UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
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December 22, 2016

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

SUBJECT: NRC INSPECTION REPORT NO. 05000010/2016011(DNMS) – DRESDEN NUCLEAR POWER STATION, UNIT 1

Dear Mr. Hanson:

On December 13, 2016, 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. P. Karaba and other members of your staff on December 13, 2016.

During the inspection, 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 exposure; radioactive waste treatment, effluent, and environmental monitoring; and transportation of radioactive material. 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

NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC's website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

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 05000010/2016011(DNMS)

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Letter to Bryan Hanson from Michael Kunowski dated December 22, 2016

SUBJECT: NRC INSPECTION REPORT NO. 05000010/2016011(DNMS) – DRESDEN NUCLEAR POWER STATION, UNIT 1

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U.S. NUCLEAR REGULATORY COMMISSION
REGION III

Docket No:	050-00010
License No:	DPR-2
Report No:	05000010/2016011(DNMS)
Licensee:	Exelon Generation Company, LLC
Facility:	Dresden Nuclear Power Station, Unit 1
Location:	Morris, Illinois
Dates:	December 12-13, 2016
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 05000010/2016011

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

- Workers adhered to the radiological controls provided in the Radiation Work Permits (RWPs) and As Low As Is Reasonably Achievable (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. The remaining aspects of this program are inspected by the U.S. Nuclear Regulatory Commission (NRC) through the Reactor Oversight Process (ROP) for Units 2 and 3. (Section 4.0)

Radioactive Waste Treatment, and Effluent and Environmental Monitoring

- The licensee maintained effluent and environmental monitoring as required. With respect to Unit 1, Annual Radioactive Effluent Reports were timely submitted and satisfied Offsite Dose Calculation Manual (ODCM) requirements. The remaining aspects of this program are inspected by the NRC through the ROP for Units 2 and 3. (Section 5.0)

Solid Radioactive Waste Management and Transportation of Radioactive Materials

- The licensee maintained and shipped radioactive material in accordance with NRC and Department of Transportation regulations during the safe storage of Unit 1. The remaining aspects of this program are inspected by the NRC through the ROP for Units 2 and 3. (Section 6.0)

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 and maintenance 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 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 housekeeping 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 plans for the removal of the heating boiler exhaust stack. This, along with other work orders, were determined to be adequately screened according to the provisions in 10 CFR 50.59, as applicable. 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:

- 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;
- ALARA program was effectively implemented;
- 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.

Occupational radiation exposure is controlled by the licensee under the same program as the operating units, Units 2 and 3. Similarly, the NRC inspects this program through the NRC's ROP for Units 2 and 3. As such, the NRC uses the ROP to provide oversight of the occupational radiation exposure program.

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. The remaining aspects of this program are inspected by the NRC through the ROP for Units 2 and 3.

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.

Effluent and environmental monitoring is controlled by the licensee under the same program as the operating units, Units 2 and 3. Similarly, the NRC inspects this program through the NRC's ROP for Units 2 and 3. As such, the NRC performs inspections through the ROP to provide oversight of the effluent and environmental monitoring program.

No findings were identified.

5.3 Conclusions

The licensee maintained effluent and environmental monitoring and control systems as required. With respect to Unit 1, Annual Radioactive Effluent Reports were timely submitted and satisfied ODCM requirements. The remaining aspects of this program are inspected by the NRC through the ROP for Units 2 and 3.

6.0 Solid Radioactive Waste Management and Transportation of Radioactive Materials (IP 86750)

6.1 Inspection Scope

The inspectors reviewed documents and interviewed plant personnel to determine whether radioactive material is properly processed, packaged, and shipped by the licensee in accordance with NRC and Department of Transportation regulations.

6.2 Observations and Findings

Prior to the inspection, the licensee made one radioactive material shipment in 2016 from Unit 1. The inspectors reviewed the required documentation associated with the shipment of dry active waste from Unit 1.

The storage and transportation of radioactive materials is controlled by the licensee under the same program as the operating units, Units 2 and 3. Similarly, the NRC inspects this program through the NRC's ROP for Units 2 and 3. As such, the NRC uses the ROP to provide oversite of the management and transportation of radioactive waste.

No findings were identified.

6.3 Conclusions

The licensee maintained and shipped radioactive material in accordance with NRC and Department of Transportation regulations during the safe storage of Unit 1. The remaining aspects of this program are inspected by the NRC through the ROP for Units 2 and 3.

7.0 Exit Meeting

The inspectors presented the results of the inspection to Mr. P. Karaba and other members of the licensee staff at an onsite exit meeting on December 13, 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

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
IP 86750	Solid Radioactive Waste Management and Transportation of Radioactive Materials

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened	Type	Summary
None		

Closed	Type	Summary
None		

Discussed	Type	Summary
None		

Attachment

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.

- AR 02738220; Dose Variance for the Week of 10/31/2016; November 7, 2016
- AR 02645449; March 2-3, 2016 NSRB Executive Summary Response; March 25, 2016
- AR 02617152; U1 5-Year Structural Inspection Issue Identification; January 26, 2016
- 2015 Unit 1 Dresden Structural Inspection Report; January 8, 2016
- DDP 01; Administrative Control Program for Dresden Unit 1; Revision 17
- DDP 02; Update of the Unit 1 Defueled Safety Analysis Report; Revision 4
- DDP 03; Administrative Controls for Unit 1 Structures During Periods of Low Temperatures; Revision 3
- DDP 05; Control of Decommissioned Plant Equipment for Dresden Unit 1 SSCs; Revision 18
- DDP 10; 10 CFR 50.82 Decommissioning Impact Evaluations; Revision 6
- DDP 11; Onsite Technical Review for Decommissioned Plants; Revision 11
- DDP 18; Roadmap to Configuration Changes on Dresden Unit 1; Revision 17
- 2016 Dresden Unit 1 Radiological Surveys
- NOSA-DRE-15-11; Decommissioned Units Audit Report; December 16, 2015
- U1 Engineering Letter 16-001; March 28, 2016
- U1 Engineering Letter 16-002; March 28, 2016
- NRC Form 540; Shipment ID No. DW-16-032; May 24, 2016
- NRC Form 541; Shipment ID No. DW-16-032; May 24, 2016

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
IP	Inspection Procedure
NRC	U.S. Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
PARS	Publicly Available Records System
PSDAR	Post-Shutdown Decommissioning Activities Report
ROP	Reactor Oversight Process
RP	Radiation Protection
RWP	Radiation Work Permit
SAFSTOR	Safe Storage
TS	Technical Specification