

October 24, 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 05000295/2003-003(DNMS) - ZION

Dear Mr. Skolds:

On September 24, 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, emergency preparedness, decommissioning support activities, and spent fuel safety. At the conclusion of the inspection on September 24, 2003, the NRC inspectors discussed the findings with members of your staff.

This 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, and interviews with personnel.

Based on the results of this inspection, the NRC did not identify any violations. Overall, the activities inspected were conducted in compliance with requirements of the Defueled Safety Analysis Report, the Quality Assurance Program, and Technical Specifications.

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>.

J. Skolds

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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 05000295/2003-003(DNMS)

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
Chairman, Illinois Commerce Commission
R. Zuffa, Illinois Department of Nuclear Safety

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*See previous concurrence

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No. 05000295
License No. DPR-39

Report No. 05000295/2003-003(DNMS)

Licensee: Exelon Generation Company, LLC

Facility: Zion Nuclear Station

Location: 101 Shiloh Boulevard
Zion, Illinois

Dates: *March 31, 2003 - April 1, 2003
*April 7 – 8, 2003
*April 16 – 18, 2003
*May 27– 28, 2003
September 23-24, 2003

*Illinois Emergency Management Agency (IEMA) Inspection

Inspectors: Peter J. Lee, PhD, CHP,
Decommissioning Inspector,
Division of Nuclear Materials Safety (DNMS)

Edward L. Kulzer, CIH, CSP,
Decommissioning Inspector, DNMS

Accompanying
Inspectors: Jane Yesinowski, IEMA
Jeff Roman, IEMA

Approved by: Christopher G. Miller, Chief
Decommissioning Branch, DNMS

EXECUTIVE SUMMARY

Zion Nuclear Station NRC Inspection Report 05000295/2003-003(DNMS)

This routine decommissioning inspection covered aspects of licensee safety reviews, emergency preparedness, decommissioning support activities, spent fuel safety, and radiological safety.

Decommissioning Performance and Status Review at Permanently Shut Down Reactors

- The licensee maintained the spent fuel pool equipment and components in satisfactory material condition. (Section 1.1)
- For the activities reviewed by the inspector, the licensee had adequately implemented the safety review process. The licensee adequately staffed the Safety Review Committee and followed applicable procedural guidance. (Section 1.2)
- The licensee's site security and emergency plan staffing, training, facilities, and procedures were adequate to accomplish emergency preparedness actions necessary in response to the Interim Compensatory Measures (ICMs) required by the Safeguards Order, dated May 23, 2002. The licensee made plan or procedural changes appropriate to the needs of the site. The licensee had complied with the intent of Section B.4.c of the Safeguards Order. (Section 1.3.1)
- The inspectors determined that the licensee had developed adequate site-specific EALs and had complied with the intent of Section B.4.d of the Safeguards Order, dated May 23, 2002. The licensee demonstrated that it could adequately implement portions of the emergency plan related to security events. (Section 1.3.2)

Spent Fuel Safety

- The licensee was properly monitoring and maintaining spent fuel pool parameters to ensure fuel safety. (Section 2.0)

Radiological Safety

- There were no findings related to exposure control and contamination control. (Section 3.1)

Report Details¹

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 Organization, Management, and Cost Controls (IP 36801)

a. Inspection Scope

The inspectors toured the fuel building and assessed the general material condition of equipment associated with the safe storage of spent fuel.

b. Observations and Findings

The inspectors evaluated the equipment providing safe storage of the spent fuel. The inspectors observed that the equipment was operating properly and in satisfactory material condition.

c. Conclusions

The inspectors determined that the spent fuel pool equipment was maintained in satisfactory material condition.

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

a. Inspection Scope

The inspectors reviewed the licensee safety review process and procedures. The inspectors assessed whether the licensee identified unreviewed safety questions and/or changes to technical specifications resulting from facility design changes and modifications. The inspectors reviewed a sample of completed safety evaluations. The inspectors also assessed the Station Review Committee's oversight and implementation of the requirements and procedures in place for the station's safety review process.

b. Observations and Findings

The licensee used procedure ZAP-100-06 Revision 18, "10 CFR 50.59 Review Process," for conducting safety reviews. The inspectors determined that this procedure provided adequate instructions for conducting safety reviews. The licensee used this procedure to identify an unreviewed safety question and to determine if a change was needed to the technical specifications. The inspectors reviewed safety reviews for the following changes:

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

EC #341414 "Guard-It auto dialer system design change"
EC #341418 "Bypass lake discharge tank and associated piping"

The inspectors determined that the licensee conducted safety reviews in accordance with the procedure. The licensee's safety judgments were appropriate. Qualified technical reviewers conducted the safety reviews, as required by TS 5.9.1.

The inspectors reviewed procedure ZAP-700-16, "Station Review Committee," which was used for implementing TS 5.9.2, "Station Review Committee." The inspectors determined that the procedure was adequate for implementation of the technical specification requirements.

c. Conclusions

For the activities reviewed by the inspector, the licensee had adequately implemented its safety review process. The licensee adequately staffed the safety review committee and followed applicable procedural guidance.

1.3 Emergency Preparedness Inspection of Interim Compensatory Measures (ICMs) at Decommissioning Power Plants (2561/004)

1.3.1 Site Security and Emergency Plans

a. Inspection Scope

The inspectors reviewed the site security and emergency plans and actions taken by the licensee to assure that the emergency onsite staffing, training, facilities, and procedures met the provisions of the ICM and the Safeguards Order of May 23, 2002. This review corresponded to Section B.4.c of the Order and Section IV.A of Appendix C to NRC TI 2561/1004.

