



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

September 30, 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 – TRIENNIAL FIRE
PROTECTION INSPECTION REPORT 05000237/2021011 AND
05000249/2021011**

Dear Mr. Rhoades:

On August 26, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Dresden Nuclear Power Station, Units 2 and 3 and discussed the results of this inspection with Mr. P. Boyle, Plant Manager and other members of your staff. The results of this inspection are documented in the enclosed report.

One finding of very low safety significance (Green) is documented in this report. This finding did not involve a violation of NRC requirements.

If you disagree with a cross-cutting aspect assignment or a finding not associated with a regulatory requirement in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; and the NRC Resident Inspector at Dresden Nuclear Power Station, Units 2 and 3.

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,



Stodter, Karla signing on behalf
of Skokowski, Richard
on 09/30/21

Richard A. Skokowski, Chief
Engineering Branch 3
Division of 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 Richard A. Skokowski dated September 30, 2021.

SUBJECT: DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3 – TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000237/2021011 AND 05000249/2021011

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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: 05000237/2021011 and 05000249/2021011

Enterprise Identifier: I-2021-011-0046

Licensee: Exelon Generation Co., LLC

Facility: Dresden Nuclear Power Station, Units 2 and 3

Location: Morris, IL

Inspection Dates: July 12, 2021 to August 26, 2021

Inspectors: J. Benjamin, Senior Reactor Inspector
A. Dahbur, Senior Reactor Inspector
B. Jose, Senior Reactor Inspector

Approved By: Richard A. Skokowski, Chief
Engineering Branch 3
Division of Reactor Safety

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee’s performance by conducting a triennial fire protection 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

Failure to Perform Quality Review for NRC Information Notice 2017-06			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green FIN 05000237,05000249/2021011-01 Open/Closed	[H.14] - Conservative Bias	71111.21N. 05
<p>The inspectors identified a finding (FIN) of very low safety significance (Green) that was not associated with a violation for the licensee’s failure to perform a quality review for level 3 Operating Experience (OPEX) as specified in Exelon Generation Procedure PI-AA-115-1003, “Processing of Level 3 OPEX Evaluation.” Specifically, the licensee failed to perform a quality review for NRC Information Notice (IN) 2017-06, "Battery and Battery Charger Short-Circuit Current Contributions to a fault on the Direct Current (DC) Distribution System," to ensure the documentation in the OPEX evaluation was a stand-alone document and clear enough to identify that the review was completed satisfactorily.</p>			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
URI	05000237,05000249/ 2021010-02	Potential Non-Conservative DC Short-Circuit Current Values	71111.21N.05	Closed

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 (COVID-19), inspectors were directed to begin telework. In addition, regional baseline inspections were evaluated to determine if all or a portion 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

71111.21N.05 - Fire Protection Team Inspection (FPTI)

Structures, Systems, and Components (SSCs) Credited for Fire Prevention, Detection, Suppression, or Post-Fire Safe Shutdown Review (IP Section 03.01) (4 Samples)

The inspectors verified that components and/or systems will function as required to support the credited functions stated for each sample. Additional inspection considerations are located in the fire hazards analysis (FHA) or safe shutdown analysis (SSA).

- (1) Fire detection and suppression systems for Fire Zone 8.2.8.A (Turbine Building EL 561' – 6" Main Operating Floor)
- (2) Unit 2 Isolation Condenser (IC) and IC makeup
- (3) Unit 2 Control Rod Drive (CRD) Pump
- (4) Unit 2/3 Diesel Driven Fire Pump

Fire Protection Program Administrative Controls (IP Section 03.02) (2 Samples)

The inspectors verified that the selected control or process is implemented in accordance with the licensee's current licensing basis. If applicable, the inspectors also ensured the licensee's FPP contains adequate procedures to implement the selected administrative control. Lastly, the inspectors verified the selected administrative control met the requirements of all committed industry standards.

- (1) Combustible Control Program
- (2) Fire System Impairments

Fire Protection Program Changes/Modifications (IP Section 03.03) (2 Samples)

The inspectors verified the following:

- a. Changes to the approved FPP did not constitute an adverse effect on the ability to safely shutdown.
 - b. The adequacy of the design modification, if applicable.
 - c. Assumptions and performance capability stated in the SSA have not been degraded through changes or modifications.
 - d. The FPP documents, such as the Updated Final Safety Analysis Report, fire protection report, FHA, and SSA were updated consistent with the FPP or design change.
 - e. Post-fire SSD operating procedures, such as abnormal operating procedures, affected by the modification were updated.
- (1) Engineering Change (EC) 630156; Technical Evaluation to Justify Adequate Fire Suppression Coverage with Failed Sprinkler Heads in the Turbine Building Mezzanine Area
- (2) EC357368, Fire Main to CRD Connection

