

January 30, 2002

Mr. Oliver D. Kingsley, President
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: NRC INSPECTION REPORT 05000295/20001-006(DNMS);
05000304/2001-006(DNMS) - ZION

Dear Mr. Kingsley:

On January 18, 2002, the NRC completed an inspection at the Zion 1 and 2 reactor facilities which examined decommissioning activities. The enclosed report documents the inspection findings, which were discussed on December 5, 2001 and January 18, 2002, with members of your staff.

The inspection was an examination of activities at the Zion facilities as they related to safety and to compliance with the Commission's rules and regulations. Activities in the areas of facility management and control, decommissioning support, spent fuel safety, and radiological safety were examined. Within these areas, the inspection consisted of selective examinations of procedures and representative records, field observations and interviews with personnel.

No violations of NRC requirements nor other findings of significance were identified.

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

Sincerely,

/RA/

Bruce L. Jorgensen, Chief
Decommissioning Branch

Docket Nos. 05000295; 05000304
License Nos. DPR-39; DPR-48

Enclosure: Inspection Report 05000295/2001-006(DNMS); 05000304/2001-006(DNMS)

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos.	05000295; 05000304
License Nos.	DPR-39; DPR-48
Report No:	05000295/2001-006(DNMS); 05000304/2001-006(DNMS)
Licensee:	Exelon Generation Company, LLC
Facility:	Zion Nuclear Plant, Units 1 and 2
Location:	101 Shiloh Boulevard Zion, IL 60099
Dates:	December 5 through January 18, 2002
Inspectors:	Peter J. Lee, Ph.D., CHP, Radiation Specialist Terry Madedda, Physical Security Inspector Clifford K. Thompson, Illinois Department of Nuclear Safety
Approved by:	Bruce L. Jorgensen, Chief Decommissioning Branch Division of Nuclear Materials Safety

EXECUTIVE SUMMARY

Zion Nuclear Plant, Units 1 and 2 NRC Inspection Report 05000295/2001-006(DNMS); 05000304/2001-006(DNMS)

This routine decommissioning inspection covered aspects of licensee facility management and control, decommissioning support activities, spent fuel safety, and radiological safety.

During the inspection the plant was being maintained in a SAFESTOR [safe storage of the spent fuel] condition, with no major decommissioning work activities in progress.

Facility Management and Control

- The material integrity of structures, systems, and components necessary for the safe storage of spent fuel and for the conduct of safe decommissioning activities was being monitored and maintained.
- Plant housekeeping was good during this inspection period. Control room staffing met regulatory requirements.

Decommissioning Support Activities

- The licensee adequately maintained operational safety, the station winterization checklist was comprehensive, and the SFNI was adequately monitored.
- The licensee's security plan changes identified in Revision 2 were in accordance with 10 CFR 50.54(p)(2) regulatory requirements.

Spent Fuel Safety

- Spent fuel parameters were being properly monitored and maintained to ensure pool safety.

Radiological Safety

- The licensee had complied with procedural requirements for conducting surveys and had been successful in controlling external exposures and preventing the spread of contamination.
- Radioactive plant monitoring instruments were functioning. Required channel check surveillances were performed as required.

Report Details¹

Summary of Plant Activities

During the period covered by this inspection, the plant remained in SAFESTOR with no major decommissioning work activities in progress.

1.0 Facility Management and Control

1.1 General

The inspectors conducted reviews of ongoing activities in order to assess overall management and controls. Specific events and findings are detailed in the following sections.

1.2 Plant Tours to Evaluate Material Conditions and Housekeeping

a. Inspection Scope (IP 71801)

The inspectors participated in three plant tours of the Fuel Handling Building, including the spent fuel pool storage area, with the Operations/Engineering Manager to evaluate the material integrity of structures, systems, and components necessary for the safe storage of spent fuel.

b. Observations and Findings

The spent fuel pool area and support systems were clear and free of obstacles and debris. No fire hazards were observed. No degradation of structures, systems, and components important to the defueled condition were observed. Monitoring systems required to maintain the Spent Fuel Nuclear Island (SFNI) were in good working order. Overhead lights in the spent fuel pool area were recently replaced and the lighting was good. Lights were staggered (some on/some off) so that as lights burnt out, there would be other lights available to turn on. The control room was manned and met Technical Specification requirements.

c. Conclusions

The material integrity of structures, systems, and components necessary for the safe storage of spent fuel and for the conduct of safe decommissioning was being maintained. Plant housekeeping was good. Control room manning met regulatory requirements.

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

2.0 Decommissioning Support Activities

2.1 Cold Weather Preparations (71714)

a. Inspection Scope

The inspectors reviewed implementation of the licensee's winterization procedure, PT 35W, "Winter Operation Verification."

b. Observations and Findings

There were no deficiencies in the licensee's implementation of the winterization procedure, PT 35W. The inspectors did not identify any adverse conditions that could affect the operation of the SFNI cooling system. Frequency of equipment monitoring and surveillance testing were adequate to maintain proper operation of SFNI cooling systems and other plant functions. The winterization procedure specifically addressed all areas critical to adequately maintaining SFNI cooling systems and monitoring functions in an operating condition. The licensee's practice of maintaining lighting and heat in selected plant areas on an as-needed basis was a function of limited resources. No problems were identified by the inspectors.

c. Conclusions

The licensee adequately maintained operational safety, the station winterization checklist was comprehensive, and the SFNI was adequately monitored.