Because Exelon Corporation had both operating reactors and reactors in SAFSTOR condition, Exelon responded to an earlier Order titled, "Information Assessment Team Recommendations In Response To A Site-Specific Credible Threat At A Nuclear Power Plant," dated November 6, 2001. This Order addressed the same areas (and additional areas) as the Safeguards Order issued on May 23, 2002, for decommissioned reactors. The inspectors verified that the licensee's plan or procedural changes were appropriate to the needs of the site.

b. Observations and Findings

The NRC inspectors reviewed the changes made to the Zion Emergency Plan Inspection Procedure titled, "Shift Supervisor/Emergency Director," dated June 20, 2002. The licensee wrote this procedure to comply with the ICM. The licensee established the Emergency Director's functions and responsibilities under the Defueled Emergency Plan (DSEP).

The inspectors determined the licensee's emergency facilities were adequate and in agreement with Zion's emergency plan. The inspectors reviewed the licensee's training records for emergency personnel. The inspectors determined that the emergency response training was adequate.

c. Conclusions

The licensee's site security and emergency plan staffing, training, facilities, and procedures were adequate to accomplish emergency preparedness actions necessary in response to the ICM required by the Safeguards Order, dated May 23, 2002. The licensee had made plan or procedural changes appropriate to the needs of the site. The licensee had complied with the intent of Section B.4.c of the Safeguards Order.

1.3.2 Emergency Action Levels (EALs)

a. Inspection Scope

The inspectors reviewed the licensee's EALs and strategies for escalation to higher-level event classifications that are site-specific. The inspectors reviewed Zion's Memorandum Titled, "Safeguards and Emergency Plan Reviews," dated November 20, 2002; Zion's "Defueled Station Emergency Plan (DSEP)," Rev. 5, dated January 2003, and the Exelon Memorandum titled, "Summary Report; Security/Emergency Preparedness Tabletops," dated April 22, 2002, which was used by the licensee to establish site-specific EALs.

b. Objectives and Findings

The licensee completed Tabletop Drills at Zion on March 15, 2002, to validate changes resulting from the NRC Security Threat Assessments, dated November 6, 2001. The following actions were validated: declaration of the appropriate EALs, implementation of the appropriate staffing in the Emergency Response Facility, simulation of escalation to a higher classification, evaluation of onsite personnel, and utilization of a security threat assessment. The licensee planned to declare either a Notification of Unusual Event (NOUE), or an Alert for confirmed security events at Zion 1 & 2. The licensee developed the following two recommendations from the Tabletop Drills for the Zion facility: review guidance for appropriate references, and review notification responsibilities for back shift operations.

c. Conclusions

The inspectors determined that the licensee had developed adequate site-specific EALs and had complied with the intent of Section B.4.d of the Safeguards Order, dated May 23, 2002. The licensee demonstrated that it could adequately implement portions of the emergency plan related to security events.

2.0 Spent Fuel Safety (60801)

a. Inspection Scope

The inspectors evaluated the systems associated with the storage, control and maintenance of spent fuel to determine whether these systems were being properly maintained.

b. Observations and Findings

The inspectors reviewed records of spent fuel pool water temperatures, levels, chemistry and gamma spectrum analyses for July through September of 2003. All parameters were within procedural limits. The boron concentrations were approximately 2000 parts per million (ppm) versus the technical specifications limit of greater than 500 ppm.

c. Conclusions

The licensee was properly monitoring and maintaining spent fuel pool parameters to ensure fuel pool safety.

3.0 Radiological Safety

3.1 Occupational Radiation Exposure

a. Inspection Scope (83750)

The inspectors examined and evaluated external and internal exposure control, radiological surveys, and contamination control.

b. Observations and Findings

The inspectors reviewed the general air sampling data collected from the Fuel Building and Auxiliary Building during the third quarter of 2003. The inspectors also reviewed the occupational radiation exposure report 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 third 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 procedures and records of routine source checks for the area radiation monitors in the Zion Fuel Building. The licensee had complied with procedural requirements.

c. Conclusions

There were no findings related to exposure control and contamination control.

4.0 Exit Meeting Summary

The inspectors presented inspection results to members of the licensee's staff at the conclusion of the inspection on September 24, 2003. The licensee 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

INSPECTION PROCEDURES (IP) USED

IP 36801:	Organization, Management and Cost Controls at Permanently Shut Down Reactors
IP 37801:	Safety Reviews, Design Changes, and Modifications at Permanently Shut Down Reactors
IP 60801:	Spent Fuel Pool Safety at Permanently Shut Down Reactors
IP 83750:	Occupational Radiation Exposure
TI2561/004	Safeguards and Emergency Preparedness Inspection of Interim Compensatory Measures at Decommissioning Power Reactors

LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
DSEP	Defueled Station Emergency Plan
EAL	Emergency Action Level
EC	Exempt Change
EPP	Emergency Preparedness Plan
FESW	Fuel Element Storage Well
FPP	Fire Protection Procedure
ICM	Interim Compensatory Measures
IEMA	Illinois Emergency Management Agency
NOUE	Notification of Unusual Event
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
OSR	On-site Review
SAFSTOR	Safe Storage of the Spent Fuel
SFNI	Spent Fuel Nuclear Island
SFP	Spent Fuel Pool
ZAP	Zion Administrative Procedure