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U.S. Nuclear Regulatory Commission
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LTR-NRC-22-14
April 11, 2022

Subject: Notification of the Potential Existence of Defects Pursuant to 10 CFR Part 21

The following information is provided pursuant to the requirements of 10 CFR Part 21 to report a defect that could lead to a substantial safety hazard.

- (i) Name and address of the individual or individuals informing the Commission.

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- (ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

Commercially dedicated Eaton Freedom Series NEMA Size 1 and 2 full voltage reversing (FVR) contactors with mechanical interlocks that were manufactured between April 2014 until June 2018.

- (iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

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- (iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

The full voltage reversing contactors are designed and qualified to open and close on demand. The FVRs sporadically failed to electrically close on demand because the mechanical interlock is not returning to the de-energized position.

- (v) The date on which the information of such defect or failure to comply was obtained.

Westinghouse determined this is a reportable defect on April 6, 2022.

- (vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

Westinghouse sold LaSalle County Station Units 1 and 2 a quantity of 206 safety-related full voltage reversing contactors that are potentially affected between 2014 and 2022.

- (vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action.

Westinghouse developed an alignment tool intended to increase the effectiveness of the installed mechanical interlocks and prevent them from binding. Westinghouse provided the alignment tool and associated procedure to LaSalle on February 17, 2022.

Effective March 11, 2022, Westinghouse updated the commercial dedication instruction to include additional critical characteristics of the mechanical interlock assembly based on the results of the causal analysis. It was determined that the pawl contained within the mechanical interlock assembly was the cause of the mechanical binding.

Westinghouse purchased the latest revision mechanical interlocks that contain Revision 3 pawls from Eaton. They are being dedicated by Westinghouse and installed by LaSalle Station in conjunction with the alignment tool, as they become available.

- (viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

Westinghouse has been in daily communication with LaSalle Station since January 2022 and provides real-time updates on the Westinghouse testing efforts.


Westinghouse provided an on-site expert to LaSalle between February 23-25, 2022.

The overall failure rate of the installed components has been low and is related to a tolerance stack-up among the mechanical interlock, mechanical interlock pawl, and the two reversing contactors. Additionally, the failures only occur after some time in service which cannot be correlated to a specific installed time or number of cycles. It is a random event.

Westinghouse analyzed, reviewed, and regression tested mechanical interlocks that contain the Revision 3 pawls to confirm they are functional and meet the LaSalle environmental requirements.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

Not applicable


Camille T. Zozula
Part 21 Program Manager

cc: E. Lenning (US NRC)