

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-237/93016(DRSS); 50-249/93016(DRSS)

Dockets No. 50-237; 50-249

Licenses No. DPR-19; DPR-25

Licensee: Commonwealth Edison Company  
Executive Towers West III  
1400 Opus Place, Suite 300  
Downers Grove, IL 60515

Facility Name: Dresden Nuclear Station, Units 2 and 3

Inspection At: Dresden site, Morris, Illinois

Inspection Conducted: May 3 - 7, 1993

Inspectors: *N. Shah*  
N. Shah

6/3/93  
Date

*S. Orth*  
S. Orth

6/3/93  
Date

Approved By: *M. C. Schumacher*  
M. C. Schumacher, Chief  
Radiological Controls Section 1

6-3-93  
Date

Inspection Summary

Inspection on May 3 - 7, 1993 (Reports No. 50-237/93016(DRSS);  
50-249/93016(DRSS))

Areas Inspected: Routine, announced inspection of the liquid and gaseous radioactive waste, and radiological environmental monitoring program (REMP) (Inspection Procedure (IP) 84750). Also reviewed were recent corrosion problems identified by the licensee in radwaste storage tanks, and items from previous inspections.

Results: No violations or deviations were identified. Activity released in effluent (section 5), and offsite doses (section 8) remained low. The licensee made good progress on modifications to the radwaste system, and associated monitors (sections 5 and 6). The inspectors observed generally good technician performance (section 5), but noted procedure weaknesses (sections 2 and 9) and problems with REMP air samplers (section 7).

## DETAILS

### 1. Persons Contacted

C. W. Schroeder, Station Manager  
E. Carroll, Chemistry Supervisor  
B. Wong, Site Engineering  
P. Boyle, Lead Chemist  
B. Mayer, Emergency Planning Coordinator  
B. Gurley, Regulatory Assurance  
M. Mikota, Radwaste Coordinator  
M. Gagnon, Health Physicist  
R. Raguse, Health Physicist  
T. Britt, Radwaste Shipping Supervisor  
J. Shields, Regulatory Assurance Supervisor  
D. Klingensmith, Plant Chemist  
R. Burns, Superintendent Maintenance/Technical Training  
J. Grzemski, Quality Verification  
D. Ambler, Health Physics Services Supervisor  
T. Jacobsen, Site Quality Verification  
  
M. Peck, Resident Inspector--NRC

The above individuals were present at the exit meeting on May 7, 1993.

The inspector also interviewed other licensee personnel.

### 2. Licensee Actions on Previous Inspection Findings (IP 84750)

(Closed) IFIs 50-237/93007-01; 50-249/93007-01: Filter paper misaligned in Unit 1 chimney system particulate iodine and noble gas (SPING) effluent monitor. This problem, attributed to personnel error, existed from February 4 through 11, 1993, until discovered and corrected by a station chemistry technician. The filter and downstream iodine charcoal cartridge were analyzed, and the results were similar to those from filters taken the week prior to and after February 4 - 11, 1993; no abnormal releases were indicated in noble gas monitor readings during the period. Management corrective actions included discussing the event with the chemistry technicians and tailgating subsequent filter collection and replacement activities. The inspectors observed the replacement of the filter paper and charcoal cartridge on the Unit 1 chimney SPING; no problems were identified.

(Closed) 50-237/92016-01; 50-249/92016-01: Operability of the service water monitors. Because of operability problems caused by silt accumulation in the monitor's sample lines, the licensee was taking twice daily grab samples to fulfill the monitoring requirements of technical specification (TS) 3.2.F.3. They are to be restored to service following the modification (section 6). The inspectors reviewed sample results and verified that they had occurred at the required LLD.

(Closed) 50-237/92016-02; 50-249/92016-02: Review of liquid radwaste monitor readings following its repair. The licensee investigated the cause of erratic response from the liquid radwaste monitor during past liquid discharges, and determined that the problem lay in the monitor electronics. After repairing the monitor, the licensee verified its response during subsequent liquid radwaste discharges. By reviewing past discharge records and observing monitor readings during a liquid release, the inspectors also verified monitor operability.