INSPECTION RESULTS

Failure to Perform Quality Review for NRC Information Notice 2017-06			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green FIN 05000237,05000249/2021011-01 Open/Closed	[H.14] - Conservative Bias	71111.21N.0 5
<p>The inspectors identified a finding (FIN) of very low safety significance (Green) that was not associated with a violation for the licensee’s failure to perform a quality review for level 3 Operating Experience (OPEX) as specified in Exelon Generation Procedure PI-AA-115-1003, “Processing of Level 3 OPEX Evaluation.” Specifically, the licensee failed to perform a quality review for NRC Information Notice (IN) 2017-06, "Battery and Battery Charger Short-Circuit Current Contributions to a fault on the Direct Current (DC) Distribution System," to ensure the documentation in the OPEX evaluation was a stand-alone document and clear enough to identify that the review was completed satisfactorily.</p> <p><u>Description:</u></p> <p>During the Design Basis Assurance Team Inspection completed on January 29, 2021, NRC inspectors identified an Unresolved Item (URI) which could not be resolved without additional information. This issue was associated with the licensee’s failure to perform an adequate evaluation for NRC Information Notice (IN) 2017-06. Specifically, the Dresden 125 Vdc and 250 Vdc battery chargers were silicon-controlled rectifier (SCR) type battery chargers, and the testing described in the IN demonstrated SCR-type battery chargers produced significantly higher currents than expected. The inspectors planned to keep the URI open pending a review of the licensee’s updated evaluation of NRC IN 2017-06, which was being tracked by Action Request (AR) 4398306, and a determination of whether any performance deficiencies or violations of NRC requirements had occurred.</p> <p>Following the Design Basis Assurance Inspection, the licensee generated EC 633645, “Dresden Information Notice 2017-06 Evaluation,” to evaluate whether equipment at Dresden</p>			

Station was susceptible to experiencing potentially high fault current contributions as described in IN 2017-06. The licensee concluded there were no operability or station equipment vulnerability concerns at Dresden related to IN 2017-06.

The inspectors reviewed the licensee's evaluation and associated calculations and did not identify any technical concerns. In addition, the inspectors reviewed the battery chargers' internal fuse characteristics and coordination with the downstream protective devices and did not identify any concerns.

Section 4.6, "Quality Review," of Exelon Generation Procedure PI-AA-115-1003, "Processing of Level 3 OPEX Evaluation," directed a quality review be performed to ensure the documentation in the OPEX evaluation is a stand-alone document and is clear enough to identify that the review was completed satisfactorily. The inspectors determined the licensee's initial Level 3 OPEX evaluation for IN 2017-006 did not meet the licensee's standard for a Level 3 OPEX review because the evaluation was not stand-alone and was not clear enough to identify the review was completed satisfactorily. Specifically, the licensee's initial OPEX review did not demonstrate why the site was not vulnerable to the situation described in IN 2017-06 nor did it provide information to demonstrate that the station equipment would be able to withstand the larger short circuit conditions provided by the chargers as described in the IN. The licensee's failure to perform a proper/complete review of the Level 3 OPEX evaluation for IN 2017-006 was contrary to the Exelon Procedure PI-AA-115-1003 and was a performance deficiency. No violations of NRC requirements were identified since this procedure was not safety-related and therefore, not subject to 10 CFR Part 50 Appendix B requirements.

Corrective Actions: The licensee revised the Level 3 OPEX evaluation for IN 2017-06 and concluded the larger short circuit current contribution from the charger did not exceed the interrupting ratings of equipment/isolation devices.

Corrective Action References: AR 4398306 - 2021 DBAI: OPEX IN 17-06 Evaluation Incomplete

Performance Assessment:

Performance Deficiency: The inspectors determined the licensee's failure to perform a proper Level 3 OPEX evaluation for IN 2017-06 was contrary to Exelon Generation Procedure PI-AA-115-1003, "Processing of Level 3 OPEX Evaluation." Specifically, the licensee failed to ensure the documentation in the OPEX evaluation was stand-alone and clear enough to identify the review was completed satisfactorily. Specifically, OPEX evaluation 4067133-02 failed to demonstrate why the site was not vulnerable to the situation described in the IN nor did it provide information to demonstrate station equipment would be able to withstand the larger short circuit conditions provided by the chargers as described in the Information Notice.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Design Control attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, regardless of the results of the final/revised evaluation, the failure to perform proper Level 3 OPEX evaluation for NRC IN 2017-06 resulted in a condition where there was a reasonable doubt that equipment/isolation devices were able to withstand the larger short circuit conditions provided by the chargers as described in the IN.

Significance: The inspectors assessed the significance of the finding using Appendix A, “The Significance Determination Process (SDP) for Findings At-Power.” The finding screened as of very low safety significance (Green) because it did not result in the loss of operability or functionality of mitigating systems. Specifically, the licensee revised the IN 2017-06 evaluation and were able to show that equipment/isolation devices were capable to withstand the available short circuit current.

