



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

February 10, 2016

Mr. Bryan C. Hanson
Senior VP, Exelon Generation Company, LLC
President and CNO, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: NRC INSPECTION REPORT NO. 05000010/2015012(DNMS)
DRESDEN NUCLEAR POWER STATION, UNIT 1

Dear Mr. Hanson:

On December 31, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed onsite inspection activities at the permanently shut down Dresden Nuclear Power Station, Unit 1. The purpose of the inspection was to determine whether decommissioning activities were conducted safely and in accordance with NRC requirements. The enclosed report presents the results of this inspection, which were discussed with Mr. F. Gogliotti and other members of your staff on January 25, 2016.

During the inspection period, the NRC inspectors reviewed the following aspects of onsite activities: organization, management, and cost control at the site; safety reviews, design changes, and modifications; self-assessments, audits, and corrective actions; occupational radiation safety; radioactive waste treatment; and effluent and environmental monitoring. The inspection consisted of an examination of activities at the site 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, observation of work activities, and interviews with personnel.

Based on the results of this inspection, no violations of NRC requirements were identified.

In accordance with Title 10 of the *Code of Federal Regulations* (CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholdings," 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's Public Document Room or from the Publicly Available Records System (PARS) component of

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Sincerely,

/RA/

Michael A. Kunowski, Chief
Materials Control, ISFSI, and
Decommissioning Branch
Division of Nuclear Materials Safety

Docket No: 50-010
License No: DPR-2

Enclosure:
IR 05000010/2015012(DNMS)

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U.S. NUCLEAR REGULATORY COMMISSION
REGION III

Docket No: 050-00010

License No: DPR-2

Report No: 05000010/2015012(DNMS)

Licensee: Exelon Generation Company, LLC

Facility: Dresden Nuclear Power Station, Unit 1

Location: Morris, Illinois

Dates: December 14, 2015

Inspectors: Rhex A. Edwards, Senior Health Physicist (DNMS)

Approved by: Michael A. Kunowski, Chief
Materials Control, ISFSI, and
Decommissioning Branch
Division of Nuclear Materials Safety

Enclosure

EXECUTIVE SUMMARY

Dresden Nuclear Power Station, Unit 1 NRC Inspection Report 05000010/2015012

The Dresden Nuclear Power Station Unit 1 is a permanently shut down and defueled power reactor that has been maintained in a prolonged safe storage (SAFSTOR) condition. Decommissioning activities occur periodically and as warranted by radiological, material, or structural condition. This safety inspection reviewed the overall effectiveness of the licensee's programs for continued SAFSTOR of Unit 1.

Organization, Management and Cost Controls

- The licensee adequately implemented organization, management, and cost controls in accordance with regulatory requirements, license conditions, and the Technical Specifications (TSs). (Section 1.0)

Safety Reviews, Design Changes, and Modifications

- The licensee performed adequate safety evaluations or screenings, completed design change evaluations and properly assessed decommissioning impacts of various work activities, as required by Title 10 of the *Code of Federal Regulations* (CFR) 50.59. (Section 2.0)

Self-Assessment, Auditing, and Corrective Action

- Issues were identified by the licensee at appropriate thresholds and entered into the corrective action program (CAP). Issues were screened and prioritized commensurate with safety significance. Licensee evaluations determined the significance of issues, and included appropriate remedial corrective actions. (Section 3.0)

Occupational Radiation Exposure

- Radiation Work Permits (RWPs) and As Low As Is Reasonably Achievable (ALARA) controls provided contamination controls and dose reduction measures appropriate for the work activities. Workers adhered to the radiological controls provided in the RWPs and ALARA plans and followed the Radiation Protection (RP) staff instruction.
- Decommissioning activities were executed in general alignment with planning documents and as provided in RWPs and ALARA reviews. Radiation surveys were performed adequately to identify the hazards present. Command and control of radiologically significant activities was executed in a manner that was safe and achieved the desired result. (Section 4.0)

Radioactive Waste Treatment, and Effluent and Environmental Monitoring

- The licensee maintained effluent monitoring and control systems as required. Annual Radioactive Effluent Reports were timely submitted and satisfied Offsite Dose Calculation Manual (ODCM) requirements. (Section 5.0)

Report Details

Summary of Plant Activities

During the inspection period, the licensee maintained Dresden Unit 1 in SAFSTOR conditions. Licensee's activities primarily involved routine surveillance work to support continued SAFSTOR dormancy.