(Closed) 50-237/92025-01; 50-249/92025-01: Analysis of a liquid sample for beta emitters. The licensee was to analyze a spiked liquid sample for H-3, Sr-89, Sr-90, and Fe-55 and report the results to Region III. The results are listed in Table 1 and the comparison criteria in Attachment 1. The results indicated good comparisons for the H-3, Fe-55, and Sr-90 analysis. Based on the preparation date provided to the licensee, the activity of Sr-89 in the sample had decayed beyond the licensee's LLD. This nuclide will be analyzed in future routine inspections.

3. Organization and Management Controls (IP 84750)

The inspector reviewed the Chemistry Unit organization and discussed the changes with the chemistry supervisor. In February 1993, a member of the regulatory assurance (RA) staff was appointed chemistry supervisor, and the previous supervisor transferred to the licensee's corporate chemistry group. The new supervisor has a degree in analytical chemistry and, prior to serving in the RA group, held the positions of assistant supervisor of health physics and chemistry at Braidwood, and chemistry trainer at the licensee's Production Training Center.

In April 1993, the lead chemist was transferred to the computer group and replaced by the Unit 2 chemist. Also, four chemistry technicians (CTs) and an individual to fill the position of chemist (auxiliary systems) were added to the chemistry staff. The remaining vacancies were filled by realigning the remaining chemists. The inspector verified that the new individuals were qualified for their positions.

No violations or deviations were identified.

4. Audits and Appraisals (IP 84750)

The inspectors reviewed licensee audits of the environmental monitoring and effluent release programs. These audits appeared performance based and focused on procedure adherence, management communication of expectations to workers, and oversight of activities. One notable finding was that the procedure for gaseous sampling at the Unit 1 chimney SPING does not specify an alternate sampling point should the monitor be inoperable. Although a backup sampling point exists and has been used in the past, it was not indicated in the procedure. The licensee's chemistry group promptly revised the procedure to include the backup sample point. This corrective action was later verified by the inspectors.

No violations or deviations were identified.

5. Gaseous and Liquid Effluents (IP 84760)

The inspectors reviewed the licensee's program for gaseous and liquid effluent releases. Included in this review were discussions with personnel, observations of radwaste control room activities, and examination of selected records. The status of the licensee's radwaste upgrade was also reviewed.

Gaseous effluents are continuously exhausted from the plant via the elevated (about 100 meters) D1 and D2/3 chimneys and the semi-elevated (turbine building roof) D2/3 reactor building ventilation stack. Liquid effluents are normally batch released from the waste surge tank to the river. Both liquid and gaseous release pathways are monitored with alarm setpoints determined in accordance with the guidance in the Offsite Dose Calculation Manual (ODCM). The setpoints were verified by the inspectors.

The inspectors reviewed documentation of selected radwaste releases and observed sampling and analysis of a Waste Sample Tank (WST) and a liquid discharge; no problems were identified. Prior to discharge, the radwaste foreman assembled the documentation package, including the calculations for discharge flow rate and radiation monitor alarm setpoint. This package was also reviewed by the shift engineer before the release. Radwaste operators displayed good system knowledge and behaved in a professional manner during the observed activities.

Gaseous activity released in 1992 has changed little from 1991 (about 13 curies); liquid effluent tritium activity declined from an annual average of 13-20 curies to about 4 curies. Gaseous and liquid activity released in the first quarter of 1993 remained low (about 1.0 and 0.7 curies, respectively) but the liquid volume discharged was significantly higher owing to high total organic carbons (TOCs) in the floor drain system. The licensee identified the cause as uncontrolled use of detergents during outage decontamination and initiated measures to strictly control detergent use, which appears to be having an effect. The inspectors will review this matter in subsequent inspections.

The inspector reviewed the status of the radwaste upgrade. Currently about 83% complete, the upgrade includes a significant reduction in existing piping, new radwaste sample sinks, and the installation of a new closed loop seal water system for the radwaste collection pumps. Additionally, plant piping and valve configurations were modified to improve connections between onsite storage tanks. Remaining tasks primarily consist of upgrading radwaste pumps and associated piping; the licensee expects to complete the upgrade by the end of 1993.

No violations or deviations were identified

6. Effluent Monitoring Instrumentation (IP 84750)

The inspectors reviewed the calibration and maintenance of effluent monitors by observing each monitor in place and by examining selected calibration and functional test records. Calibration, functional testing, and surveillances were verified as done at the required intervals. At present, two groups, instrument maintenance (IM) and radiation protection (RP), share responsibility for calibration, but the licensee is considering a change to streamline the process and better focus overall responsibility.

