July 16, 2003

Mr. John L. Skolds
President and Nuclear Officer
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: NRC INSPECTION REPORT 05000295/2003-002(DNMS) - ZION

Dear Mr. Skolds:

On June 20, 2003, the NRC completed an inspection at the Zion Nuclear Station. The purpose of the inspection was to determine whether decommissioning activities were conducted safely and in accordance with NRC requirements. Specifically, the inspectors evaluated safety reviews, self-assessments, decommissioning support activities, and spent fuel safety. At the conclusion of the inspection on June 20, 2003, the NRC inspectors discussed the findings with members of your staff.

The inspection consisted of an examination of decommissioning activities at the Zion Nuclear Plant 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, observations of activities in progress, and interviews with personnel.

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

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

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

Sincerely,

/RA/

Christopher G. Miller, Chief
Decommissioning Branch

Docket No. 05000295
License No. DPR-39

Enclosure: Inspection Report 05000295/2003-002(DNMS)

See Attached Distribution

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cc w/encl: Zion Nuclear Power Station Decommissioning Plant Manager
Regulatory Assurance Engineer - Zion
Chief Operating Officer
Senior Vice President - Nuclear Services
Senior Vice President - Mid-West Regional Operating Group
Vice President - Mid-West Operations Support
Vice President - Licensing and Regulatory Affairs
Director Licensing - Mid-West Regional Operating Group
Director Project Management
Senior Counsel, Nuclear, Mid-West Regional Operating Group
Document Control Desk - Licensing
M. Aguilar, Assistant Attorney General
K. Nollenberger, County Administrator
Mayor, City of Zion
State Liaison Officer
State Liaison Officer, Wisconsin
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A. C. Settles, Illinois Department of Nuclear Safety

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No.	05000295
License No.	DPR-39
Report No.	05000295/2003-002(DNMS)
Licensee:	Exelon Generation Company, LLC
Facility:	Zion Nuclear Station
Location:	101 Shiloh Boulevard Zion, IL 60099
Dates:	June 19-20, 2003
Inspectors:	Peter J. Lee, PhD, CHP, Decommissioning Inspector, DNMS Edward L. Kulzer, CIH, CSP, Decommissioning Inspector, DNMS
Approved by:	Christopher G. Miller, Chief Decommissioning Branch Division of Nuclear Materials Safety

EXECUTIVE SUMMARY

Zion Nuclear Station
NRC Inspection Report 05000295/2003-002(DNMS)

This routine decommissioning inspection covered aspects of licensee safety reviews, self-assessments, decommissioning support activities, spent fuel safety, and radiological safety.

Decommissioning Performance and Status Review at Permanently Shut Down Reactors

- The licensee's safety review process conformed to the requirements contained in Title 10 of the Code of Federal Regulations (10 CFR) Part 50.59. (Section 1.1)

- The RadChem Department self-assessment was effective in identifying procedure related issues. The licensee took appropriate corrective actions to correct the noted deficiencies. (Section 1.2)

Spent Fuel Safety

- The licensee continued to make progress in the installation of the new paging system, which will eliminate the need for continuous manning of the control room. (Section 2.1)

Radiological Safety

- The licensee continued to effectively control exposure to radiation and to maintain effective contamination control processes. (Section 3.1)

- The licensee was effectively implementing radiological effluent control programs and processes. (Section 3.2)

Report Details[1]

Summary of Plant Activities

During the period covered by this inspection, the plant remained in a condition ensuring safe storage of the spent fuel (SAFSTOR).

1.0 Decommissioning Performance and Status Review at Permanently Shut Down Reactors

1.1 Safety Reviews, Design Changes, and Modifications (37801)

a. Inspection Scope

The inspectors reviewed the safety screening process to assess licensee conclusions regarding the conduct of safety evaluations in accordance with Title 10 of the Code of Federal Regulations (10 CFR) Part 50.59.

b. Observations and Findings

The inspectors reviewed the following safety evaluations:

Engineering Change (EC) # 0000339324, "Install new radiation monitors in the fuel building," dated December 20, 2002.

