



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, ILLINOIS 60532-4352

May 1, 2024

David Rhoades  
Senior Vice President  
Constellation Energy Generation, LLC  
President and Chief Nuclear Officer (CNO)  
Constellation Nuclear  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3 – INTEGRATED  
INSPECTION REPORT 05000237/2024001 AND 05000249/2024001

Dear David Rhoades:

On March 31, 2024, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Dresden Nuclear Power station, Units 2 and 3. On April 16, 2024, the NRC inspectors discussed the results of this inspection with C. Joseph, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

No findings or violations of more than minor significance were identified during this inspection.

This letter, its enclosure, and your response (if any) 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 Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Ruiz".

Signed by Ruiz, Robert  
on 05/01/24

Robert Ruiz, Chief  
Reactor Projects Branch 1  
Division of Operating Reactor Safety

Docket Nos. 05000237 and 05000249  
License Nos. DPR-19 and DPR-25

Enclosure:  
As stated

cc w/ encl: Distribution via LISTSERV®

Letter to David Rhoades from Rob Ruiz dated May 01, 2024.

SUBJECT: DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3 – INTEGRATED INSPECTION REPORT 05000237/2024001 AND 05000249/2024001

DISTRIBUTION:

Farrah Gaskins  
RidsNrrDorlLpl3  
RidsNrrPMDresden Resource  
RidsNrrDrolrib Resource  
Jack Giessner  
Mohammed Shuaibi  
Diana Betancourt-Roldan  
Allan Barker  
David Curtis  
Karla Stoedter  
R3-DORS

ADAMS ACCESSION NUMBER: ML24121A249

<input checked="" type="checkbox"/> SUNSI Review		<input checked="" type="checkbox"/> Non-Sensitive <input type="checkbox"/> Sensitive		<input checked="" type="checkbox"/> Publicly Available <input type="checkbox"/> Non-Publicly Available	
OFFICE	RIII	RIII			
NAME	NShah:gmp	RRuiz			
DATE	05/01/2024	05/01/2024			

OFFICIAL RECORD COPY

**U.S. NUCLEAR REGULATORY COMMISSION  
Inspection Report**

Docket Numbers: 05000237 and 05000249

License Numbers: DPR-19 and DPR-25

Report Numbers: 05000237/2024001 and 05000249/2024001

Enterprise Identifier: I-2024-001-0072

Licensee: Constellation Energy Generation, LLC

Facility: Dresden Nuclear Power station, Units 2 and 3

Location: Morris, IL

Inspection Dates: January 01, 2024 to March 31, 2024

Inspectors: A. Anderson, Physical Security Inspector  
J. Kutlesa, Sr. Emergency Preparedness Inspector  
K. Maloney, Sr. Physical Security Inspector  
J. Meszaros, Resident Inspector  
M. Porfirio, Illinois Emergency Management Agency  
C. St. Peters, Resident Inspector  
J. Steffes, Senior Resident Inspector

Approved By: Robert Ruiz, Chief  
Reactor Projects Branch 1  
Division of Operating Reactor Safety

Enclosure

## **SUMMARY**

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at Dresden Nuclear Power station, Units 2 and 3, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

### **List of Findings and Violations**

No findings or violations of more than minor significance were identified.

### **Additional Tracking Items**

None.

## PLANT STATUS

Unit 2 began the inspection period at rated thermal power. On March 1, 2024, power was reduced to approximately 57 percent to perform rod sequence exchange and scram valve maintenance. The unit returned to rated thermal power the next day and remained at or near rated thermal power for the remainder of the inspection period.

Unit 3 began the inspection period at rated thermal power. On March 8, 2024, power was reduced to approximately 66 percent to perform rod sequence exchange and scram valve maintenance. The unit returned to rated thermal power the next day. On March 14, 2024, the licensee noted a rise in drywell pressure and dual indication of the 1A main steam isolation valve (MSIV). Unit power was reduced to approximately 25 percent to facilitate drywell entry for troubleshooting a repair. Following repairs to the 1A MSIV pneumatic line the unit was returned to rated thermal power on March 16, 2024. On March 17, 2024, unit power was reduced to approximately 81 percent for scram valve maintenance. The unit returned to rated thermal power the same day and remained at or near rated thermal power for the remainder of the inspection period.

## INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed activities described in IMC 2515, Appendix D, "Plant Status," observed risk significant activities, and completed on-site portions of IPs. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

## REACTOR SAFETY

### 71111.01 - Adverse Weather Protection

#### Seasonal Extreme Weather Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of seasonal cold temperatures for the following systems:

Emergency diesel generators (EDGs), ultimate heat sink and associated cooling water systems, station blackout (SBO) diesel generators from January 17 - 19, 2024.

### 71111.04 - Equipment Alignment

#### Partial Walkdown Sample (IP Section 03.01) (3 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) Unit 3 EDG on January 17 - 18, 2024
- (2) Unit 3 isolation condenser during high pressure coolant injection work window on February 26 - 27, 2024
- (3) Unit 2 EDG while the 2/3 EDG was inoperable for maintenance on March 25 - 26, 2024

#### 71111.05 - Fire Protection

##### Fire Area Walkdown and Inspection Sample (IP Section 03.01) (3 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

- (1) Fire Zone (FZ) 1.1.1.5A Unit 3 isolation condenser area elev. 589' and FZ 1.1.2.5A Unit 2 isolation condenser area elev. 589' on January 4, 2024
- (2) FZ 11.2.1 Unit 2 southwest corner room elev. 476' on January 5, 2024
- (3) FZ 6.2 Unit 2/3 comp room & auxiliary electrical room elev. 517' on January 11, 2024

##### Fire Brigade Drill Performance Sample (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated the onsite fire brigade training and performance during an unannounced fire drill on March 14, 2024.

#### 71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

##### Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

- (1) The inspectors observed and evaluated licensed operator performance in the control room during planned down power for rod sequence exchange, rod recovery, and control rod drive testing on March 1 - 2, 2024.

##### Licensed Operator Requalification Training/Examinations (IP Section 03.02) (1 Sample)

- (1) The inspectors observed and evaluated an out of the box scenario, CPE OBE A, in the main control room simulator on March 19, 2024.

#### 71111.12 - Maintenance Effectiveness

##### Maintenance Effectiveness (IP Section 03.01) (1 Sample)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components (SSCs) remain capable of performing their intended function:

- (1) Unit 3 125 volts direct current (VDC) batteries following identification of lid cracking and bulging on the Unit 3 125 VDC batteries

### 71111.13 - Maintenance Risk Assessments and Emergent Work Control

#### Risk Assessment and Management Sample (IP Section 03.01) (2 Samples)

The inspectors evaluated the accuracy and completeness of risk assessments for the following planned and emergent work activities to ensure configuration changes and appropriate work controls were addressed:

- (1) Unit 3 plant risk action green and fire risk blue due to planned work window on high pressure coolant injection, on February 26-27, 2024
- (2) Unit 3 emergent down power and 1A MSIV manifold o-ring replacement, on March 14-15, 2024

### 71111.15 - Operability Determinations and Functionality Assessments

#### Operability Determination or Functionality Assessment (IP Section 03.01) (6 Samples)

The inspectors evaluated the licensee's justifications and actions associated with the following operability determinations and functionality assessments:

- (1) Main control room heating, ventilation and air conditioning damper not positioning properly during DFPS 4183-14, as documented in CR 4723462
- (2) Unit 3 125 VDC battery cell 23 has crack on lid and lid is lightly bulging out near post, as documented in CR 4730791
- (3) Unit 2 SBO engine "B" oil cooler in low as documented in CR 4730965
- (4) Unit 3 "A" reactor building closed cooling water temperature control valve will not open past 65percent, as documented in CR 4749275
- (5) Unit 2 125 VDC battery charger 2A fluctuating direct current output, as documented in CR 4752128
- (6) Unit 3 SBO jacket water expansion tank level low, as documented in CRs 4741960 and 4741962

### 71111.18 - Plant Modifications

#### Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (1 Partial)

The inspectors evaluated the following temporary or permanent modifications:

- (1) (Partial)

The NRC staff completed a review of the licensee's hazard assessment associated with a hypothetical rupture and subsequent release of natural gas of the planned Three Rivers Lateral pipeline lateral to the Dresden Power Station Unit 2 and 3. The results of this review are documented in ADAMS under ML24071A123 and did not identify any safety or regulatory concerns. To complete the sample the inspectors will conduct onsite verification of installation and testing requirements once the pipeline construction is completed to ensure hazard analysis assumptions.

