the adjacent store room and the D 1 sphere access corridor. The water was "diked" to prevent further spread and was cleaned up. Five radiation surveys were performed the day of the event (April 21, 1977) and the day after. Generally, these surveys showed little residual surface contamination ( $< 100$  cpm G-M). Maximum surface contamination levels were 2000-2500 cpm/ft<sup>2</sup> on the warehouse floor. This area was then decontaminated. No radioactivity appeared to be released outside of the building.

No items of noncompliance or deviations were identified.

7. Laundry Tank Discharged Without Verification of Release Calculation (LER 50-10/77-14)

On April 26, 1977, about 900 gallons of waste were discharged from the "B" laundry tank without independent verification of the release calculation (as required by Procedure DC2 2000-25). In addition, the release rate calculation contained a factor of ten error in the nonconservative direction. Fortunately, calculations made subsequent to the release showed that the technical specification limits had not been exceeded. (The licensee estimated 66% of the T/S limit and the inspectors estimated 80%; the difference was due to the tank discharge time used in the calculation).

No items of noncompliance or deviations were identified.

8. Chimney Gaseous Monitor Calibration

The inspectors reviewed the licensee's most recent calibration of the D 2/3 chimney gaseous monitor. The monitor was calibrated

by injecting gaseous samples collected from various points in the offgas system. Shortcomings noted in the calibration technique are the use of nonuniform isotopic compositions in the calibration gases and the failure to calibrate the monitor at activities corresponding to the normal release rates. The licensee indicated that the calibration procedure would be reevaluated before the next scheduled calibration.

This item will be reviewed further during a subsequent inspection.

9. Radioactive Gaseous Releases (D 2/3)

The licensee quantifies gaseous releases from Units 2 and 3 on the basis of daily grab samples collected at the outlet of the individual augmented offgas treatment systems. The chimney gaseous monitor is utilized to quantify anomalous gaseous releases. Reactor building ventilation system gaseous releases and gaseous releases via the chimney, other than the offgas treatment systems, apparently are not quantified. At the inspector's request, gaseous grab samples were collected from the reactor building ventilation stack and the chimney. Analyses of these samples (by the licensee) resulted in calculated release rates which were approximately a factor of ten greater than the release rates quantified by the daily offgas treatment system samples. Although the majority of the activity is released from the chimney, reactor building ventilation stack releases appear to be about 100  $\mu$ ci/sec.

The additional gaseous releases identified are well within the technical specification release limits, but the licensee apparently has not been adequately quantifying and reporting gaseous releases as required by Technical Specification 6.6.C.1. Isotopic analyses of the chimney grab samples indicates that the additional gaseous releases have a significantly shorter average half-life than the offgas treatment system gases. Part, if not the majority, of the additional gaseous releases may be gland seal exhaust system effluent, which bypasses the offgas treatment system. Those effluents which bypass the offgas treatment system have become proportionately more significant since the augmented offgas system became operational and are not quantified by the licensee's current method for determining gaseous releases.

The licensee has agreed to thoroughly investigate the gaseous release sources and to institute a program for accurately

quantifying those releases. This item will be reviewed further during a subsequent inspection.

10. Follow-up on Licensee Commitments

The inspectors noted fulfillment of the following commitments by the licensee:

- a. Procedure DRP 1240-10, "Operation of the Eberline Survey Meter, Model PNR-4," was written to indicate when procedure DRP 1240-9 "Calibration check of . . . ." should be used.
- b. A portion of procedure DRP 1910-1, "Radiation Protection Orientation," was rewritten to include instructions on prenatal exposure for all women, not just those who are obviously pregnant at the time of the radiation protection orientation.
- c. Termination exposure reports (10 CFR 20.408 and 20.409) are now being sent to individuals who terminate their assignment at the Dresden station, but remain Commonwealth Edison employees.

11. Radioactive Waste Shipments

The inspectors reviewed the licensee's solid radioactive waste shipment records for January through March 1977. During the three-month period, 83 shipments of waste were recorded as Group III, LSA. Of these, 66 shipments exceeded the Group III, Type A quantity limit (3 curies). Authorization by way of a general or specific license issued by the NRC or an exemption pursuant to 10 CFR 71 is required to either deliver licensed materials to a carrier for transport or transport licensed material (10 CFR 71.3). The licensee apparently does not possess a specific license pursuant to 10 CFR 71, nor does it appear that the licensee is exempted from the requirement to possess a license. The general license defined in 10 CFR 71.12 authorizes shipment of Type B quantities in either DOT Type B specification containers or packages for which a license, certificate of compliance, or other approval has been issued by the NRC. The licensee shipped the solidified radioactive waste in DOT specification 7A containers, which are not DOT Type B containers, nor have the containers been approved by the NRC for Type B quantities. It appears, therefore, that the licensee did not comply with the requirements of 10 CFR 71.3 for the 66 shipments of Type B quantity, Group III solid radioactive waste delivered for transport during the period January through March 1977.

### Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on July 8, 1977 and further discussed the inspection findings with Mr. Stephenson by telephone on July 21, 1977. The inspectors summarized the scope and findings of the inspection. The licensee made the following remarks in response to certain items discussed by the inspector:

- a. Stated that LEP 5010/7715 would be resubmitted in order to clarify the original report. (Paragraph 5)
- b. Stated that future LER's would receive additional review before submission in order to improve their clarity. (Paragraph 5)
- c. Stated that the failure to add the increased gaseous releases associated with the April 25, 1977 HEPA filter failure to the gaseous release record for that day represented an isolated omission. (Paragraph 5)
- d. Stated that the chimney monitor calibration technique would be reviewed and discussed with the regional NRC office before the next required calibrations. (Paragraph 8)
- e. Stated that an investigation into the gaseous activity released from the D 2/3 chimney and the reactor building ventilation stack would be initiated immediately. (Paragraph 9)