

December 15, 2023

Docket No.: 50-348  
50-364

NL-23-0901

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

30-Day 10 CFR 21 Notification – Framatome Supplied Siemens Medium Voltage (MV) Circuit Breakers

In accordance with 10 CFR 21.21(d)(3)(ii), Southern Nuclear Operating Company (SNC) is hereby submitting the enclosed written notification of a manufacturing defect identified by Framatome in Siemens MV Circuit Breaker units supplied to Joseph M. Farley Nuclear Plant. Framatome found that the charging motor wiring routing could damage the wiring and potentially lead to a failure of the circuit breaker to electrically charge or electrically close. An interim report regarding this condition was submitted to the Nuclear Regulatory Commission on August 17, 2022 (ML22229A515). The information provided in Enclosure 1 of this letter meets the reporting requirements of 10 CFR 21.21(d)(4).

The NRC Senior Resident Inspector at Joseph M. Farley Nuclear Plant has been notified.

This letter contains no NRC commitments. If you have any questions, please contact Ryan Joyce at 205.992.6468.



Jamie M. Coleman  
Regulatory Affairs Director

JMC/rdh/cbg

Enclosures: 1) Southern Nuclear Form Containing Information Required by 10 CFR 21.21(d)(4)

cc: Regional Administrator, USNRC, Region II  
SNC Document Services - RType: AA1.003

**30-Day 10 CFR 21 Notification – Framatome Supplied Siemens Medium Voltage (MV)  
Circuit Breakers**

**Enclosure 1**

**Southern Nuclear Form Containing Information Required by 10 CFR 21.21(d)(4)**

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

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Ms. Jamie Coleman  
Southern Nuclear – Regulatory Affairs Director  
3535 Colonnade Parkway  
Birmingham, AL 35243

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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.**

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Joseph M. Farley Nuclear Plant (FNP) Units 1&2  
7388 North State Highway 95  
Columbia, AL 36319

Siemens Medium Voltage (MV) vacuum circuit breakers charging motor wiring routed and connected in such a way that damages the wiring (1200 amp breakers and 2000 amp breakers).

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**(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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Framatome, Inc.  
100 East Kensington Drive, Suite 100  
Cranberry Twp., PA 16066

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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.**

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The wire routing deviation could potentially lead to a failure of the applicable circuit breakers to electrically charge or electrically close.

The most limiting defect location for Unit 1 was the Residual Heat Removal Pump power supply. A failure of the breaker to charge and/or close would prevent the capability of the Residual Heat Removal Pump from performing its safety function. The Residual Heat Removal System contains two pumps: one pump per train. Because one pump's power supply was impacted by this defect, it was determined that the defect constitutes a major degradation since, in conjunction with a single failure, there could have been a loss of redundancy for this safety function.

The most limiting defect location for Unit 2 was the Service Water Pump power supply. A failure of the breaker to charge and/or close would prevent the capability of the Service Water Pump from performing its safety function. The Service Water System contains five pumps: two pumps per train, with one swing pump. Because all five pumps' power supplies were impacted by this defect, it was determined that the defect constitutes a major degradation since there could have been a loss of redundancy for this safety function.

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

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December 11, 2023

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**(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.**

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Forty-five (45) supplied 4.16kV safety-related breakers were identified which could contain the wiring deviation. Forty (40) of these breakers were installed throughout the units. At the time of the wiring deviation notification, only the following 4.16kV safety-related buses were approved and modified to have the new 4.16kV Siemens breakers installed: 1F, 1K, 1L, 2G, 2K, and 2L.

The remaining five (5) applicable breakers were not installed in the plant at the time of the wiring deviation notification. These breakers could have potentially been installed in the above approved/modified 4.16kV buses or in 4.16kV buses that have been or will be approved/modified after notification of the wiring deviation, which includes 1G, 1H, 1J, 2F, 2H, and 2J.

To date, twenty-seven (27) breakers have been confirmed to contain the wiring deviation; all 27 have been corrected.

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**(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.**

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Thirty-three safety-related breakers that could have resulted in major degradation of essential safety-related equipment were prioritized and have been inspected. Affected wiring deviations have been rerouted/corrected. No wiring damage from the deviation has been identified to date. The remaining 12 safety-related breakers to be inspected, and corrected if applicable, will be targeted for the next available opportunity (i.e., online, equipment/system outage, refueling outage). Farley site engineering will be responsible for requesting work orders for the remaining applicable safety-related breaker inspections; Farley site maintenance will be responsible for implementation of the generated work orders.

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**(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.**

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Framatome, Inc. notified affected licensees and advised the following actions:

1. Inspect all wires for damage and impact. Impacted breakers should have wire bundles rerouted.

Enclosure 1 to NL-23-0901

Southern Nuclear Form Containing Information Required by 10 CFR 21.21(d)(4)

2. If damage is found, replace wire with exposed copper or install heat shrink (or similar) insulation sleeves.
3. Contact Framatome for further guidance.

Reference Framatome Letter LTR22020, dated May 23, 2022.