

August 12, 2005

Mr. Christopher M. Crane  
President and Chief Nuclear Officer  
Exelon Nuclear  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: NRC INSPECTION REPORT 050-00010/05-001(DNMS) - DRESDEN NUCLEAR  
POWER STATION UNIT 1

Dear Mr. Crane:

On July 26, 2005, the NRC completed inspection activities at the Dresden Nuclear Power Station Unit 1. The purpose of the inspection was to determine whether the decommissioning activities were conducted safely and in accordance with NRC requirements. Specifically, during onsite inspections on April 1, 2005 and July 26, 2005, the inspectors evaluated decommissioning activities, management oversight of decommissioning activities, radioactive waste management, and radiological safety. At the conclusion of the on-site inspections on April 1 and July 26, 2005, the inspectors discussed the inspection findings with members of your staff.

This inspection consisted of an examination of decommissioning activities at the Dresden Nuclear Power Station Unit 1 as they relate to safety and compliance with the Commission's rules and regulations. Areas examined during the inspection are identified in the enclosed report. Within these areas, the inspection consisted of a selective examination of procedures and representative records, and interviews with personnel.

Based on the results of this inspection, the NRC did not identify any violations.

In accordance with 10 CFR 2.390 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). The NRC's document system is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

C. Crane

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We will gladly discuss any questions you may have regarding this inspection.

Sincerely,

**/RA/**

Jamnes L. Cameron, Chief  
Decommissioning Branch

Docket No. 050-00010

License No. DPR-2

Enclosure: Inspection Report 050-00010/05-001(DNMS)

cc w/encl: Site Vice President - Dresden Nuclear Power Station  
Dresden Nuclear Power Station Plant Manager  
Dresden Nuclear Power Station Decommissioning Plant Manager  
Regulatory Assurance Manager - Dresden  
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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No. 050-00010

License No. DPR-2

Report No. 050-00010/05-001(DNMS)

Licensee: Exelon Nuclear

Facility: Dresden Nuclear Power Station Unit 1

Location: 6500 N. Dresden Road  
Morris, IL 60450

Dates: April 1, 2005  
July 26, 2005

Inspectors: Christopher Martin, Reactor Inspector (Decommissioning)  
William Snell, Senior Health Physicist

Approved by: Jamnes L. Cameron, Chief  
Decommissioning Branch  
Division of Nuclear Materials Safety

## **EXECUTIVE SUMMARY**

### **Dresden Nuclear Power Station, Unit 1 NRC Inspection Report 050-00010/05-001(DNMS)**

This routine decommissioning inspection included a review of the licensee's current performance related to decommissioning activities, management oversight of decommissioning activities, radioactive waste management, and radiological safety. During this inspection period, major decommissioning activities included sealing of the walls and bottom of the spent fuel pool and transfer canal with an epoxy paint, and the loading and shipping of contaminated soil to Oak Ridge, Tennessee.

#### **Organization, Management and Cost Controls**

- The inspectors concluded the licensee's decommissioning organization was sufficiently staffed to conduct decommissioning activities in an effective and safe manner. (Section 1.0)

#### **Safety Reviews, Design Changes, and Modifications**

- The inspectors concluded that the 10 CFR 50.59 safety evaluations conducted for activities pertinent to Unit 1 were appropriate and consistent with licensee procedures. (Section 2.0)

#### **Self-Assessment, Auditing and Corrective Action**

- The licensee had been effective in identifying potential problems and implementing adequate corrective actions. (Section 3.0)

#### **Maintenance and Surveillance (62801)**

- The inspectors concluded that the licensee was proactive in maintaining the facilities and equipment associated with Unit 1. Although general housekeeping in the Unit 1 areas was adequate, the inspectors noted the gradual accumulation of dirt and debris in some areas. (Section 4.0)

#### **Decommissioning Performance and Status Review**

- The licensee and its contracted workforce conducted work effectively and safely and in accordance with license requirements, and radioactively contaminated material was adequately controlled. (Section 5.0)

#### **Occupational Radiation Exposure**

- The inspectors concluded that the radiological controls associated with the coating and draining of the spent fuel pool were adequate. (Section 6.0)

