



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

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

April 13, 2021

Mr. David Rhoades  
Senior VP, Exelon Generation Co., LLC  
President and CNO, Exelon Nuclear  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3 – INTEGRATED  
INSPECTION REPORT 05000237/2021001 AND 05000249/2021001

Dear Mr. Rhoades:

On March 31, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Dresden Nuclear Power Station, Units 2 and 3. On April 6, 2021, the NRC inspectors discussed the results of this inspection with Mr. P. Karaba, 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,

**/RA/**

Kenneth R. Riemer, Chief  
Branch 1  
Division of Reactor Projects

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 Kenneth Riemer dated April 13, 2021.

SUBJECT: DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3 – INTEGRATED INSPECTION REPORT 05000237/2021001 AND 05000249/2021001

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

Docket Numbers: 05000237 and 05000249

License Numbers: DPR-19 and DPR-25

Report Numbers: 05000237/2021001 and 05000249/2021001

Enterprise Identifier: I-2021-001-0033

Licensee: Exelon Generation Co., LLC

Facility: Dresden Nuclear Power Station, Units 2 and 3

Location: Morris, IL

Inspection Dates: January 01, 2021 to March 31, 2021

Inspectors: K. Barclay, Reactor Inspector  
J. Corujo-Sandin, Senior Reactor Inspector  
M. Domke, Resident Inspector  
R. Elliott, Resident Inspector  
A. Nguyen, Senior Resident Inspector  
C. Phillips, Project Engineer  
M. Porfirio, Illinois Emergency Management Agency

Approved By: Kenneth R. Riemer, Chief  
Branch 1  
Division of Reactor Projects

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 13, 2021, the unit was down powered to 77 percent to perform a quarterly control rod sequence exchange and routine testing. The unit was returned to rated thermal power on March 14, 2021, 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 6, 2021, the unit was down powered to 55 percent to perform a quarterly control rod sequence exchange, conduct control rod drive testing, and repair a main turbine control valve cable. The unit was returned to rated thermal power on March 7, 2021, 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 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.

Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the Coronavirus Disease 2019 (COVID-19), resident inspectors were directed to begin telework and to remotely access licensee information using available technology. During this time, the resident inspectors performed periodic site visits each week; conducted plant status activities as described in IMC 2515, Appendix D, "Plant Status"; observed risk-significant activities; and completed on-site portions of IPs. In addition, resident and regional baseline inspections were evaluated to determine if all or portions of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In some cases, portions of an IP were completed remotely and on-site. The inspections documented below met the objectives and requirements for completion of the IP.

## 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 extreme low temperatures from February 5, 2021 through February 12, 2021 for the following systems:
  - Emergency diesel generators and station battery systems
  - Ultimate heat sink and associated cooling water systems
  - Safety-related secondary-side instrumentation
  - Fire protection system

Impending Severe Weather Sample (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated the adequacy of the overall preparations to protect risk-significant systems from impending severe weather winter on January 26, 2021

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 turbine building closed cooling water (TBCCW) system on January 19, 2021
- (2) Unit 3 station blackout (SBO) diesel generator system on January 27, 2021
- (3) Unit 2 isolation condenser (IC) and makeup system on March 1, 2021

Complete Walkdown Sample (IP Section 03.02) (1 Sample)

- (1) Emergency diesel generators the weeks of March 8 – 12 and March 22 – 26, 2021

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (6 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) 8.2.6.C, Unit 2/3 heat exchanger area, Elev. 534' on January 15, 2021
- (2) FZ 8.2.1.A, Unit 2 condensate pumps, Elev. 469' and FZ 8.2.2.A, Unit 2 CCSW pumps, Elev. 495' on January 15, 2021
- (3) Fire hose station compensatory measures due to Unit 2 turbine building fire header isolation on January 15, 2021
- (4) FZ 1.1.2.2, Unit 2 reactor ground floor, Elev. 517' on February 9, 2021
- (5) FZ 1.1.2.5.A, Unit 2 isolation condenser area, Elev. 589' on February 9, 2021
- (6) FZ 6.2, auxiliary electric equipment room (AEER), Elev. 517' on March 1, 2021

71111.06 - Flood Protection Measures

Cable Degradation (IP Section 03.02) (1 Sample)

The inspectors evaluated cable submergence protection in:

- (1) Manhole 8 after cables for Transformer 13 failed due to age-related degradation and submergence

### 71111.07A - Heat Sink Performance

#### Annual Review (IP Section 03.01) (1 Sample)

The inspectors evaluated readiness and performance of:

- (1) 3A TBCCW heat exchanger

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

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

- (1) The inspectors observed and evaluated an out-of-the-box scenario and licensee evaluation of operator performance on February 23, 2021