#### 71111.24 - Testing and Maintenance of Equipment Important to Risk

The inspectors evaluated the following testing and maintenance activities to verify system operability and/or functionality:

##### Post-Maintenance Testing (PMT) (IP Section 03.01) (3 Samples)

- (1) Unit 3 SBO diesel following 2-year preventative maintenance, per Work Order (WO) 5278040-02
- (2) Unit 2 control rod drives H-12, K-4, N-9, K-14, and H-9 testing following diaphragm replacement, per WO 5481697
- (3) Unit 3 drywell pneumatic air flow qualitative air leakage assessment following emergent work on the 1A MSIV air manifold, per WO 5518072

##### Surveillance Testing (IP Section 03.01) (1 Sample)

- (1) DOS 6600-01, 2/3 Emergency Diesel Generator monthly surveillance test, on March 27, 2024

##### Inservice Testing (IST) (IP Section 03.01) (1 Sample)

- (1) Unit 3 DOS 2300-03, High Pressure Coolant Injection System Operability and Quarterly IST Verification Test, per WO 5425673

#### 71114.02 - Alert and Notification System Testing

##### Inspection Review (IP Section 02.01-02.04) (1 Sample)

- (1) The inspectors evaluated the following maintenance and testing of the alert and notification system:
  - Annual siren inspection and maintenance records for the period of March 2022 to March 2024.
  - Weekly alert notification system (siren) tests for the period of March 2022 to March 2024.

#### 71114.03 - Emergency Response Organization Staffing and Augmentation System

##### Inspection Review (IP Section 02.01-02.02) (1 Sample)

- (1) The inspectors evaluated the readiness of the Emergency Preparedness Organization.

#### 71114.05 - Maintenance of Emergency Preparedness

##### Inspection Review (IP Section 02.01 - 02.11) (1 Sample)

- (1) The inspectors evaluated the maintenance of the emergency preparedness program.



## **OTHER ACTIVITIES – BASELINE**

### 71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

#### IE01: Unplanned Scrams per 7000 Critical Hours Sample (IP Section 02.01) (2 Samples)

- (1) Unit 2 (January 1, 2023 through December 31, 2023)
- (2) Unit 3 (January 1, 2023 through December 31, 2023)

#### IE03: Unplanned Power Changes per 7000 Critical Hours Sample (IP Section 02.02) (2 Samples)

- (1) Unit 2 (January 1, 2023 through December 31, 2023)
- (2) Unit 3 (January 1, 2023 through December 31, 2023)

#### IE04: Unplanned Scrams with Complications (USwC) Sample (IP Section 02.03) (2 Samples)

- (1) Unit 2 (January 1, 2023 through December 31, 2023)
- (2) Unit 3 (January 1, 2023 through December 31, 2023)

#### EP01: Drill/Exercise Performance (DEP) Sample (IP Section 02.12) (1 Sample)

- (1) January 01, 2022 through December 31, 2023.

#### EP02: Emergency Response Organization (ERO) Drill Participation (IP Section 02.13) (1 Sample)

- (1) January 01, 2022 through December 31, 2023.

#### EP03: Alert and Notification System (ANS) Reliability Sample (IP Section 02.14) (1 Sample)

- (1) January 01, 2022 through December 31, 2023.

## **INSPECTION RESULTS**

No findings were identified.

## **EXIT MEETINGS AND DEBRIEFS**

The inspectors verified no proprietary information was retained or documented in this report.

- On April 16, 2024, the inspectors presented the integrated inspection results to C. Joseph, Site Vice President, and other members of the licensee staff.
- On March 29, 2024, the inspectors presented the Emergency Preparedness inspection results to H. Patel and other members of the licensee staff.