"DSAR revision to remove radiation monitors no longer in service," 50.59 Screening Form No. 2003-0009,

"Re-route HVAC Drains to Sump Pump," 50.59 Screening Form No. 2003-0012,

"Secondary Sampling System (WS) Drain And De-energization Procedure," 50.59 Screening Form No. 2003-0011,

"DSAR Revision to Remove Radiation Monitors No Longer in Use," 50.59 Screening Form No. 2003-0010.

The inspectors selected the most recent 50.59 safety evaluation performed by the licensee to review in detail, which was EC # 000339324.

The inspector reviewed EC # 000339324 against Nuclear Generation Group procedure, "10 CFR 50.59 Review Process" Revision 18, dated January 14, 2003, and found that the licensee complied with the procedure and conducted an adequate screening. The instructions and forms used for the 10 CFR 50.59 evaluation addressed the regulatory requirements of 10 CFR 50.59.

These new area radiation monitors performed the same functions as the previous monitors. The inspectors reviewed the calibration certificates for the new monitors. These new monitors provide input to a new local indicating unit and to the Data

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Note: A list of acronyms used in these "Details" is provided at the end of the report.

Acquisition System (DAS) monitoring equipment for the Spent Fuel Nuclear Island (SFNI). This modification adds the alarm from the area radiation monitors to the "Guard-It" paging system and meets the requirements for monitoring found in the Safety Evaluation Report.

c. Conclusions

The inspectors determined that the licensee's safety review process conformed to the requirements contained in Title 10 of the Code of Federal Regulations (10 CFR) Part 50.59.

1.2 Self-Assessment, Auditing, and Corrective Actions (40801)

a. Inspection Scope

The inspectors reviewed one licensee self-assessment titled, "Status of the RadChem Department chemistry files, and of the chemistry procedures," dated March 19-21, 2003.

b. Observation and Findings

The inspectors reviewed the conclusions of the self-assessment to determine if it had been effective. The assessors identified problems with procedure changes on 19 procedures. The licensee also identified a problem concerning the complicated instructions given in order to validate procedure revision numbers. In the self-assessment of the chemistry department files, the licensee found retention times being exceeded and duplicate files being maintained for equipment calibrations. The licensee took actions to address these findings. The licensee clarified instructions required to validate the procedure changes. This reduced the processing and retention times and backup for processing these procedural changes. The licensee also reduced duplicate files.

c. Conclusions

The RadChem Department self-assessment was effective in identifying procedure related issues. The licensee took appropriate corrective actions to correct the noted deficiencies.

2.0 Spent Fuel Safety (60801)

2.1 Spent Fuel Pool (SFP)

a. Inspection Scope

The inspectors reviewed licensing documents and product descriptions for the licensee's new paging system. The licensee proposed this system to eliminate the need for continuous manning of the control room. The inspectors observed this communication system being tested at several locations in the facility.

The inspectors reviewed the following documents:

"Request for a License Amendment to Eliminate the Requirement for Continuous Control Room Watch When Nuclear Fuel is Stored in the Spent Fuel Pool," dated February, 28, 2001;

"Zion Nuclear Power Station, Units 1 and 2 - Issuance of Amendments RE: Eliminate Requirements for Continuous Control Room Watch When Nuclear Fuel Is Stored in the Spent Fuel Pool," dated January 31, 2003;

Safety Evaluation Report, Section 3.0 Evaluation, dated January 31, 2003;

Standing Order No. 03-01 Rev.1 dated March 4, 2003; and

"Guard It" product description information.

b. Observations and Findings

The "Guard It" system was operated off the Data Acquisition System, which had been functioning at the site since 2001. The system has recently been modified to incorporate the following alarms: Channel 1 for the SFP level and temperature; Channel 2 for the SFNI cooling towers A or B pump trip, or temperature; and Channel 3 for the noble gas, particulate or instrument failure, and area radiation. The system has been programmed to send seven different signals, which are given in sequence. If these signals are not responded to, the system will repeat until a call is returned to cancel the signal. The order in which these signals are sent is as follows: the pagers carried by Certified Fuel Handlers (CFH) and Non-Certified Operators (NCO), the pager carried by the Operations Manager, the operators, the public address system, the cell phone of the Operations Manager, the public address system, the Operations Manager's home phone number.

