



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

January 16, 2024

Carolyn Joseph
Site Vice President
Constellation Energy Generation, LLC
6500 North Dresden Road
Morris, Illinois 60450

SUBJECT: NRC INSPECTION REPORT NO. 05000010/2023001 (DRSS) – DRESDEN
NUCLEAR POWER STATION, UNIT 1

Dear Carolyn Joseph:

On Dec 20, 2023, the U.S. Nuclear Regulatory Commission (NRC) completed onsite inspection activities for January 2, 2023, through December 20, 2023, at the permanently shut-down Dresden Nuclear Power Station, Unit 1 in Morris, Illinois. 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 Jake Murphy and other members of your staff on December 21, 2023.

During the inspection period, the NRC inspectors reviewed the following aspects of onsite activities: safety reviews, design changes and modifications; problem identification and resolution; fire protection; decommissioning performance; occupational radiation exposure; radioactive waste treatment, effluent, and environmental monitoring; and waste management and transportation. 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, reviewing work activities on-site and interviews with personnel.

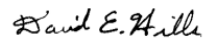
Based on the results of this inspection, the NRC did not identify any violations.

C. Joseph

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Sincerely,



Signed by Hills, David
on 01/16/24

David E. Hills, Chief
Decommissioning, Reactor, and ISFSI HP Branch
Division of Radiological Safety and Security

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

Enclosure:
IR Nos. 05000010/2023001 (DRSS);

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C. Joseph

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Letter to Carolyne Joseph from David E. Hill dated January 16, 2024.

SUBJECT: NRC INSPECTION REPORT NO. 05000010/2023001 (DRSS) – DRESDEN
NUCLEAR POWER STATION, UNIT 1

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U.S. NUCLEAR REGULATORY COMMISSION
REGION III

Docket No: 50-010

License No: DPR-2

Report No: 05000010/2023001(DRSS);

Enterprise Identifier: I-2003-001-0087

Licensee: Constellation Energy Generation, LLC

Facility: Dresden Nuclear Power Station, Unit 1

Location: Morris, Illinois

Dates: January 02, 2023, to December 20, 2023

Inspectors: Peter Lee, PhD, CHP, Reactor (Decom) Inspector
Bill Lin, Health Physicist

Approved by: David E. Hills, Chief
Decommissioning, Reactor, and ISFSI HP Branch
Division of Radiological Safety and Security

Enclosure

EXECUTIVE SUMMARY

Dresden Nuclear Power Station, Unit 1 NRC Inspection Report Nos. 05000010/2023001(DRSS)

The Dresden Nuclear Power Station, Unit 1 is a permanently shut-down and defueled power reactor; maintained in a Safe Storage (SAFSTOR) condition. This periodic safety inspection reviewed licensed activities associated with safety reviews, design changes and modifications; problem identification and resolution; fire protection; decommissioning performance; occupational radiation exposure; radioactive waste treatment, effluent, and environmental monitoring; and waste management and transportation.

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 10 CFR 50.59 and its safety review process.

Problem Identification and Resolution

- 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.

Fire Protection Program

- An effective decommissioning Fire Protection Program was maintained and implemented that reasonably prevented fires; provided the capability to rapidly detect, control, and extinguish fires that could result in radiological hazards; and ensured the risk of fire-induced hazards to the public, environment, and plant personnel were minimized.

Decommissioning Performance and Status Review

- The inspectors determined that decommissioning activities were in accordance with the regulations and license requirements. Decommissioning staffing, qualifications, and training were appropriate to the requirements and current decommissioning status.

Occupational Radiation Exposure

- Adequate protection of worker health and safety from exposure to radiation and radioactive material was provided. Decommissioning activities were executed in general alignment with planning documents and as provided in Radiation Work Permit (RWP) and as low as reasonably achievable (ALARA) reviews. Radiation surveys were performed adequately to identify the hazards present.

Radioactive Waste Treatment, and Effluent and Environmental Monitoring

- There were no changes or anomalous results identified in annual effluent and environmental monitoring reports associated with Unit 1 activities.

Solid Radioactive Waste Management and Transportation of Radioactive Materials

- The licensee effectively processed, handled, stored, and transported radioactive material.