**DOCUMENTS REVIEWED**

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.01	Procedures	DOS 0010-19	Preparation for Cold Weather Operations for Unit 1 and Out Buildings	49
		DOS 0010-22	Preparation for Cold Weather Operations for Unit 2	27
		DOS 0010-25	Preparation for Cold Weather Operations for Unit 3	24
		OP-DR-108-111-1004	Cold Weather Strategy	1
71111.04	Corrective Action Documents Resulting from Inspection	4760987	NRC Question: U2 EDG Room Walkdown	03/25/2024
	Drawings	M-173	Diagram of Corrosion Test and Diesel Start-up Air Piping	BJ
		M-22	Diagram of Service Water Piping	FA
		M-41	Diagram of Turbine and Diesel Oil Piping	AI
		M-478	Diagram of Diesel Generator Lube Oil Piping	J
		M-517	Diesel Generator Engine Coolant Water System	J
		M-517	Diesel Generator Engine Cooling Water System	I
		M-518	Diesel Generator Fuel Oil System	F
		M-518	Diesel Generator Fuel Oil System	G
	Procedures	DOP 1300-M1/E1	Unit 3 Isolation Condenser System Checklist	26
		DOP 6600-01	Diesel Generator 2(3) Preparation for Standby Operation	34
		DOP 6600-M1	Unit 2 Standby Diesel Generator	30
		DOS 6600-M1	Unit 3 Standby Diesel Generator Checklist	29
71111.05	Fire Plans	100 Pre-fire Plan Master Legend	Dresden Generating Station Pre-Fire Plan	3
		102 U2RB-2	FZ 11.2.1 Unit 2 Southwest Corner Room Elev. 476'	4
		115 U2RB-12	FZ 1.1.2.5A Unit 2 Isolation Condenser Area Elev. 589'	2
		131 U3RB-31	FZ 1.1.1.5A Unit 3 Isolation Condenser Area Elev. 589'	3
		143 U2TB-46	FZ 6.2 Unit 2/3 Comp Room & Auxiliary Electrical Room Elev. 517'	4
		173 U3TB-84	FZ 8.2.8A Unit 3 Main Turbine Floor Eleve. 561'	5
	Miscellaneous	DR-CM-35	Development of Risk Management Actions for the Inclusion	0