By July 1993, the licensee plans to start conducting secondary SPING calibrations based on a primary calibration performed and maintained by the monitor manufacturer. Currently, the secondary calibrations are based on a primary calibration performed by the licensee at the time of initial installation. The change results from a corporate initiative to standardize calibration methods used at Commonwealth Edison plants. This will be reviewed further in subsequent routine inspections.

Because of recent operability problems (section 2), the licensee is modifying the service water monitoring system. Basically, the modification consists of replacing the existing centrifugal pump with a positive displacement pump, reducing the number of sharp bends in sample line piping, and installing filter screens. The goal is to increase sample flowrate by decreasing silt accumulation. Modifications to the Unit 2 side are expected to be completed during the current outage; Unit 3 modifications will be performed during its next refueling outage. The inspectors will review progress on this matter during routine inspections.

No violations or deviations were identified

7. Radiological Environmental Monitoring Program (IP 84750)

The inspectors reviewed the licensee's Radiological Environmental Monitoring Program (REMP). Although the 1992 annual report contained data required by the technical specifications (Table 4.8.4), the inspectors noted that additional data described in the ODCM, but not specified in the TS, were omitted from the report. The licensee acknowledged this and will include the data in subsequent annual reports. The inspectors also verified that required analyses were performed and that results were below reportable limits.

Also reviewed were results from a residential well sampling study described in inspection reports 50-237/92005(DRSS) and 50-249/92005(DRSS). No abnormal levels of radioactivity were identified, and normal tritium levels between <200 picocuries/liter (pCi/L) and 300 pCi/L were observed.

During a tour of selected air sampling sites with a licensee representative, an inspector noted a piece of perforated plastic placed over the intake structure of a sampling station, which inhibited normal

air flow about the inlet. The plastic, which was used by the licensee to prevent birds from entering the sampler housing, was later replaced with a screen. Several other sampling stations were also observed having loose-fitting retaining rings which prompted an inspector concern regarding possible air inleakage. Based on these concerns, the licensee is reviewing the matter. The inspectors will review this item in future inspections (IFIs 237/93016-01; 249/93016-01).

No violations or deviations were identified

8. Dose Assessment (IP 84750)

The inspectors reviewed the licensee's reporting and calculation of offsite dose from effluent releases. The licensee calculates the offsite doses via a corporate computer system which uses Dresden Station site specific information and historical meteorological information. The inspector verified that dose calculations were based on ODCM methodology, and that the responsible licensee representative was knowledgeable of the system's operation.

The inspectors also performed confirmatory dose calculations for a hypothetical gaseous waste discharge; good agreement was noted between the licensee's and inspector's results.

No violations or deviations were identified

9. Air Cleaning Systems (IP 84750)

The inspectors reviewed the maintenance of the licensee's control room heating and ventilation (HVAC) system.

Test criteria for control room HVAC high efficiency particulate air (HEPA) filters and charcoal absorbers are contained in Dresden Administrative Technical Requirements (DATR). A selective review of surveillance test data indicated that the dioctylphthalate (DOP) penetration and the halogenated hydrocarbon penetration for the control room HVAC HEPA filters and charcoal absorbers, respectively, were within DATR requirements. Additionally, records of laboratory analyses of representative carbon samples by a contract vendor showed the methyl iodide removal efficiency met the 99.5% criterion specified in the DATR.

Although the testing was done in accordance with the DATR, the inspectors noted that the carbon sample test requirements contained in Dresden Technical Surveillance (DTS) 5750-6 "Control Room Standby HVAC Air Filtration Unit Performance Requirements" differed from those in the DATR. This was discussed with the licensee who stated that they were aware of the deficiency and had revised the procedure. The inspectors verified the revision, but in light of previously identified problems (section 4), cautioned the licensee at the exit meeting (section 11) on the importance of maintaining procedures.

No violations or deviations were identified

10. Corrosion in Radwaste Storage Tanks (IP 84750)

In two separate events in September 1992, the licensee observed water leaking from the "B" WST and the Unit 2/3 "B" Condensate Storage Tank (CST) which are both in the protected area. The "B" WST leaked in a pipe tunnel that drained to the plant liquid radwaste system. The CST leaked into soil at the perimeter of the tank. Upon discovery, the licensee began to collect and route the leak to the plant radwaste system. Company metallurgists concluded that the leaks were caused by galvanic corrosion of the aluminum tank bottoms. The licensee replaced the bottoms and is planning to drain and inspect the rest of the onsite storage tanks by the end of 1993.

