



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION III

2443 WARRENVILLE ROAD, SUITE 210

LISLE, ILLINOIS 60532-4352

October 1, 2019

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. 05000010/20190001 – DRESDEN NUCLEAR  
POWER STATION, UNIT 1

Dear Mr. Hanson:

On September 11, 2019, 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. J. Stovall and other members of your staff on September 11, 2019.

During the inspection, the NRC inspector reviewed the following aspects of onsite activities: performance and status review; safety reviews, design changes, and modifications; self-assessments, audits, and corrective actions; occupational radiation exposure; radioactive waste treatment, and 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.

This letter and its enclosure will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

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: Inspection Report No. 05000010/2019001

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Letter to Bryan C. Hanson from Mathew Learn, dated October 1, 2019.

SUBJECT: NRC INSPECTION REPORT NO. 05000010/20190001 – 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: 05000010/2019001

EPID No: I-2019-001-0095

Licensee: Exelon Generation Company, LLC

Facility: Dresden Nuclear Power Station, Unit 1

Location: Morris, IL

Dates: September 10-11, 2019

Inspector: Matthew Learn, Reactor Engineer  
Zahira Perez Cruz, Project Manager (Observer)  
Valerie Myers, Senior Health Physicist (Observer)

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 05000010/2019001**

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

#### **Safety Reviews, Design Changes, and Modifications**

- The licensee's processes were adequate to perform appropriate safety evaluations or screenings; design change evaluations; and assessments of decommissioning impacts of various work activities as required by 10 CFR *Code of Federal Regulations* (CFR) 50.59. The remaining aspects of these processes are inspected by the U.S. Nuclear Regulatory Commission (NRC) through the Reactor Oversight Process (ROP) for Units 2 and 3. (Section 1.0)

#### **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. The remaining aspects of this program are inspected by the NRC through the ROP for Units 2 and 3. (Section 2.0)

#### **Decommissioning Performance and Status Review**

- The inspectors determined that the licensee conducted SAFSTOR activities in accordance with the regulations and license requirements. The inspectors also verified that the licensee performed SAFSTOR operations in accordance with Technical Specifications (TSs), the Decommissioning Safety Analysis Report (DSAR), and the Post Shutdown Decommissioning Activities Report (PSDAR). (Section 3.0)

#### **Occupational Radiation Exposure**

- Workers adhered to the radiological controls provided in 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 NRC through the 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 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 Safety Reviews, Design Changes, and Modifications (Inspection Procedure (IP) 37801)

##### 1.1 Inspection Scope

The inspector 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 10 CFR 50.59 and associated guidance;
- 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 to preventive maintenance, corrective maintenance, and operational procedures for required equipment were implemented in accordance with the licensee's processes and procedures.

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

##### 1.2 Observations and Findings

The inspector reviewed the licensee's programs for changes. There were no changes to the decommissioning facility that required an evaluation according to the provision of 10 CFR 50.59.

No findings were identified.

##### 1.3 Conclusions

The licensee's processes were adequate to perform appropriate safety evaluations or screenings, design change evaluations, and assessments of decommissioning impacts of various work activities as required by 10 CFR 50.59. The remaining aspects of this program are inspected by the NRC through the ROP for Units 2 and 3.

## **2.0 Self-Assessment, Auditing, and Corrective Action (IP 40801)**

### **2.1 Inspection Scope**

The inspector 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;
- Licensee 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 inspector 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.

### **2.2 Observations and Findings**

The inspector 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.

The CAP 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 additional oversight of CAP.

No findings were identified.

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

### **3.0 Decommissioning Performance and Status Review (IP 71801)**

#### **3.1 Inspection Scope**

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

- Status of ongoing decommissioning activities and planning for future activities;
- Performance of the plant staff and the contracted workforce, and their control and conduct of maintaining the facility in SAFSTOR;
- Technical Specification requirements, and licensee actions described in the DSAR, and the PSDAR, are met and implemented; and
- To conduct a plant tour to evaluate the material integrity of structures, systems, and components (SSCs) necessary for the conduct of SAFSTOR.

#### **3.2 Observations and Findings**

The inspectors determined through the plant tours and activities observed that the licensee conducted activities in accordance with the regulatory requirements and plant procedures

No findings were identified.

#### **3.3 Conclusions**

The inspectors determined that the licensee conducted SAFSTOR activities in accordance with the regulations and license requirements. The inspectors also verified that the licensee performed SAFSTOR operations in accordance with TSs, the DSAR and the PSDAR.

### **4.0 Occupational Radiation Exposure (IP 83750)**

#### **4.1 Inspection Scope**

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

#### 4.2 Observations and Findings

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 selected radiological surveys 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 additional oversight of the occupational radiation exposure program.

No findings were identified.

#### 4.3 Conclusions

Workers adhered to the radiological controls provided in RWPs and followed RP staff instruction. Decommissioning activities were executed in general alignment with planning documents and as provided in RWPs. 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 inspector conducted document reviews and interviews with plant personnel to assess the licensee's performance as it related to the following areas:

- Radioactive waste treatment systems were maintained and operated to keep offsite doses ALARA;

- The licensee effectively controlled, monitored, and quantified releases of radioactive materials in liquid, gaseous, and particulate forms to the environment; and
- 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 inspector verified that licensee programs and procedures were appropriately implemented by licensee staff. In addition, the inspector 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 inspector 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 additional 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 inspector 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

The inspectors interviewed plant personnel and determined that one shipments of radioactive material occurred since the last inspection. During a facility tour the inspectors observed the licensee's storage of radioactive materials. 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 additional oversight 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 inspector presented the results of the inspection to Mr. J. Stovall and other members of the licensee staff at an onsite exit meeting on September 11, 2019. 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

### **INSPECTION PROCEDURES (IPs) USED**

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 71801	Performance and Status Review
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**

<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 inspector 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.

- 2010-2019 Energy Solutions Shipments
- 2018-2019 Dresden Unit 1 Condition Reports
- 2018-2019 Dresden Unit 1 Radiological Surveys
- AR U1 2015 Structural Inspection Final Report – WR Needed; January 11, 2016
- Changes to Post-Shutdown Decommissioning Activities Report; August 23, 2001
- DDP-18; Roadmap to Configuration Changes on Dresden Unit 1; Revision 18
- Defueled Safety Analysis Report Update; June 20, 2016
- Defueled Safety Analysis Report Update; June 20, 2018
- DOP 2000-21; Transfer of Unit 1 Turbine Building Drain Tank to Unit 2/3 B Water Neutralizer Tank or Unit 2/3 Waste Surge Tank; Revision 14
- Dresden Nuclear Power Station 2018 Radioactive Effluent Release Report and Offsite Dose Calculation Manual; April 19, 2019
- Dresden Nuclear Power Station 2018 Radioactive Effluent Report; May 2019
- RP-AA-302; Determination of Alpha Levels and Monitoring; Revision 10
- Unit 1 5-Year Structural Inspection Work Down Curve; July 10, 2018
- Unit 1 Post-Shutdown Decommissioning Activities Report; June 1, 1998
- Update to Dresden Nuclear Power Station Unit 1 Post-Shutdown Decommissioning Activities Report; January 5, 2007
- Update to Dresden Nuclear Power Station Unit 1 Post-Shutdown Decommissioning Activities Report; March 19, 2018

## **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
DSAR	Decommissioning Safety Analysis Report
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
SSCs	Structures, Systems, and Components
TS	Technical Specification