#### **Radioactive Waste Treatment, and Effluent and Environmental Monitoring**

- The licensee effectively managed the liquid radioactive wastes associated with Unit 1. (Section 7.0)

### **Solid Radioactive Waste Management and Transportation**

- The inspectors determined the licensee complied with NRC and Department of Transportation requirements for activities associated with the loading and shipping of potentially contaminated soil as radioactive waste. (Section 8.0)

## Report Details<sup>1</sup>

### **1.0 Organization, Management and Cost Controls (36801)**

#### 1.1 Inspection Scope

The inspectors reviewed the licensee's decommissioning organization to verify that it was sufficiently staffed to conduct decommissioning activities in an effective and safe manner.

#### 1.2 Observations and Findings

The licensee managed activities associated with Unit 1 through two separate groups. Routine activities that were generally non-unit specific in content, such as periodic maintenance, radiation surveys, and surveillances, were completed by plant personnel otherwise assigned to Units 2/3. Work associated with the SAFSTOR status of Unit 1, such as the fuel pool painting and draining, were completed by staff dedicated to SAFSTOR activities. The SAFSTOR organization was comprised of contractor personnel who usually were employed to work on specific projects such as the draining of the spent fuel pool. During tours of the Unit 1 facilities and work areas, the inspectors observed that a sufficient number of workers were available to support activities related to Unit 1.

#### 1.3 Conclusion

The inspectors concluded the licensee's decommissioning organization was sufficiently staffed to conduct decommissioning activities in an effective and safe manner.

### **2.0 Safety Reviews, Design Changes, and Modifications (37801)**

#### 2.1 Inspection Scope

The inspectors reviewed three out of four safety evaluations conducted by the licensee since the last inspection to verify that the evaluations were appropriate and consistent with licensee procedures. Specifically, the inspectors reviewed the safety reviews for: Duratek Procedure DM-OP-046-161022, Revision 1, "Operation of the Mobile Duratek Alps System at Dresden Unit 1 Station," Duratek Procedure FO-OP-023, Revision 22, "Bead Resin/Activated Carbon Dewatering Procedure for Duratek 14-215 or Smaller Liners," and Duratek Procedure FO-OP-061, "Procedure for the installation of the Equa\*Flex Vessel Man-way Covers and Gaskets."

#### 2.2 Observations and Findings

The licensee's review process required an initial applicability review, which determined whether a 10 CFR 50.59 screening was required. If the screening was required, the screening would determine whether a complete 10 CFR 50.59 evaluation was required. The licensee's safety reviews of the above three procedures resulted in a 10 CFR 50.59

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<sup>1</sup>NOTE: A List of acronyms used in the report is included at the end of the Report Details.

screening for Procedures DM-OP-046-161022 and FO-OP-023, and a 10 CFR 50.59 applicability review for Procedure FO-OP-061. The documentation provided was sufficient to support the licensee's conclusions and the applicable forms were completed as required.

### 2.3 Conclusions

The inspectors concluded that the 10 CFR 50.59 safety evaluations conducted for activities pertinent to Unit 1 were appropriate and consistent with licensee procedures.

## 3.0 **Self-Assessment, Auditing and Corrective Action (40801)**

### 3.1 Inspection Scope

The inspectors evaluated the licensee's effectiveness in identifying potential problems and implementing adequate corrective actions. Specifically the inspectors reviewed Assignment Report (AR) 00287870 Report, "Locked High Rad Barricade Replacement Needed," dated January 5, 2005, and AR 00322716 Report, "Discrepancies Noted During RP Predefine DRS-5600 D2/D3/D1," dated April 8, 2005.