The inspectors observed the "Guard It" system being tested in several remote areas of the facility. In each location, the signal was received in a timely manner. These locations varied from a point adjacent to, but approximately 18 feet lower than, the spent fuel pool, to a distant location at the perimeter of the site.

Although the licensee was making progress on the installation of the paging system, a standing order was in place requiring that the control room be manned until all required alarms have been added to the paging system. This had not been completed.

c. Conclusions

The licensee continued to make progress in the installation of the new paging system, which will eliminate the need for continuous manning of the control room.

3.0 Radiological Safety

3.1 Occupational Radiation Exposure

a. Inspection Scope (83750)

The inspectors examined and evaluated external and internal exposure control, radiological surveying, control of radioactive materials, and contamination control.

b. Observations and Findings

The inspectors reviewed the general air sampling data taken from the Fuel Building and Auxiliary Building during the second quarter of 2003. The inspectors also reviewed the exposure records for the first half of 2003. Workers received no significant exposure during those periods.

The inspectors reviewed direct radiation survey and smear sample results from the Fuel Building and the Auxiliary Building for the second quarter of 2003. The inspectors determined that the licensee complied with procedural requirements and that contaminated areas were adequately controlled. Contamination levels within the facility were kept to a minimum.

The inspectors reviewed the calibration procedures and records for the Eberline RO-2 radiation survey meter, which was calibrated on May 19, 2003. The licensee calibrated the radiation survey meter properly and in accordance with procedures.

c. Conclusions

The licensee continued to effectively control exposure to radiation and to maintain effective contamination control processes.

3.2 Radioactive Waste Treatment, Effluent, and Environmental Monitoring

a. Inspection Scope (84750)

The inspectors reviewed the 2002 Effluent and Environmental Monitoring reports, and the Offsite Dose Calculation Manual (ODCM).

b. Observations and Findings

The ODCM was comprehensive and contained the requirements listed in the Technical Specifications. The effluent release data demonstrated that the concentrations of released effluent conformed to 10 CFR 20, Appendix B, Table 2 and the doses to the general public were in conformance with Appendix I of 10 CFR 50. The inspectors reviewed the environmental sampling results and determined all samples contained only background radiation levels with no distinct contribution from the shutdown Zion Station.

c. Conclusions

The licensee was effectively implementing radiological effluent control programs and processes.

4.0 Exit Meeting Summary

The inspectors presented the inspection results to a member of licensee management during an exit meeting on June 20, 2003. The licensee acknowledged the findings presented and did not identify any of the documents or processes reviewed by the inspectors as proprietary.

PARTIAL LIST OF PERSONS CONTACTED

* J. Ashley, Design Engineering
  R. Landrum, Operations and Engineering Manager
  R. Schuster, Radiation Protection and Chemistry Supervisor

* Present at the June 20, 2003 exit meeting.

INSPECTION PROCEDURES (IP) USED

IP 37801:	Safety Reviews, Design Changes, and Modifications at Permanently Shut Down Reactors
IP 40801:	Self-Assessment, Auditing, and Corrective Actions
IP 60801:	Spent Fuel Pool Safety at Permanently Shut Down Reactors
IP 83750:	Occupational Radiation Exposure
IP 84750:	Radioactive Waste Treatment, and Effluent and Environmental Monitoring

LIST OF ACRONYMS USED

CFH	Certified Fuel Handler
CFR	Code of Federal Regulations
EC	Exempt Change
NCO	Non-Certified Operators
NRC	Nuclear Regulatory Commission
SAFSTOR	Safe Storage of the Spent Fuel
SFNI	Spent Fuel Nuclear Island
SFP	Spent Fuel Pool