### 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 2 and Unit 3 high pressure cooling injection (HPCI) systems

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

#### Risk Assessment and Management Sample (IP Section 03.01) (4 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) Secondary containment breach during fire protection system repair during the week of February 8, 2021
- (2) Planned elevated station risk during Unit 2 and Unit 3 HPCI maintenance windows during the weeks of February 22, 2021, and February 29, 2021
- (3) Emergent work for Unit 2 Digital Electro-Hydraulic Control (DEHC) pressure transmitter sheared sensing line 'A' during the week of March 8, 2021
- (4) Planned elevated station risk during Unit 2 Division 1 ECCS work window during the week of March 29, 2021

### 71111.15 - Operability Determinations and Functionality Assessments

#### Operability Determination or Functionality Assessment (IP Section 03.01) (4 Samples)

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

- (1) Unit 3 station blackout diesel generator air regulator failure on January 6, 2021
- (2) Unit 2 HPCI room temperature transmitter failure on February 1, 2021
- (3) 3B LPCI/CCSW heat exchanger tube side pressure low on February 24, 2021
- (4) Unit 2 HPCI gland seal condenser level high control room alarm on February 23, 2021

### 71111.18 - Plant Modifications

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

The inspectors evaluated the following temporary or permanent modifications:

- (1) Unit 2 DEHC modification to input temporary point into pressure controller for failed 2 'A' throttle pressure transmitter on March 12, 2021

### 71111.19 - Post-Maintenance Testing

#### Post-Maintenance Test Sample (IP Section 03.01) (5 Samples)

The inspectors evaluated the following post-maintenance test activities to verify system operability and functionality:

- (1) DOS 0300-01, Unit 3 control rod exercising after rod select matrix replacement on January 23, 2021
- (2) DOS 6620-07, Unit 2 station blackout diesel generator surveillance test after maintenance window on January 28, 2021
- (3) Unit 3 HPCI comprehensive pump test and leakage checks after maintenance window per Work Order (WO) 4894499
- (4) Unit 2 emergency diesel generator post-maintenance run and operability surveillance after maintenance window per WO 5079087 and 1823439
- (5) Unit 2 HPCI comprehensive pump test and leakage checks after maintenance window per WO 4903464



### 71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

#### Surveillance Tests (other) (IP Section 03.01) (3 Samples)

- (1) DIS 0700-21, Unit 2 local power range monitor alarm calibration on February 8, 2021
- (2) DOS 1500-02, Unit 2 containment cooling service water pump test and In-service test on March 17, 2021
- (3) DOS 6600-01, Unit 2/3 emergency diesel generator monthly test for In-service testing (IST) on March 24, 2021

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

- (1) DOS 1100-04, Unit 3 'A' standby liquid control quarterly/comprehensive pump test for In-service testing (IST) on February 4, 2021

### 71114.06 - Drill Evaluation

#### Select Emergency Preparedness Drills and/or Training for Observation (IP Section 03.01) (1 Sample)

- (1) Focused area drill in technical support center (TSC), first quarter 2021

### **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 03.01) (2 Samples)

- (1) Unit 2 (January 1, 2020 – December 31, 2020)
- (2) Unit 3 (January 1, 2020 – December 31, 2020)

#### IE03: Unplanned Power Changes per 7000 Critical Hours Sample (IP Section 03.02) (2 Samples)

- (1) Unit 2 (January 1, 2020 – December 31, 2020)
- (2) Unit 3 (January 1, 2020 – December 31, 2020)

#### IE04: Unplanned Scrams with Complications (USwC) Sample (IP Section 03.03) (2 Samples)

- (1) Unit 2 (January 1, 2020 – December 31, 2020)
- (2) Unit 3 (January 1, 2020 – December 31, 2020)

## **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 6, 2021, the inspectors presented the integrated inspection results to Mr. P. Karaba, Site Vice President, and other members of the licensee staff.

## **THIRD PARTY REVIEWS**

The inspectors reviewed the Institute on Nuclear Power Operations report that was issued during the inspection period.