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			of Fire Insights into Dresden Nuclear Power Station Configuration Risk Management Program	
		Fire Drill Scenario 24-02	Turbine Services Office Fire U3 TB 561'	03/14/2024
	Procedures	ER-DR-600-1069	Dresden Units 2 & 3 Site List of High Risk Fire Areas	0
		OP-AA-201-107	Fire Protection Impairment Control	2
71111.11Q	Miscellaneous		Dresden Unit 2 - D2 1st Quarter 2024 Load Drop Profile	03/1/2024
	Procedures	NF-AB-720-F-5	Special Maneuver Rod Move Sheet	3
		OP-AA-101-113-1006	Attachment 2, Operator Fundamentals Coding Matrix	12
		OP-AB-300-1003	ReMA First Quarter 2024 Load Drop	20
71111.12	Corrective Action Documents	4683379	U3 125VDC Alternate Battery Cell 12 Crack on Positive Post	06/08/2023
		4692463	U3 125VDC Main Battery Cracks	07/25/2023
		4692472	U3 125VDC Alternate Battery Cracks	07/25/2023
		4696927	U3 125 VDC Alt Battery Cell #2 Detectable Leak	08/16/2023
		4702635	Surface Crack on Battery Cell Lid	09/14/2023
		4727513	Leak on U3 125VDC Alt Battery Cell Number 2	01/08/2024
	Miscellaneous	System Health Report	AC/DC Distribution System Health Report	01/12/2024
	Procedures	DOS 8300-01	Unit 2(3) Weekly Station Battery Inspection	17
		DOS 8300-17	Unit 2(3) Quarterly Station Battery Inspection	23
	Work Orders	5412586	OP D3 Qtr TS Alt 125V DC Station Battery Surveillance (In Lieu of wkly/mnt)	12/7/2023
5412598		OP D3 IM PM TSNC 125 VDC Station Battery Inspection	11/23/2023	
71111.13	Corrective Action Documents	4758041	Unit 3 DW Pressure Response	03/14/2024
		4759564	MSIV 3-0203-1A pneumatic leak (Failed Airline and O-Ring)	03/14/2024
	Procedures	OP-AA-101-113-1004	Prompt Investigation	49
		OP-AA-108-117	Protected Equipment List	02/26/2024
		OP-DR-201-012-1001	Dresden On-Line Fire Risk Management	8
WC-AA-101-1006	On-Line Risk Management and Assessment	4		
71111.15	Corrective Action	4395594	U2 125VDC Battery Charger 2A Fluctuating DC Output	01/13/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Documents		Current	
		4396948	U2 125VDC Battery Charger 2A Fluctuating DC Output Current	01/20/2021
		4533410	3A RBCCW TCV Appears Stuck	10/30/2022
		4540705	3A RBCCW TCV will Not Open Past 65%	12/04/2022
		4723462	MCR HVAC Not Positioning Properly during DFPS 4183-14	12/14/2023
		4730791	Unit 3 125 VDC Battery Cell 23 Has Crack on Lid and Lid is Lightly Bulging out Near +Post	01/4/2024
		4749275	3A RBCCW TCV will Not Open Past 65%	02/11/2024
		4752128	U2 125VDC Battery Charger 2A Fluctuating DC Output Current	02/21/2024
	Miscellaneous	DAN 223-89 B-3	Cont Rm/East Turb Bldg Ductwork Smoke Detected	5
	Procedures	DFPS 4183-14	Unit 2/3 Control Room HVAC Smoke Detector Annual Surveillance Procedure	19
		DOP 3700-02	Reactor Building Closed Cooling Water System Operation	44
	Work Orders	5105466	125VDC Station Battery Inspection	01/13/2021
		5115597	U2 125VDC Battery Charger 2A Fluctuating DC Output Current	01/14/2021
71111.24	Corrective Action Documents	4493791	U3 SBO Engine A Lube Oil Sump Level Lo Alarm	04/18/2022
	Procedures	DMP 0200-05	Main Steam Isolation Valve Operator Air Manifold Replacement and Air Operator Testing	3
		DOS 0300-14	Control Rod Drive Scram Testing At Power	47
		DOS 4700-02	Drywell Pneumatic Air Flow Qualitative Air Leakage Assessment	11
		DOS 6600-01	Diesel Generator Surveillance Tests	148
		MA-AA-716-012	Post Maintenance Testing	27
	Work Orders	1901879	Op Open/Close Breakers 3-6771-4, Bus 34 Feed ESS Div II + PMT	01/10/2024
		1905271	EM Swap SBO Diesel Generator 3 Feed 3-6771-1	01/8/2024
		5052618	Op PMT 3B SBO Start Air Part Filter 3-4680-7B for Leaks	01/12/2024
		5269522	OP D3 2Y PM HPCI Fast Initiation Test	02/29/2024
5278040		D3 2Y PM SBO Mechanical Maintenance Inspection	02/03/2024	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		5329595	Diesel Fuel Oil Leak on Fitting Return Line for U3 SBO	02/03/2024
		5385644	U3 SBO Engine A Lube Oil Sump Level Lo Alarm	02/03/2024
		5407889	D3 Qtr Com SBO Diesel Generator Surveillance	02/03/2024
		5425673	OP D3 Quarterly TS HPCI Pump Operability Test and IST Surveillance	02/29/2024
		5481697	Need a WO to replace U2 SSPV Diaphragms	03/01/2024
		5518072-5	MM Install New O-Rings AVCO Mnfld ASM (OPCC)	03/15/2024
		5518072-7	Ops PMT 1A MSIV After O-Ring Replacement	3/16/2024
71114.02	Miscellaneous	N/A	Dresden Monthly Siren Availability Report (Telemetry)	January 2022 through December 2023
		N/A	Exelon Mid-West Siren Status Report	January 2022 through December 2023
71114.03	Calculations	EP-AA-1004 Addendum 1	Dresden Station On-Shift Staffing Technical Basis	Rev 02
	Miscellaneous	N/A	Quarterly Call-In Augmentation Drill Results	1st Qtr 2022 – 4th Qtr 2023
	Procedures	EP-AA-1004	Exelon Nuclear Radiological Emergency Plan Annex for Dresden Station	Rev 39
		EP-DR-1000	Dresden Station Radiological Emergency Plan	Rev 0
71114.05	Calculations	KLD TR – 1252	DRESDEN GENERATING STATION Development of Evacuation Time Estimates	07/25/2022
	Miscellaneous	Letters of Agreement	Coal City Fire Protection District; GE Morris Facility; Grundy County Sherriff; Morris Hospital; Presence St. Joseph Medical Center; US Army Corp of Engineers	Various
	Procedures	EP-DR-124-F-01/02/03	Inventories: TSC, OSC, Control Room	January 2022 through December 2023
	Self-Assessments	NOSA-DRE-22-	Emergency Preparedness Audit	04/25/2022

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		02 (AR 4478144)		
71151	Miscellaneous		NRC Performance Indicator Data: Initiating Events - Unplanned Power Changes per 7000 Critical Hours	01/01/2023-12/31/2023
			NRC Performance Indicator Data: Initiating Events - Unit/Reactor Shutdown Occurrences	01/01/2023-12/31/2023
		LS-AA-2110	Monthly Data Elements for NRC ROP Indicator - Emergency Response Organization (ERO) Drill Participation	1st Qtr 2022 – 4th Qtr 2023
		LS-AA-2120	Monthly Data Elements for NRC ROP Indicator – Drill/Exercise Performance	1st Qtr 2022 – 4th Qtr 2023
		LS-AA-2130	Monthly Data Elements for NRC ROP Indicator - Alert and Notification System Reliability	1st Qtr 2022 – 4th Qtr 2023