Cross-Cutting Aspect: H.14 - Conservative Bias: Individuals use decision making-practices that emphasize prudent choices over those that are simply allowable. A proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop. Specifically, the licensee's initial evaluation for IN 2017-06 failed to evaluate the effect of the larger short current contribution from the charger on the interrupting rating of the equipment/isolation devices. Instead, the licensee only verified that the short circuit current as specified in the existing calculation did not exceed the plant equipment/isolation devices interrupting rating.

Enforcement:

Inspectors did not identify a violation of regulatory requirements associated with this finding.

The disposition of this finding closes URI: 05000237,05000249/2021010-02

URI	Potential Non-Conservative DC Short-Circuit Current Values URI 05000237,05000249/2021010-02	71111.21N.05
<p>Description: A finding of very low risk significance (Green) was identified in Section 71111.21N.05 of this report as described previously.</p> <p>Corrective Action Reference(s): AR 4398306: 2021 DBAI: OPEX IN 17-06 Evaluation Incomplete AR 4056647: OPEX Review: IN 2017-06: Battery / Charger Short Circuits (Corporate AR) AR 4399797: AR Generated to Determine Course of Action for 2021 DBAI: OPEX IN 17-06 Evaluation (Corporate AR)</p>		

EXIT MEETINGS AND DEBRIEFS

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

- On August 26, 2021, the inspectors presented the triennial fire protection inspection results to Mr. P. Boyle, Plant Manager and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21N.05	Calculations	001-92-125	Hydraulic Analysis of the Dresden Station Unit 2/3 Cribhouse Fire Suppression System APPR 10 for the Commonwealth Edison Company	0
		DRE98-0023	Diesel Fire Pump Test Acceptance Criteria	0
	Corrective Action Documents	AR 02534794	2/3 Diesel Fire Pump (DFP) Failed to Start Troubleshooting	07/29/2015
		AR 04142256	2/3 DFP Surveillance in Progress, Bad Data	05/29/2018
	Corrective Action Documents Resulting from Inspection	AR 04435124	Evaluate Locking Open Unit 1 DFP Valve	07/15/2021
		AR 04435186	Revise FPR to Reflect CRD Crosstie Configuration	07/15/2021
		AR 04436168	Typo in DFPS 4123-06	07/21/2021
		AR 04436461	DFPS 4123-05 Needs Revision	07/22/2021
		AR 04437037	Minimum Battery Resistance Procedure Enhancement	07/26/2021
		AR 04437341	Intervening Combustible with no Firewrap	07/27/2021
		AR 04440577	Actions in Response to FP Inspection NRC Challenges	08/13/2021
		AR 04440577	Action Response to FP Inspection NRC Challenge	08/13/2021
	Drawings	F-16-1	Detection and Suppression Turbine Building Main Floor	1
		F-17-1	Detection and Suppression Turbine Building Main Floor (Unit 3)	1
		F-9-1	Detection and Suppression Turbine Building Basement	C
		M-23	Diagram Fire Protection Piping	AT
		M-34	Diagram of Control Rod Drive Hydraulic Piping	E133
	Engineering Changes	EC 357368	Install Alternate Service Water Pipe-Outdoor Portion	11/02/2009
		EC 630156	Engineering Technical Evaluation to Justify Adequate Fire Suppression Coverage with Failed Sprinkler Head in the TB Mezz Area	01/21/2020
		EC 633431	Evaluation of High Pressure Drop Noted During Fire Protection Yard Loop Flow Surveillance	04/20/2021
	Engineering Evaluations	EC 630156	Justify Adequate Fire Suppression Coverage with Failed Sprinkler Heads in TB Mezz Area	0
	Procedures	155 U2TB-57	FZ 8.2.8A Unit 2 Main Turbine Floor Elevation 561	3
		CC-AA-206	Fuse Control	11

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		DEOP 0100-00	RPV Control	13
		DFPP 4175-01	Fire Barrier Integrity and Maintenance	24
		DFPS 4123-06	Figure 2 2/3 DFP Performance Chart, Manufacturer's Pump Curve	50
		DFPS 4175-02	Operating Fire Break/Stop Surveillance	34
		DGP 02-03	Reactor Scram	117
		DOA 0010-10	Fire/Explosion	26
		IR 4364390	NOS ID: Operator Response Time Docs not Archived in EDMS	08/20/2020
		MA-AA-723-325	Molded Case Circuit Breaker Testing	19
		PI-AA-115-1003	Processing of Level 3 OPEX Evaluation	5
	Work Orders	4741434	D2 EFL AD Locked Valve Surv	11/06/2019
		5109375	IST Control Rod Drive Exercise	03/05/2021
		5138844	IST Control Rod Drive Exercise	05/21/2021
		WO 4645566	D2/3 an TSTR/Com Diesel Fire Pump Flow Capacity Test	08/17/2018
		WO 4832450	D2/3 18M TSTR/Com Diesel Fire Pump Flow Capacity Test	03/03/2020