**DOCUMENTS REVIEWED**

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.01	Corrective Action Documents	4400717	'A' FLEX Building Heater not Working	02/06/2021
		4400777	Reserve Auxiliary Transformer (TR-32) Trouble	02/07/2021
		4400786	Unit 2 Stator Water Loop Seal Vent Potentially Blocked	02/07/2021
		4400797	Main Transformer 3 Trouble	02/07/2021
		4400829	Unit 3 Stator Water Drain Lower Sight Glass not Full of Water	02/06/2021
	Procedures	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	00	
71111.04	Corrective Action Documents	4398456	U3 SBO Isolimiter Noise	01/28/2021
		4400510	Elevated Boron Additive Level in Engine Oil	02/05/2021
		4410280	2-6600, Unit 2 EDG Turbo Oil Circulating Pump Leak	03/20/2021
	Procedures	DOP 1300-E1/M1	Unit 2 Isolation Condenser System Checklist	22
		DOP 3800-M1	Unit 3 Turbine Building Closed Cooling Water System Checklist	14
		DOP 6600-E1	Unit 3 Standby Diesel Generator	07
		DOP 6600-E1	Unit 2 Standby Diesel Generator	04
		DOP 6600-E2	Unit 2/3 Standby Diesel Generator	06
		DOP 6600-M1	Unit 2 Standby Diesel Generator	30
		DOP 6600-M1	Unit 3 Standby Diesel Generator Checklist	29
		DOP 6600-M2	Unit 2/3 Emergency Diesel Generator Checklist	29
		DOP 6620-16	SBO DG 2(3) Preparation for Standby Readiness	17
		DOP 6620-E2	Unit 3 Station Blackout Electrical Checklist	03
71111.05	Corrective Action Documents	4395860	Unit 2 Low Pressure Heater Bay Fire Piping Leak Degrading	01/14/2021
		4395944	Leak on 2A Control Rod Drive Pump from Fire Header Leak	01/14/2021
	Corrective Action Documents Resulting from Inspection	4396264	NRC Plant Walkdown	01/15/2021
	Fire Plans	FZ 1.1.2.2	Unit 2 Reactor Ground Floor, Elev. 517'	05

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		FZ 1.1.2.5.A	Unit 2 Isolation Condenser Area, Elev. 589'	02
		FZ 6.2	Unit 2/3 Computer Room & Auxiliary Electrical Room Elevation 517'	04
		FZ 8.2.1.A	Unit 2 Condensate Pumps, Elev. 469' and FZ 8.2.2.A, Unit 2 CCSW Pumps, Elev. 495'	03 and 04
		FZ 8.2.6.C	Unit 2/3 Heat Exchanger Area, Elev. 534'	05
	Miscellaneous	Logs	Fire Hose Station Compensatory Measures Due to Unit 2 Turbine Building Fire Header Isolation	01/15/2021
71111.06	Corrective Action Documents	4389709	Smoke Reported from Manhole 8	12/11/2020
		4396905	Bus 14 and Bus 15 Tie ACB Continuously Cycling Open and Closed	01/20/2021
	Work Orders	5107462	Repair Damaged Faulted Cables in Manhole 8	01/15/2021
71111.07A	Corrective Action Documents	4397248	Abbreviated Maintenance for TBCCW Heat Exchanger 6 Year PM	01/21/2021
		4397298	3A TBCCW Heat Exchanger Endbell Leak	01/21/2021
		4397520	3A TBCCW Heat Exchanger Eddy Current Test Results	01/21/2021
	Engineering Evaluations	418217	Evaluation to Use Replacement Channel Cover Without "Plasti-cor" Coating	00
	Work Orders	1818634	3A TBCCW Heat Exchanger Eddy Current Test and Clean/Inspect	01/21/2021
71111.11Q	Miscellaneous		Out-of-the-Box Evaluation	02/23/2021
71111.12	Corrective Action Documents	4227061	Leak from Unit 2 HPCI Main Pump	03/06/2019
		4317672	HPCI Work Order Instructions Altered Outside of Process	02/13/2020
		4350983	DTP 09: Leak on HPCI Main Pump Seal	06/17/2020
		4406431	DTP 09: Leak on Unit 2 HPCI Main Pump Seal	03/03/2021
		4406436	Unit 2 HPCI Turbine Small Oil Leak	03/03/2021
	Engineering Changes	397957	Replace Unit 3 HPCI Signal Converter and Flow Indicating Controller	05
	Miscellaneous		High Pressure Injection Health Group Report and Action Plan	02/05/2021
Work Orders	4896331	Leak from Unit 2 Main HPCI Pump	03/05/2020	
	5115257	Replace HPCI Pump (Main) South Facing Seal	03/04/2021	
71111.13	Corrective Action	4405642	Water Near 2-2202-19B Rack	03/01/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Documents	4407517	Unit 2 DEHC Throttle Pressure Transmitter Failed	03/09/2021
	Corrective Action Documents Resulting from Inspection	4412434	2/3-4699-189 Tank A2 Drain Valve Has Air Leak	03/29/2021
		4412443	NRC Plant Walkdown	03/29/2021
	Engineering Evaluations	445515	Evaluation of Tophat Needed to Support Maintenance of the Secondary Containment During Replacement of Line 2-4101-6"	00
	Procedures	DAP 07-44	Control of Temporary Openings in Secondary Containment During Performance of Work Packages, Surveillances, or Other Procedures	15
		OP-AA-108-117	Protected Equipment Program	05
		OP-DR-201-012-1001	Dresden On-Line Fire Risk Management	08
		WC-AA-101	On-line Work Control Process	30
		WC-AA-101-1006	On-Line Risk Management and Assessment	04
	71111.15	Corrective Action Documents	192138	Unexpected HPCI Alarm (Gland Seal Condenser)
4388991			3B LPCI Heat Exchanger Tube Side Pressure Reading 0#	12/09/2020
4394322			Unit 3 SBO Engine B Air Regulator Failed	01/06/2021
4399538			Found Temperature Transmitter 22-5703-27A Out of Tolerance and Unable to Calibrate	02/01/2021
4404311			Unexpected Main Control Room Alarm: HPCI Gland Seal Condenser Level High	02/23/2021
4404340			3B LPCI HX Tube Side Inlet Pressure Reading 0	02/24/2021
848148			HPCI Gland Seal Condenser Level High Alarm	11/21/2008
Drawings		12E-2575BY	Schematic Diagram Control Room Annunciator Panel 923-5	E
Engineering Evaluations		342944	Containment Cooling Service Water (CCSW) System Water Hammer Loss of Keep Fill Analysis	00
		373115	Evaluation of High-Level Alarm in the HPCI Gland Seal Condenser	11/21/2008
Procedures	DAN 902(3)-3 H-11	HPCI Gland Seal Condenser Hotwell Level HI/LO	10	
	DAN 923-5 H-1	Unit 2 HPCI Pump Area Temperature High	12	
71111.18	Engineering	633771	Temporary Force Unit 2 DEHC Logic Point to Inhibit	01