1.0 Organization, Management, and Cost Controls at Permanently Shutdown Reactors (Inspection Procedure (IP) 36801)

1.1 Inspection Scope

The inspectors reviewed documents and interviewed plant personnel to assess the licensee's performance as it related to the following areas:

- Implementation of CAP procedures;
- Regulatory requirements were properly implemented with respect to the site organization, staffing, and staff qualifications;
- Future licensee plans for decommissioning organization and staffing would continue to meet regulatory requirements;
- Licensee appropriately implemented TS, Technical Requirements Manual, Post-Shutdown Decommissioning Activities Report (PSDAR), and fire protection plan requirements and commitments;
- Licensee continued implementation of regulatory requirements that remained applicable as described in the U.S. Nuclear Regulatory Commission (NRC) Bulletins, Generic Letters, and Orders; and
- Licensee decommissioning activities were initiated, sequenced and performed in a manner consistent with the PSDAR.

As part of the inspection, the inspectors verified that licensee programs and procedures were appropriately implemented by licensee staff. In addition, the inspectors verified that when issues were identified, licensee personnel appropriately documented the issues in the CAP.

1.2 Observations and Findings

The inspectors determined through: direct licensee observation; reviews of established licensee programs and procedures; corrective action documents; and interviews with licensee personnel that the appropriate regulatory requirements and commitments were followed. During walkdowns, the inspectors concluded that the licensee maintained good house-keeping practices in Unit 1 and adhered to fire protection program requirements.

No findings were identified.

1.3 Conclusions

The licensee adequately implemented organization, management, and cost controls in accordance with regulatory requirements, license conditions, and the TSs.

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

2.1 Inspection Scope

The inspectors reviewed documents and interviewed plant personnel to assess the licensee's performance as it related to the following areas:

- Determination that licensee procedures and processes conform to the regulation and guidance associated with 10 CFR 50.59;
- Procedures that control and implement design changes and modifications to assess that the procedures provided adequate guidance for implementation, review, and approval;
- Verification that the design change process followed approved procedures and applicable changes were effectively implemented in the field and in plant procedures, drawings, and training programs, if applicable;
- Verification that changes made under 10 CFR 50.59 did not require prior NRC approval; and
- Verification that changes to preventive maintenance, corrective maintenance, and operational procedures for required equipment were implemented in accordance with the licensee's processes and procedures.

The inspectors verified that when issues were identified licensee personnel appropriately documented the issues in the CAP.

2.2 Observations and Findings

The inspectors reviewed the licensee's programs for changes and reviewed a sample of licensee-approved changes. Specifically, the inspectors reviewed design changes to the Unit 1 ventilation chimney. The licensee isolated all release paths to the chimney and abandoned it in place. This, along with other design changes, was determined by the inspectors to be adequately screened according to the provisions in 10 CFR 50.59. The inspectors determined that when issues were identified, the issues were documented by the licensee in the CAP at an appropriate threshold.

No findings were identified.

2.3 Conclusions

The licensee performed adequate safety evaluations or screenings; completed design change evaluations; and properly assessed decommissioning impacts of various work activities as required by 10 CFR 50.59.

