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U. S. Nuclear Regulatory Commission
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Washington, D. C. 20555-0001

**Joseph M. Farley Nuclear Plant – Units 1 and 2
Response to Request for Additional Information for
RHR Autoclosure Interlock Function Elimination LAR**

Ladies and Gentlemen:


By letter dated August 31, 2015, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15261A673) Southern Nuclear Operating Company (SNC) submitted a license amendment request (LAR) to eliminate the Residual Heat Removal (RHR) autoclosure interlock and its associated Surveillance Requirement for Joseph M. Farley Nuclear Plant (Farley), Units 1 and 2.

By letter dated December 17, 2015, the Nuclear Regulatory Commission (NRC) sent SNC a request for additional information (RAI). The enclosure to this letter provides the SNC response to the NRC RAI.

This letter contains no new NRC commitments. If you have any questions, please contact Ken McElroy at (205) 992-7369.

Mr. C. R. Pierce states he is Regulatory Affairs Director of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and, to the best of his knowledge and belief, the facts set forth in this letter are true.

Respectfully submitted,



C. R. Pierce
Regulatory Affairs Director

CRP/JMC/lac

Sworn to and subscribed before me this 28 day of January, 2016.



Laura L. Crpton
Notary Public

My commission expires: 10-8-2017

Enclosure: Response to Request for Additional Information

cc: Southern Nuclear Operating Company
Mr. S. E. Kuczynski, Chairman, President & CEO
Mr. D. G. Bost, Executive Vice President & Chief Nuclear Officer
Ms. C. A. Gayheart, Vice President – Farley
Mr. M. D. Meier, Vice President – Regulatory Affairs
Mr. D. R. Madison, Vice President – Fleet Operations
Mr. B. J. Adams, Vice President – Engineering
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U. S. Nuclear Regulatory Commission
Mr. L. D. Wert, Regional Administrator (Acting)
Mr. S. A. Williams, NRR Project Manager - Farley
Mr. P. K. Niebaum, Senior Resident Inspector - Farley

Alabama Department of Public Health
Dr. D. E. Williamson, State Health Officer



**Joseph M. Farley Nuclear Plant – Units 1 and 2
Response to Request for Additional Information for
RHR Autoclosure Interlock Function Elimination LAR**

Enclosure

Response to Request for Additional Information

By letter dated August 31, 2015, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15261A673) Southern Nuclear Operating Company (SNC) submitted a license amendment request (LAR) to eliminate the Residual Heat Removal (RHR) autoclosure interlock and its associated Surveillance Requirement for Joseph M. Farley Nuclear Plant (Farley), Units 1 and 2. By letter dated December 17, 2015, the Nuclear Regulatory Commission (NRC) sent SNC a request for additional information (RAI). The enclosure to this letter provides the SNC response to the NRC RAI.

Request For Additional Information #1

Section 2.3, "Procedural Changes," of the WCAP-11736, "Residual Heat Removal System Autoclosure Interlock Removal Report for the Westinghouse Owners Group," NRC staff safety evaluation report (SER) states that WCAP-11736 proposes generic procedural requirements. The SER also states that "the staff agrees with this generic guidance assuming a surveillance procedure for the [Residual Heat Removal (RHR) System] suction valve alarms is added to ensure these alarms remain operable." Provide a description of the mentioned surveillance procedure for the new RHR System suction valve alarm at Farley.

SNC Response to RAI #1

A new annunciator response procedure (ARP) will be prepared for Farley Nuclear Plant, Units 1 and 2 for the alarm that will be added in the Main Control Room. The LAR states in section 3.0, Technical Evaluation, that an alarm will be added to each RHR suction isolation valve which will actuate if the valve is open and the reactor coolant system (RCS) pressure is greater than the open permissive setpoint and less than the RHR system design pressure minus the RHR pump head pressure at minimum flow.

SNC intends to prepare the procedure to be consistent with the generic procedural requirements in WCAP-11736, as applicable to FNP. In addition, Vogtle Electric Generating Plant (VEGP) Units 1 and 2, another SNC Westinghouse NSSS plant, submitted a similar LAR in 1991 to eliminate their RHR autoclosure interlock. FNP will use the VEGP ARP as a template when preparing the ARP for FNP. The procedure will be entered when an RHR suction isolation valve is open and RCS pressure is above the alarm setpoint.

There are no automatic actions associated with this alarm. The actions that will be required by the ARP that the operator should take, are, at a minimum, as follows:

1. Check RCS pressure.
2. If a Reactor Coolant Pump (RCP) was inadvertently started, secure the RCP as necessary.
3. If the RCS is water solid, lower RCS pressure by adjusting Charging and Letdown.
4. If a steam bubble exists in the pressurizer, lower RCS pressure by operating pressurizer spray and/or auxiliary spray valves as necessary.

Enclosure to NL-15-2222
Response to Request for Additional Information

5. If one or more RHR suction valves were inadvertently left open, close applicable valve(s).

An item has been entered into the FNP corrective action program to track preparation of the new ARP.