Report Details

Summary of Plant Activities

During this inspection period, the licensee performed normal SAFSTOR maintenance activities. The licensee performed routine housekeeping and maintenance activities for Unit 1. No major decommissioning activities occurred during the inspection period. There is no fuel in the spent fuel pool and the Unit 1 is co-located with Dresden Unit 2 and Unit 3 which are currently operating.

1.0 Safety Reviews, Design Changes, and Modifications at Permanently Shutdown Reactors (IP 37801)

1.1 Inspection Scope

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

- Whether the licensee's safety review process and procedures identified potential changes to Technical Specification resulting from proposed changes, tests, experiments, or modifications;
- Changes to design basis documentation were updated consistent with design changes;
- Design changes or modifications were effectively evaluated to maintain safety (list the 3-5 design changes reviewed, and the 1-3 50.59 evaluations reviewed (if available)); and
- Maintenance and/or work activities appropriately considered whether the activity resulted in a change or modification and were assessed in accordance with 10 CFR 50.59 (list work activities reviewed).

The remaining aspects of this program are inspected by the NRC through the Reactor Oversight Process (ROP) for Unit[s] 2 and 3. The inspectors verified that when issues were identified, licensee personnel appropriately documented the issue in the CAP.

1.2 Observations and Findings

The inspectors reviewed the licensee's 10 CFR 50.59 evaluation and safety review process. The inspectors interviewed licensee personnel regarding the process the licensee implemented to determine whether prior NRC approval was needed for any proposed changes. There were no changes that the licensee implemented that needed prior NRC approval. The inspectors also reviewed the licensee's training program and determined that it was able to train personnel for performing safety evaluations.

No findings were identified.

1.3 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 and its safety review process.

2.0 **Problem Identification and Resolution at Permanently Shutdown Reactors (IP 40801)**

2.1 Inspection Scope

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

- Effectiveness at preventing, detecting, and correcting issues;
- Identifying and evaluating potential 10 CFR Part 21, "Reporting of Defects and Non-Compliance Issues;" and
- Audits and assessments evaluating the Corrective Action Program and Quality Assurance Program.

The remaining aspects of this program are inspected by the NRC through the ROP for Unit[s] 2 and 3.

2.2 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. The inspectors also verified that there were no 10 CFR Part 21 issues.

The inspectors reviewed several CAP entries for follow-up. For example, the inspectors followed up on Condition Report (CR) 04557352. CR 04557352 documented the licensee's process and evaluation for deficiencies discovered during a management walkdown of the facility. Specifically, the licensee had placed a large industrial box in front of a fire extinguisher. The licensee personnel were unable to have easy access to the fire extinguisher. As corrective action, the licensee had the maintenance crew remove the box and perform additional walkdowns and training to ensure that there will be no obstructions placed in front of fire extinguisher in a manner that prevents easy access. The inspectors reviewed the licensee's actions and after discussing with the licensee, the inspectors determined that the licensee had performed the appropriate follow-up actions. In addition, the inspectors also followed up with CR 04540251 and CR 04540538. In each of these CRs, the inspectors reviewed the licensee's corrective actions, interviewed the appropriate personnel, and determined the licensee's corrective actions were appropriate. The inspectors verified that self-assessments conducted during the inspection period were performed with technically qualified personnel; and when appropriate, utilized personnel independent of the audited organization.

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.

3.0 **Fire Protection Program at Permanently Shutdown Reactors (IP 64704)**

3.1 Inspection Scope

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

- Fire protection detection and suppression systems were effectively maintained, surveillances were performed, and systems were capable of performing their intended function;
- Fire barriers were effectively maintained;
- Firefighting equipment was properly inventoried, inspected, tested, and maintained; and
- Administrative controls were in place to minimize the occurrence of a fire.

The remaining aspects of this program are inspected by the NRC through the ROP) for Unit[s] 2 and 3. The inspectors verified that when issues were identified, licensee personnel appropriately documented the issue in the CAP.

3.2 Observations and Findings

The inspectors walked down the facility and the inspectors confirmed that the detection and suppression equipment was located where required, was being properly maintained, and could perform its intended function. The inspectors also verified that the fire barriers were effectively maintained. The inspectors also verified that firefighting equipment was properly inventoried, inspected, tested, and maintained.

