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Date:	October 4, 2024
From:	Michael K. Dunkelberger, MPR QA Director
To:	Document Control Desk
Company:	U.S. Nuclear Regulatory Commission
Fax:	(301) 816-5151
Phone:	N/A
Subject:	10 CFR Part 21 Report Submittal
Total Pages:	5 pages including cover sheet

Message:

The purpose of this fax is to submit a 10 CFR Part 21 Report in accordance with the requirements of 10 CFR Part 21.

This 10 CFR Part 21 Report provides the required information regarding incomplete dedication activities performed on contactors supplied as basic components.

The details regarding this submittal are provided in the pages attached.

If you have any questions, please contact the undersigned identified in this report.

MPR

October 3, 2024
0321-PRT21-RPT-001, Rev. 0

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Report in Accordance with 10 CFR Part 21

Dear Sir or Madam:

The attached 10 CFR Part 21 Report provides the required information regarding incomplete dedication activities performed on contactors supplied as basic components.

If you have any questions, please contact the undersigned.

Sincerely,

Robert Coward
Principal Officer

Attachment

320 KING STREET ALEXANDRIA, VA 22314-3230 703-519-0200 FAX: 703-519-0224 http://www.mpr.com

MPR

Attachment to
MPR Letter dated
October 3, 2024
0321-PRT21-RPT-001, Rev. 0

10 CFR Part 21 Report on Incomplete Dedication of Contactors Supplied as Basic Components

This attachment provides the information required for reporting a failure to comply in accordance with 10 CFR Part 21.

1. Reporting Individual

Robert Coward, Principal Officer
MPR Associates, Inc.
320 King Street
Alexandria, VA 22314

2. Identification of the Basic Components that Fail to Comply

The basic components that fail to comply are contactors with the following manufacturer part numbers from ABB.

AF116-30-11-13

AF80-30-11-13

These contactors were supplied by MPR for use as replacement K1 and K2 contactors in the emergency diesel generator (EDG) excitation systems installed at Beaver Valley Power Station and Davis-Besse Nuclear Power Station.

3. Identification of the Supplier

MPR Associates (headquarters in Alexandria, VA) performed commercial grade dedication to supply the contactors as basic components.

4. Nature of the Failure to Comply

4.1. Nature of the Failure to Comply

MPR was not aware that the contactor design includes a microcontroller in the circuit that energizes the contactor coil and did not verify critical characteristics associated with software dependability when the commercial grade dedication activities were performed. Once aware of the microcontroller, MPR attempted to obtain information from the commercial manufacturer to verify the software critical characteristics but was unsuccessful.

4.2. The Safety Hazard Created by the Failure to Comply

MPR is not aware of any design deficiency that would prevent the contactor from functioning properly. The critical characteristics associated with the physical and functional attributes of the contactors were verified as part of the MPR commercial grade dedication process. However, the inability to verify the critical characteristics for software dependability prevents the items from being fully dedicated as basic components. As a result, the ability of the contactor to perform reliably throughout its service life is uncertain.

The safety function of the K1 contactor at Beaver Valley is to permit excitation during EDG start-up and operation by not being in an energized state. The primary function of the K1 contactor is to change state to short the input to the rectifier upon an EDG shutdown signal for shutting down the excitation system.

The safety function of the K1 contactor at Davis-Besse is to permit excitation during EDG start-up and operation and field flashing during EDG start by not being in an energized state. The primary function of the K1 contactor is to change state to short the input to the rectifier upon an EDG shutdown signal for shutting down the excitation system. Additionally, the K1 at Davis-Besse includes an electrical interlock to prevent field flashing when the excitation system is shut down and to permit field flashing when the excitation system is in standby.

The safety function of the K2 contactor at both plants is to enable battery voltage to be applied to the generator field during an EDG start. Additionally, the K2 contactor isolates the station or diesel batteries from the excitation system output and the generator field during normal operation and shutdown.

5. Date the Information was Obtained

On August 9, 2024, MPR received an email from an ABB representative, which indicates the AF80 and AF116 contactors use a microcontroller. This information was different from what was obtained when the contactors were originally supplied by MPR. MPR initiated Condition Report CR-24-052 on August 9, 2024. On August 21, 2024, MPR disassembled an AF80 contactor and confirmed there is a microcontroller in the design.

6. Number and Location of these Basic Components Supplied

MPR supplied two (2) ABB AF116-30-11-13 contactors to be utilized as K1 contactors and two (2) ABB AF80-30-11-13 contactors to be utilized as K2 contactors in the emergency diesel generator excitation systems at Beaver Valley Power Station. The plant indicates that one set of K1 and K2 contactors was installed in the excitation system for one EDG at one unit.

MPR supplied five (5) ABB AF116-30-11-13 contactors to be utilized as K1 contactors in the emergency diesel generator excitation systems at Davis-Besse Nuclear Power Station. The plant indicates that none of these contactors were installed.

7. Corrective Action Plan

MPR notified the affected plants of the situation. MPR attempted to obtain information from the commercial manufacturer to verify the software critical characteristics but was unsuccessful.

MPR is currently working to provide information to support continued use of the installed contactors. MPR is also working to identify a replacement contactor that is suitable for the application.

8. Advice Given to Purchasers or Licensees

Digital technologies are being introduced in commercial devices that were previously analog. Commercial suppliers may not be willing to share design information needed to support commercial grade dedication activities or to understand the extent of design changes introduced in new models. Purchasers and licensees must maintain a questioning attitude and may need to disassemble a commercial item to ensure information obtained from commercial suppliers is accurate.