Request For Additional Information #2

The license amendment request discusses a new alarm that will actuate if any RHR System suction isolation valve is open and the reactor coolant system pressure is greater than the open permissive setpoint and less than the RHR System design pressure minus the RHR pump head pressure at minimum flow. NUREG-0800, Branch Technical Position (BTP) 5-4, "Design Requirements of the Residual Heat Removal System," contains an RHR System isolation requirement that states: "The valves should have independent diverse interlocks to protect against one or both valves being open during a [reactor coolant system] increase above the design pressure of the RHR system, to the extent that such interlocks will not degrade high system reliability during shutdown operations (see Generic Letter 88-17)." Additionally, Section 2.5, "Safety Function of the Autoclosure Interlock," of the WCAP-11736 SER also highlights this concern: "The ACI function is to preclude conditions that could lead to a LOCA outside of containment, Event V, due to operator error. The sequence that concerns the staff in particular is that case in which the operator closes one of the isolation valves and not the other..."

- a. Since a level of diversity is being removed by removing the ACI, how will plant procedures ensure that operators will take appropriate action when the alarm is received in the control room?
- b. What additional operator training will be required prior to implementation of the revised Technical Specifications?

SNC Response to RAI #2

- a. Plant operators are trained to respond to alarms by using the guidance in the applicable annunciator response procedures. The ARP will include operator actions to take when the alarm is received. A list of the potential actions that will be included in the ARP is provided in the SNC response to RAI #1 above.
- b. Pending approval of the associated LAR, all operators will be trained on the removal of the RHR autoclosure interlock, which will include training on the new alarm and any associated procedure changes.

Request For Additional Information #3

The RHR System provides a low temperature overpressure protection safety function during shutdown and refueling operations by providing pressure relief to the pressure relief tank inside containment. Previously, power lockout of the RHR System containment isolation valves was implemented at FNP to reduce the

frequency of inadvertent valve closure due to the presence of the ACI. With the removal of the ACI circuitry, FNP is also removing the requirement to lockout power to the RHR System containment isolation valves below a reactor coolant system temperature of 180 degrees Fahrenheit as discussed in the license amendment request. LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) System," requires that two RHR suction relief valves with setpoints less than or equal to 450 pounds per square inch gauge be available or alternatively that the reactor coolant system be depressurized with a reactor coolant system vent greater than or equal to 2.85 square inches in Modes 4, 5, and 6. The presence of LCO 3.4.12 does not inherently prevent the closure of the two RHR suction relief valves during Modes 4, 5, and 6; appropriate plant procedures are also required to ensure that the LCO will be met. With power no longer being removed and manual valve closure possible, describe plant procedures associated with the control of the RHR suction relief valves to provide assurance that inadvertent isolation will not occur during Modes 4, 5, and 6.

SNC Response to RAI #3

The standard operating procedure (SOP) for the FNP RHR system states in multiple places:

When the temperature of any RCS Cold leg is at or below 275°F, then two RHR relief valves with lift settings of less than or equal to 450 psig shall be operable and their isolation valves, Q1E11MOV8701A & Q1E11MOV8701B and Q1E11MOV8702A & Q1E11MOV8702B shall be open.

Note that this SOP is used to align the RHR system as directed by the applicable unit operating procedure to meet LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) System," when the RHR relief valves are used for low temperature overpressure protection. Conditions D and E of TS 3.4.12 address one and two inoperable RHR relief valves, respectively. Required Actions D.1, D.2, D.3, and E.1 identify the actions to be taken to provide low temperature overpressure protection if the RHR relief valves are inoperable.

In addition, existing surveillance test procedures ensure the Surveillance Requirements (SR) are met for TS 3.4.12, "Low Temperature Overpressure Protection (LTOP) System," to verify RHR suction isolation valves are open for each required RHR suction relief valve every 72 hours in the applicable modes. If two RHR suction relief valve paths are not operable, there is a SR to verify an RCS vent ≥ 2.85 square inches exists every 12 hours for unlocked open vent valve(s) or every 31 days for locked open vent valve(s).

Operators are trained to comply with procedures and the requirements of Technical Specifications. The elimination of the RHR autoclosure interlock will require multiple procedure changes, in addition to the new alarm ARP. There will be changes to the RHR standard operating procedures, unit operating procedures for shutdown to cold shutdown and unit operating procedures for startup from cold shutdown as a result of the RHR autoclosure interlock elimination LAR approval. The procedure changes will ensure that the RHR suction isolation valves are not inappropriately closed in Modes 4, 5 or 6.

Enclosure to NL-15-2222
Response to Request for Additional Information

It is desirable to maintain power to the RHR suction isolation valves in the shutdown modes to improve the capability of the operators to isolate RHR from the RCS in the event of a leak in the RHR system. Operations personnel or any SNC personnel do not manipulate any valve without procedural guidance; therefore, the potential of the RHR suction isolation valves being inadvertently isolated is not expected to occur. An item has been entered into the FNP corrective action program to track all procedure changes associated with the RHR autoclosure interlock elimination.