3.0 Self-Assessments, Audits, and Corrective Actions (IP 40801)

3.1 Inspection Scope

The inspectors conducted document reviews and interviews with plant personnel to assess the licensee's performance as it related to the following areas:

- Administrative procedures prescribed actions for the identification, evaluation and resolution of problems;
- License procedures prescribed thresholds for the performance of self-assessments, audits, and surveillances;
- Licensee management reviewed self-assessments, audits, and corrective actions to remain knowledgeable of plant performance;
- Self-assessments were conducted with technically qualified personnel and sufficient independence from the licensee;
- Issues or problems were identified and corrected in accordance with the licensee's CAP; and
- Quality assurance personnel audited changes in the status of decommissioning and licensee organization.

The inspectors reviewed CAP documents to determine: if a sufficiently low threshold for problem identification existed; the quality of follow-up evaluations, including extent-of-condition; and if the licensee assigned timely and appropriate prioritization for issue resolution commensurate with the significance of the issue.

3.2 Observations and Findings

The inspectors determined that issues were identified by the licensee at an appropriate threshold within various functional areas of the site and entered into the CAP. Issues were effectively screened, prioritized, and evaluated commensurate with safety significance. The scope and depth of evaluations were adequate in that the evaluations reviewed addressed the significance of issues and assigned an appropriate course of remedial action.

No findings were identified.

3.3 Conclusions

Issues were identified by the licensee at appropriate thresholds and entered into the CAP. Issues were screened and prioritized commensurate with safety significance. Licensee evaluations determined the significance of issues and included appropriate remedial corrective actions.

4.0 Occupational Radiation Exposure (IP 83750)

4.1 Inspection Scope

The inspectors reviewed documents, made observations, and interviewed plant personnel to assess whether the licensee's:

- Planning and preparation for radiation work were adequate and if licensee management supported radiation protection planning;
- Management and administrative controls of external radiation exposure met requirements and were designed to keep exposures ALARA;
- Processes or engineering controls were used to the extent practicable to limit concentrations of airborne radioactive materials;
- Survey and monitoring activities were performed as required;
- Control of radioactive materials and contamination met requirements;
- Effectively implemented the ALARA program;
- Initiatives to implement operational methods and practices maintained doses ALARA; and
- Issues, events, or problems were identified and resolved, so as to help prevent future problems in the area of radiological controls.

The inspectors verified that when issues were identified licensee personnel appropriately documented the issues in the CAP.

4.2 Observations and Findings

The inspectors found that radiological activities were evaluated by the licensee and ALARA controls were prescribed to satisfy the requirements of 10 CFR 20.1101. Measures were established in the Unit 1 containment building to adequately prevent the creation of airborne hazards; control the spread of contamination; and to reduce external dose. A review of radiological surveys performed over the inspection period did not identify any unusual radiological conditions.

No findings were identified.

4.3 Conclusions

Workers adhered to the radiological controls provided in the RWPs and ALARA plans, and followed the RP staff instruction. Decommissioning activities were executed in general alignment with planning documents and as provided in RWPs and ALARA reviews. Radiation surveys were performed adequately to identify the hazards present.

5.0 Radioactive Waste Treatment, and Effluent and Environmental Monitoring (IP 84750)

5.1 Inspection Scope

The inspectors conducted document reviews and interviews with plant personnel to assess the licensee's performance as it related to the following areas:

- Determined whether radioactive waste treatment systems were maintained and operated to keep offsite doses ALARA;
- Determined whether the licensee effectively controlled, monitored, and quantified releases of radioactive materials in liquid, gaseous, and particulate forms to the environment; and
- Determined whether the radiological environmental monitoring programs were effectively implemented to ensure effluent releases were being adequately performed as required to minimize public dose.

As part of the inspection, the inspectors verified that licensee programs and procedures were appropriately implemented by licensee staff. In addition, the inspectors verified that when issues were identified licensee personnel appropriately documented the issues in the corrective action program and adequate corrective actions were taken.

5.2 Observations and Findings

The inspectors noted that during a review of past Annual Radiological Effluent Release Reports, no anomalous results, unexpected trends, or abnormal releases were identified in association with Unit 1 activities.

No findings were identified.

5.3 Conclusions

The licensee maintained effluent monitoring and control systems as required. Annual Radioactive Effluent Reports were timely submitted and satisfied ODCM requirements.