No findings were identified.

3.3 Conclusions

An effective decommissioning Fire Protection Program was maintained and implemented that reasonably prevented fires; provided the capability to rapidly detect, control, and extinguish fires that could result in radiological hazards; and ensured the risk of fire-induced hazards to the public, environment, and plant personnel were minimized.

4.0 **Decommissioning Performance and Status Review (IP 71801)**

4.1 Inspection Scope

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

- Whether maintenance was conducted at an appropriate frequency;
- Appropriate administrative and/or engineering controls were identified and implemented in work plans; and
- Organization and staffing were appropriately adjusted for changes in the status of decommissioning.

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

4.2 Observations and Findings

The NRC inspectors walked down the facility, and interviewed licensee personnel regarding the licensee's plan for starting decommissioning activities. The inspectors walked down the plant and observed that the licensee had performed the necessary routine maintenance and housekeeping activities that were necessary for SAFSTOR. Currently there were no decommissioning activities that had taken place at Dresden Nuclear Power Station, Unit 1. All personnel that were involved with the SAFSTOR of Unit 1, were appropriately trained in the activities that they were performing.

4.3 Conclusions

The inspectors determined that decommissioning activities were in accordance with the regulations and license requirements. Decommissioning staffing, qualifications, and training were appropriate to the requirements and current decommissioning status.

5.0 Occupational Radiation Exposure at Permanently Shutdown Reactors (IP 83750)

5.1 Inspection Scope

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

- Radiological controls, postings, and material conditions inside the radiological control area;
- Contamination monitoring including release of radioactive materials from controlled areas;
- Accuracy and functionality of radiation monitoring instruments; and
- Area radiation monitors and continuous air monitors were appropriately positioned.

The remaining aspects of this program are inspected by the NRC through the ROP for Units 2 and 3. The inspectors verified that when issues were identified, licensee personnel appropriately documented the issue in the CAP.

5.2 Observations and Findings

The inspectors performed walkdowns of Unit 1 on November 29, 2023. The inspectors found acceptable plans were established in the Unit 1 fuel, turbine, and chemistry building to reasonably prevent the creation of airborne hazards; control the spread of

contamination; and to reduce workers exposures. A review of radiological surveys did not identify any unusual radiological conditions. However, the inspectors noted the following enhancement opportunities:

- The licensee's survey results did not seem consistent over time. For example, a licensee surface survey showed the presence of alpha contamination that did not appear in previous surveys of that area. In interviews with licensee staff, they indicated that the area was controlled, and hence there would be no new source of contamination introduced. Thus, it was unclear whether licensee staff were mistaken in their assumption or whether the contamination was present and missed in previous surveys. Licensee staff indicated that a factor might have been inconsistencies between RP technicians in interpreting the location in the area to survey.
- The licensee's approach to air sampling was a gross approximation sufficient to ensure concentrations were well below Part 20 limits. However, the licensee's approach missed the opportunity to obtain additional meaningful information, such as determining whether alpha emitters of licensed materials were present. For example, by calculating minimum detectable concentrations (MDCs) and holding samples to allow decay of radon daughters, the licensee could ascertain whether the results were attributable to licensed materials.

During tours of Unit 1, radiological postings and barriers were found to be in good condition and located where required given the radiological conditions.

No findings were identified.

5.3 Conclusions

Adequate protection of worker health and safety from exposure to radiation and radioactive material was provided. Radiation surveys and air samplings were performed adequately to identify the hazards present.

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

6.1 Inspection Scope

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

- Changes made to the Offsite Dose Calculations Manual or liquid, gaseous, and solid radwaste system design and operation were within the licensing basis and regulations;
- Effluent monitoring ventilation and discharge system configurations, flow paths, and operations were consistent with the licensing basis and procedures;
- Effluent monitors were calibrated;
- The annual effluent release report was submitted as required, and any anomalous results, unexpected trends, or abnormal releases were identified and entered into the Corrective Action Program;

- Whether potential leakage or spills were appropriately added to records as required by 10 CFR 50.75(g); and
- The licensee's annual radiological environmental monitoring report was submitted as required, and any anomalous results, unexpected trends, or abnormal environmental impacts were identified and entered into the Corrective Action Program.