### 3.2 Observations and Findings

During a January 2005 quarterly surveillance of Unit 1, the licensee identified several locked high radiation area (LHRA) ladder barricades that had not received the same enhancements as had LHRA barricades in the Units 2/3 areas of the site. These ladders provided access to the Unit 1 reactor cavity. Since the most recent surveys of the cavity were about seven years old, the licensee entered the cavity to conduct surveys and obtain updated dose rate and contamination information. Due to radiological decay that had occurred since the last surveys, the licensee identified areas with radiation levels in excess of 100 millirem per hour, but less than the levels requiring posting and controlling as LHRA. The licensee posted and controlled the reactor cavity as a high radiation area, in accordance with the requirements of 10 CFR Part 20. The licensee also added enhanced barriers to the access ladders and a work request was submitted to install a six-foot chain link fence around the entire Unit 1 reactor cavity.

During an April 2005 surveillance, the licensee identified concerns regarding the adequacy of a ladder lock in the Unit 1 488' sub pile room. Previous to the surveillance, the entire sub pile room had been maintained as a LHRA, but the LHRA had been reduced to a corner of the room to facilitate personnel entries for routine surveillances. Although the licensee determined that the controls on the ladder were sufficient to prevent an inadvertent entry, the licensee decided to enhance the existing ladder lock by replacing it with a larger ladder lock.

### 3.3 Conclusion

The licensee had been effective in identifying potential problems and implementing adequate corrective actions.

#### **4.0 Maintenance and Surveillance (62801)**

##### **4.1 Inspection Scope**

The inspectors walked down selected areas of Unit 1 to assess housekeeping and the material condition of the facility and equipment.

##### **4.2 Observations and Findings**

The licensee had made enhancements to some Unit 1 structures, which included a new roof, eaves and down-spouts, new covers for three radwaste vaults, and paving of some outdoor areas. Those efforts were to minimize rain water intrusion into the radwaste vaults and pipe tunnel. During the inspection, the licensee conducted a structural survey of Unit 1, to verify the integrity of buildings and structures. The survey was normally conducted once every five years. While most of the equipment in Unit 1 was no longer in use, equipment to support electrical services, fire protection, and heating were functional, as required, and received routine maintenance. Unnecessary equipment and debris were generally controlled; however, the inspectors observed that dirt and debris were collecting in some rooms and areas.

##### **4.3 Conclusion**

The inspectors concluded that the licensee was proactive in maintaining the facilities and equipment associated with Unit 1. Although general housekeeping in the Unit 1 areas was adequate, the inspectors noted the gradual accumulation of dirt and debris in some areas.

#### **5.0 Decommissioning Performance and Status Review (71801)**

##### **5.1 Inspection Scope**

The inspectors attended and observed a Unit 1 Daily Status meeting regarding decommissioning activities and a maintenance pre-job brief. The inspectors conducted plant tours to assess field conditions and decommissioning activities, and to verify that the licensee and its contracted workforce conducted work safely and in accordance with license requirements, and that radioactively contaminated material was being controlled.

##### **5.2 Observations and Findings**

The inspectors observed good communications between attendees at the Daily Status meeting. Safety precautions were discussed at the maintenance pre-job brief, and a good questioning attitude was exhibited by everyone involved. During site tours, the inspectors observed contractor staff using an epoxy paint to coat the sides of the Spent Fuel Pool (SFP) and transfer canal, and in the packaging and shipping of potentially contaminated soil. The inspectors noted that good work practices were adhered to and the material condition of facilities and equipment were commensurate with current decommissioning activities. In both work areas, adequate controls were in place and work practices were being followed to control the potential spread of contamination. The licensee and contractor personnel interviewed were knowledgeable of their work assignments and were attentive to their individual tasks. The inspector's check of numerous radiological instruments in use determined that all had current calibration stickers and had received daily instrument checks.

### 5.3 Conclusion

The licensee and its contracted workforce conducted work effectively and safely and in accordance with license requirements, and radioactively contaminated material was adequately controlled.

## 6.0 **Occupational Radiation Exposure (83750)**

### 6.1 Inspection Scope

The inspectors reviewed the radiological controls implemented for the coating and draining of the spent fuel pool (SFP).

### 6.2 Observations and Findings

Access to the SFP Building required a keycard for entry and personal monitoring for contamination prior to exit. The licensee established appropriate radiological boundaries, posted appropriate radiation protection caution signs, and used step-off pads to control the spread of contamination. Interviews of workers indicated that they were cognizant of dose rates throughout the SFP Building and in various areas of the SFP and transfer canal.