2.2 Physical Security Plan (81018)

a. Inspection Scope

The inspection included an in-office review of Revision 2 to the Zion Nuclear Power Station Defueled Physical Security Plan. Revision 2 was submitted by the licensee under 10 CFR 50.54(p)(2) requirements, and was submitted by licensee letter dated November 12, 2001.

b. Observation and Findings

Revision 2 was submitted to clarify licensee commitments regarding search activities of hand-carried items, to define "bullet-resistant" in accordance with NRC requirements, and to define the frequency for testing and inspecting certain security equipment. These plan modifications did not constitute changes that decreased specific plan commitments or security equipment performance.

c. Conclusions

The licensee's security plan changes identified in Revision 2 were in accordance with 10 CFR 50.54(p)(2) regulatory requirements.

3.0 Spent Fuel Safety

The inspectors verified the safe wet storage of spent fuel. Specific findings are detailed in the section below.

3.1 Spent Fuel Safety

a. Inspection Scope (60801)

The inspectors toured the spent fuel pool storage area, inspected SFNI equipment with the Operations/Engineering Manager, and discussed system alignments and operating parameters.

b. Observations and Findings

The spent fuel pool was observed to be clean and free of debris. Spent fuel pool temperature and level were being well monitored. A review of the November 2001 and December 2001 SFP water chemistry and gamma spectrum analyses results indicated that all parameters were within the limits specified in Zion Chemistry Procedure, ZCP-401.

c. Conclusions

Spent fuel parameters were being properly monitored and maintained to ensure pool safety.

4.0 Radiological Safety

4.1 General

The inspectors conducted reviews of ongoing activities in order to assess the overall Radiation Protection (RP) Program. Specific findings are detailed in the sections below.

4.2 Occupational Radiation Exposure

a. Inspection Scope (83750)

The inspectors examined and evaluated aspects of the RP Program.

b. Observations and Findings

A review of the general air sampling results from the Fuel and Auxiliary Buildings indicated that the internal exposures were well below 10 CFR 20 limits.

The inspectors reviewed a sampling of direct radiation survey results and smear sample results from the fuel building and the auxiliary building for the fourth quarters of 2001. The results indicated that the licensee had complied with applicable requirements, and the spread of contamination had been prevented. Contamination levels within the facility had been kept to a minimum.

c. Conclusions

The licensee had complied with procedural requirements for conducting surveys and had been successful in controlling external exposures and preventing the spread of contamination.

4.3 Control of Radioactive Materials and Contamination, Surveys, and Monitoring

a. Inspection Scope (83726)

The inspectors interviewed station personnel and reviewed station procedures and records to determine whether survey and monitoring activities were performed as required.

b. Observations and Findings

Station procedure ZRP 6021-29, "Routine Radiological Surveys," Revision 10, adequately provided a schedule for routine radiological surveys. The procedure included: survey frequency; area of the plant to be surveyed; radiological postings; survey instrument; survey instrument documentation; and craft instructions.

The inspectors reviewed two completed radiological survey maps, one for the 617 elevation of the Auxiliary Building and one for the Spent Fuel Building. The surveys were adequately performed, and results were properly documented on the applicable survey maps. Plant supervision kept adequate records of completed surveys including abnormalities.

c. Conclusions

Survey and monitoring activities were being performed as required. There were no findings in this area.

4.4 Radiological Environmental Monitoring

a. Inspection Scope (80721)

The inspectors reviewed the licensee's radiological environmental program with respect to radiological liquid releases and plant installed radiation monitors. The inspectors reviewed station procedures; the Defueled Safety Analysis Report; Technical Specifications; and the Offsite Dose Calculation Manual (ODCM).

b. Observations and Findings

The station radiological liquid release procedure, ZCP 421-1, "Zion Station Liquid Release Documentation," Revision 13, provided sampling and analysis requirements prior to the release of radiological liquid from the station. The procedure satisfied regulatory requirements.

The inspectors reviewed the required radioactive plant monitoring instruments from the ODCM Section 12 and the required surveillances listed in Table 12.2-4 of the ODCM.

The inspectors verified that the licensee had a procedure for performing the required channel check at the required frequency for each required instrument.

c. Conclusions

Radioactive plant monitoring instruments were functioning. Required channel check surveillances were performed as required. There were no findings in this area.

5.0 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management during meetings on December 5, 2001 and January 18, 2002. The licensee acknowledged the findings presented. 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
D. Bump, Plant Manager
T. Hill, Maintenance Supervisor
R. Landrum, Operations/Engineering Manager
B. Leydens, Security Manager
M. Peterson, Administrating/Training Supervisor
R. Schuster, Rad/Chem Supervisor

INSPECTION PROCEDURES USED

IP 60801:	Spent Fuel Pool Safety at Permanently Shut Down Reactors
IP 71714:	Cold Weather Preparations
IP 80721:	Radiological Environmental Monitoring
IP 81018:	Physical Security Plan
IP 83750:	Occupational Radiation Exposure
IP 83726:	Control of Radioactive Materials and Contamination, Surveys, and Monitoring

DOCUMENTS REVIEWED²

DSAR, "Defueled Safety Analysis Report"

DSEP, "Defueled Station Emergency Plan"

DTS, "Defueled Technical Specifications"

PSAR, "Post Shut-Down Activities Report"

Offsite Dose Calculation Manual chapters 10, 11, 12

LIST OF ACRONYMS USED

DSEP	Defueled Station Emergency Plan
DOT	Department of Transportation
DTS	Defueled Technical Specifications
IDNS	Illinois Department of Nuclear Safety
IP	Inspection Procedure
NRC	Nuclear Regulatory Commission
RP	Radiation Protection
SAFESTOR	Safe Storage of the Spent Fuel
SFNI	Spent Fuel Pool Nuclear Island
SFP	Spent Fuel Pool
SOI	System Operating Instruction
TS	Technical Specification
TSS	Technical Specifcation Surveillance
ZAP	Zion Administrative Procedures

²Other documents or records reviewed during this inspection are identified in the Report Details.