6.0 Exit Meeting

The inspectors presented the results of the inspection to Mr. F. Gogliotti and other members of the licensee staff at an onsite exit meeting on January 25, 2016. The licensee acknowledged the results presented and did not identify any of the information discussed as proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

F. Gogliotti, Engineering Director
D. Walker, Senior Regulatory Specialist
M. Mason, Unit 1 Project Manager

INSPECTION PROCEDURES (IPs) USED

IP 36801	Organization and Management Controls at Permanently Shutdown Reactors
IP 37801	Safety Reviews, Design Changes, and Modifications at Permanently Shutdown Reactors
IP 40801	Self-Assessment, Auditing and Corrective Action at Permanently Shutdown Reactors
IP 83750	Occupational Radiation Safety
IP 84750	Radioactive Waste Treatment, and Effluent and Environmental Monitoring

ITEMS OPENED, CLOSED, AND DISCUSSED

<u>Opened</u>	<u>Type</u>	<u>Summary</u>
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None

<u>Closed</u>	<u>Type</u>	<u>Summary</u>
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None

<u>Discussed</u>	<u>Type</u>	<u>Summary</u>
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None

PARTIAL LIST OF DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety, but rather that selected sections of portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

- DTS 0010-01; Integrity Surveillance for Unit 1 Structures; Revision 6
- DTS 0010-04; Unit 1 Chimney Integrity Surveillance; Revision 3
- DTS 0010-05; Unit 1 Tank Structural Integrity Surveillance; Revision 6
- 50.59 Screen No. 2013-0099; Unit 1 Chimney Demolition; Revision 1
- 50.59 Screen No. 2014-0069; Main Control Room Switchyard Panel P-18B Meter Changes; Revision 0
- 50.59 Screen No. 2014-0146; TCCP for Removal of TR-13 Close Circuit Fuses; Revision 0
- DCS EC 392805; Demolish Unit 1 Chimney; Revision 2
- DCS EC 399433; TCCP for Removal of TR-13 Close Circuit Fuses; Revision 0
- DCS EC 397875; Main Control Room Switchyard Panel P-18B Meter Changes; Revision 0
- 2015 Dresden Unit 1 Radiological Surveys
- 2014 Dresden Unit 1 Radiological Surveys
- WO 01516857; D1 AN PM System Ground Water Intrusion Monitoring W/D; December 4, 2012
- WO 01599635; D1 AN PM System Ground Water Intrusion Monitoring W/D; November 25, 2013
- WO 01693478; D1 AN PM System Ground Water Intrusion Monitoring W/D; November 19, 2014
- WO 1800555; D1 AN PM System Ground Water Intrusion Monitoring W/D; October 29, 2015
- WR 00459310; U1 Fire Protection Pipe Leaking at Elbow; March 19, 2014
- NOSA-DRE-13-10; Decommissioned Units Audit Report; December 11, 2013
- CR 02434090; 901-2 A-6 U1 IA Pressure Low Alarm; January 7, 2015
- CR 02469935; Corrosion/Paint Flaking on T-137A U1 DFP Day Tank; March 17, 2015
- CR 02475955; Corrosion Found on 33 Terminals on U1 125V DC Battery; March 29, 2015
- CR 02504234; U1 CST Above Ground Storage Tank Inspection Results; May 21, 2015
- CR 02504730; Depression in Floor of U1 CST; May 22, 2015
- CR 02525491; U1 CST Tank NDE Results; July 8, 2015

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
ALARA	As Low As Is Reasonably Achievable
CAP	Corrective Action Program
CFR	Code of Federal Regulations
DNMS	Division of Nuclear Materials Safety
NRC	U.S. Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
PARS	Publicly Available Records System
PSDAR	Post-Shutdown Decommissioning Activities Report
RP	Radiation Protection
RWP	Radiation Work Permit
SAFSTOR	Safe Storage
TS	Technical Specification