### 6.3 Conclusion

The inspectors concluded that the radiological controls associated with the coating and draining of the spent fuel pool were adequate.

## 7.0 **Radioactive Waste Treatment, and Effluent and Environmental Monitoring (84750)**

### 7.1 Inspection Scope

The inspectors reviewed the licensee's handling and processing of liquid radioactive waste associated with Unit 1.

### 7.2 Observations and Findings

The licensee transfers liquid radioactive waste from Unit 1 to the Units 2/3 radwaste system. Most of the water sent to Units 2/3 was from the SFP or from the 102 Tank. The licensee pumped waste water that primarily came from rain water that seeped into the pipe tunnel and radwaste vaults to the 102 Tank. The tank held about 55,000 gallons, and was 80 percent full. The licensee had taken steps to minimize the intrusion of rain water. The licensee intended to process the water in the 102 Tank, drain it, and then discontinue the use of the tank. The licensee planned to begin processing the contents of the 102 Tank after the SFP and transfer canal work had been completed.

### 7.3 Conclusions

The licensee effectively managed the liquid radioactive wastes associated with Unit 1.

## **8.0 Solid Radioactive Waste Management and Transportation (86750)**

### **8.1 Inspection Scope**

The inspectors evaluated the activities associated with the loading and shipping of potentially contaminated soil to verify compliance with NRC and Department of Transportation requirements.

### **8.2 Observations and Findings**

During the construction of the Dresden Interim Spent Fuel Storage Installation (ISFSI), the licensee excavated soil and piled it near the Unit 1 facilities. Due to the potential for this soil to contain low levels of radioactive contamination, the licensee decided to ship the soil as radioactive waste. The licensee loaded the soil into super-sacks weighing about 20,000 pounds when full, and placed two super-sacks on a flatbed trailer for transport. During the inspection, the licensee shipped four loaded trailers from the site. The inspectors observed several loaded trailers and reviewed the controls and activities associated with the loading of the soil into the super-sacks. The super-sacks were correctly positioned and adequately tied down on the trailers.

### **8.3 Conclusion**

The inspectors determined the licensee complied with NRC and Department of Transportation requirements for activities associated with the loading and shipping of potentially contaminated soil as radioactive waste.

## **9.0 Exit Meeting Summary**

The inspectors presented the inspection results to licensee management at the conclusion of the onsite inspection on April 1, and July 26, 2005. The licensee acknowledged the findings presented. The inspectors asked the licensee staff whether any of the materials that could be included in the inspection report should be considered proprietary. The licensee did not identify any of the materials as proprietary.

### **PARTIAL LIST OF PERSONS CONTACTED**

#### Licensee

- \*P. Ayers, PM Manager
- \*P. Salas, Regulatory Assurance Manager, Exelon
- \*J. Panozzo, Unit 1 Project Manager
- R. Christensen, Senior Project Manager
- \*J. Griffin, Regulatory Assurance Specialist

\* Indicates presence at the exit meeting held on July 26, 2005.

## **INSPECTION PROCEDURES USED**

IP 36801	Organization, Management & Cost Controls
IP 37801	Safety Reviews, Design Changes, and Modifications
IP 40801	Self-Assessment, Auditing and Corrective Action
IP 62801	Maintenance and Surveillance
IP 71801	Decommissioning Performance and Status Review
IP 83750	Occupational Radiation Exposure
IP 84750	Radioactive Waste Treatment, and Effluent and Environmental Monitoring
IP 86750	Solid Radioactive Waste Management and Transportation of Radioactive Materials

## **ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened	None
Closed	None
Discussed	None

## **LIST OF ACRONYMS USED**

CFR	Code of Federal Regulations
ISFSI	Interim Spent Fuel Storage Installation
LHRA	Locked High Radiation Area
NRC	Nuclear Regulatory Commission
SAFSTOR	Safe Storage Condition
SFP	Spent Fuel Pool

## **DOCUMENTS REVIEWED**

Documents used during the inspection were specifically identified in the Report Details, above.