The remaining aspects of this program are inspected by the NRC through the ROP) for Unit[s] 2 and 3. The inspectors verified that when issues were identified, licensee personnel appropriately documented the issue in the CAP.

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

6.2 Observations and Findings

Dresden, Unit 1 is co-located with Dresden, Unit 2 and Unit 3 which were currently operating. The inspector observed that there were no effluent discharges from Unit 1. The rest of the effluent and environmental monitoring were inspected through the ROP program.

No findings were identified.

6.3 Conclusions

There were no changes or anomalous results identified in annual effluent and environmental monitoring reports associated with Unit 1 activities.

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

7.1 Inspection Scope

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

- Radioactive waste storage areas were appropriately controlled, labelled, posted and secured against unauthorized removal;
- Containers of radioactive material were inventoried, and their material condition was monitored;
- Sealed sources are accounted for and were appropriately leak tested;
- Shippers of radioactive material were adequately trained and met TS, 10 CFR 71.5 and Department of Transportation (DOT) 49 CFR Part 172, Subpart H, requirements;
- Changes in organization, personnel, facilities, equipment, programs, and procedures affecting waste management and transportation of radioactive materials;
- Shipments of radioactive material were appropriately surveyed as well as marked, labeled, and placarded consistent with the shipping documentation; and
- Shipments were appropriately characterized, classified, and prepared in accordance with procedures.

The remaining aspects of this program are inspected by the NRC through the Reactor Oversight Process (ROP) for Unit[s] 2 and 3. The inspectors verified that when issues were identified, licensee personnel appropriately documented the issue in the CAP.

7.2 Observations and Findings

The inspectors verified radioactive waste was appropriately controlled, labeled, posted, and secured against unauthorized removal. The inspectors also reviewed the licensee's sealed source inventories and the appropriate leak tests. The licensee performed the inventories and leak tests in accordance with the approved procedures. The inspectors also walked down the plant and randomly selected a sealed source and its location to ensure that the inventory was accurate. All sources selected were accounted for.

No findings were identified.

7.3 Conclusions

The licensee effectively processed, handled, stored, and transported radioactive material.

8.0 **Exit Meeting**

The inspectors presented the results of the inspection to Jake Murphy and other members of the Dresden Nuclear Power Station, Unit 1 staff at an exit meeting on December 21, 2023. 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

R. Bauman, Site Decommissioning Director
H. Gabal, Manager Radiation Protection Programs
J. Murphy, Manager Regulatory Assurance
C. Webb, Shift Operations Superintendent
S. Coady, Sr. Manager Maintenance Execution
C. Joseph, Site VP
A. Payleitner, Director Organization Performance and Regulatory

INSPECTION PROCEDURES (IPs) USED

IP 37801 Safety Reviews, Design Changes, and Modifications at Permanently Shutdown Reactors
IP 40801 Problem Identification and Resolution at Permanently Shutdown Reactors
IP 64704 Fire Protection Program at Permanently Shutdown Reactors
IP 71801 Decommissioning Performance and Status Reviews at Permanently Shutdown Plants
IP 83750 Occupational Radiation Exposure
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

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.

- Survey # 2023-19856 : Fuel Building, 08/01/2023
- Survey # 2023-199257; Fuel Building, 08/14/2023
- Survey# 2023-199331; Turbin Building,08/15/2023
- Survey # 2023-200839: Chemistry building, 09/13/2023

- Dresden ODCM, Rev. 17, 2021
- Air sampling results: Turbin and Fuel Buildings from July to November 2023
- Dresden Unit 1, 2, 3: EC 0000638773: Unit 1 Electric Heater
- Dresden Unit 1, AR 04551506 Report, Unit 1 Steam Leak
- Dresden Unit 1, AR 04540251 Report, Radiation Protection Lessons Learned
- Dresden Contamination Surveys

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access and Management System
ALARA	As Low As Is Reasonably Achievable
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
DRSS	Division of Radiological Safety and Security
IP	Inspection Procedure
IR	Inspection Report
MDC	Minimum Detectable Concentration
NRC	U.S. Nuclear Regulatory Commission
ROP	Reactor Oversight Process
RP	Radiation Protection
RWP	Radiation Work Permit
SAFSTOR	Safe Storage