The event was described in the July-December 1992 Semi-Annual Effluent Report where it was estimated that approximately one microcurie total activity, excepting tritium, was released from the tank in 270 gallons of water. Tritium release was estimated at about one millicurie based on the average concentration in radwaste discharges. The licensee's offsite dose calculation indicated no impact from this release on down river water users. Tritium activity in the nearest well was basically unchanged from previous years and were at or slightly above the licensee's lower limit of detection (200 pCi/liter).

Although samples of the affected soil were surveyed with a pancake GM detector in a low background area and no activity above background was detected, no isotopic analysis was performed. The samples were returned to the ground. The need to analyze soil samples in such events was discussed at the exit interview and in a telephone discussion on May 21, 1993. The inspectors also pointed out that information regarding such events must be kept in an identified location for ready retrieval at the time of site decommissioning. Licensee representatives stated that soil samples would be isotopically analyzed and that their decommissioning file would be reviewed to ensure its adequacy. Licensee progress on these matters will be reviewed in future inspections (IFIs 50-237/93010-02; 50-249/93016-02).

No violations or deviations were identified.

11. Exit Meeting

The inspectors met with licensee representatives (section 1) at the conclusion of the inspection on May 7, 1993, to discuss the scope and findings of the inspection. No documents were identified as proprietary by the licensee, and no violations were identified during this inspection. The following matters were specifically discussed by the inspectors:

- Misaligned filter paper in Unit 1 Chimney SPING (section 2)
- Procedural deficiencies (sections 4 and 9)
- Control of decon detergents (section 5)

- REMP weaknesses (section 7)
- Corrosion in radwaste storage tanks (section 10)

Attachments:

1. Table 1, Radiological Confirmatory Measurements Program Results  
2nd Quarter 1993
2. Attachment 1, Criteria for Comparing Analytical Measurements

TABLE 1  
 U.S. NUCLEAR REGULATORY COMMISSION  
 REGION III  
 CONFIRMATORY MEASUREMENTS PROGRAM

FACILITY: DRESDEN

FOR THE 2ND QUARTER OF 1993

SAMPLE	NUCLIDE	NRC VAL.	NRC ERR.	LIC.VAL.	LIC.ERR.	RATIO	RESOL.	RESULT
SPIKED	FE-55	1.04E-05	5.19E-07	1.20E-05		1.15	20	A
LIQUID	H-3	1.08E-04	5.37E-06	1.20E-04		1.12	20	A
SAMPLE	SR-89	1.20E-04	6.00E-06	<2.0E-04			20	N
	SR-90	1.90E-05	9.52E-07	1.98E-05		1.04	20	A

TEST RESULTS:

A=AGREEMENT  
 D=DISAGREEMENT  
 \*=CRITERIA RELAXED  
 N=NO COMPARISON

ATTACHMENT 1

CRITERIA FOR COMPARING ANALYTICAL MEASUREMENTS

This attachment provides criteria for comparing results of capability tests and verification measurements. The criteria are based on an empirical relationship which combines prior experience and the accuracy needs of this program.

In these criteria, the judgment limits are variable in relation to the comparison of the NRC's value to its associated one sigma uncertainty. As that ratio, referred to in this program as "Resolution", increases, the acceptability of a licensee's measurement should be more selective. Conversely, poorer agreement should be considered acceptable as the resolution decreases. The values in the ratio criteria may be rounded to fewer significant figures reported by the NRC Reference Laboratory, unless such rounding will result in a narrowed category of acceptance.

<u>RESOLUTION</u>	<u>RATIO = LICENSEE VALUE/NRC REFERENCE VALUE</u>
	<u>Agreement</u>
<4	NO COMPARISON
4 - 7	0.5 - 2.0
8 - 15	0.6 - 1.66
16 - 50	0.75 - 1.33
51 - 200	0.80 - 1.25
200 -	0.85 - 1.18

Some discrepancies may result from the use of different equipment, techniques, and for some specific nuclides. These may be factored into the acceptance criteria and identified on the data sheet.