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Evaluations		Automatic Control Transfer from Dome to Throttle Control	
71111.19	Corrective Action Documents	4398523	Unit 2 SBO Surveillance Non-Acceptance Criteria Data out of Nominal Band	01/28/2021
		4398770	2B SBO Engine Duplex Fuel Strainer Differential Pressure High, Recommend Cleaning	01/28/2021
		4398772	2A SBO Engine Duplex Fuel Strainer Differential Pressure High, Recommend Cleaning	01/28/2021
		4398775	Unit 2 SBO Engine A Coolant at Low End of Band	01/28/2021
		4404311	Unexpected Main Control Room Alarm: HPCI Gland Seal Condenser Level High	02/23/2021
		4404323	Unit 3 HPCI Room Cooler	02/23/2021
		4406433	DTP 09: Unit 2 HPCI Pump Leak from Casing Bolt	03/03/2021
		4406434	Unit 2 HPCI Cooling Water PCV Oscillating	03/03/2021
		4407817	Unit 2 Diesel Overload Alarm will not Reset	03/10/2021
	4407968	Unexpected Alarm: Unit 3 125V DC Ground During Unit 2 EDG Run	03/10/2021	
	Engineering Evaluations	373115	Evaluation of High-Level Alarm in the HPCI Gland Seal Condenser	11/21/2008
	Procedures	DOS 0300-01	Control Rod Exercise	61
	Work Orders	1823439	Unit 2 Diesel Generator Operability Run	03/10/2021
		4598543-02, 4598541-02, and 4598544-02	PMT – Rebuild/Replace Air Start Regulating Valves on SBO Diesel	01/27/2021
		4894499	Unit 3 HPCI Pump Comprehensive Operability Test and IST Surveillance	02/24/2021
4903464		HPCI Pump Comprehensive Operability Test and IST Surveillance	03/03/2021	
5079087		Unit 2 Diesel Generator Fast Start Operability Surveillance	03/10/2021	
5090298		Unit 2 Station Blackout Diesel Generator Surveillance Test	01/28/2021	
71111.22	Corrective Action Documents	857684-15	Replace the Unit 3 Rod Select Matrix Module	01/21/2021
		4381265	LPRM 24-09C Downscale	10/31/2020
		4401381	Found LPRM Alarm Calibration out of Tolerance	02/08/2021
		4401382	Found LPRM Alarm Calibration out of Tolerance	02/09/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		4401384	Found LPRM Alarm Calibration out of Tolerance	02/08/2021
	Procedures	DIS 0700-21	Local Power Range Monitor Alarm Calibration	30
		DOS 1100-04	Standby Liquid Control System Quarterly/Comprehensive Pump Test for the Inservice Testing (IST) Program	53
		DOS 1500-02	Containment Cooling Service Water Pump Test and Inservice Test	94
		DOS 6600-01	Diesel Generator Surveillance Test	145
71114.06	Miscellaneous		Focused Area Drill for Technical Support Center (TSC), First Quarter 2021	
71151	Miscellaneous		Operator Logs	01/01/2020 - 12/31/2020