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NL-12-0571

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Joseph M. Farley Nuclear Plant – Units 1 and 2
Request for Additional Information (RAI) Response on Inservice Testing (IST)
Proposed Alternative RR-P-3, Version 2

Ladies and Gentlemen:

By letter dated October 28, 2011 (Agencywide Documents Access and Management System (ADAMS), Accession No. ML113010346), Southern Nuclear Operating Company (SNC), submitted a request for relief from the quarterly inservice testing requirements for the FNP motor driven auxiliary feedwater pumps. The U.S. Nuclear Regulatory Commission staff (NRC) reviewed the information and identified that additional information was needed to complete the review. A request for additional information (RAI) was issued to SNC in letter dated February 2, 2012 (ADAMS Accession No. ML12024A027). The SNC responses to the RAI are provided in the Enclosure.

This letter contains no NRC commitments. If you have any questions, please contact Jack Stringfellow at (205) 992-7037.

Sincerely,

A handwritten signature in black ink that reads "Mark J. Ajluni".

M. J. Ajluni
Nuclear Licensing Director

MJA/RMJ/lac

Enclosure: RAI Response on IST Proposed Alternative RR-P-3, Version 2

cc: Southern Nuclear Operating Company
Mr. S. E. Kuczynski, Chairman, President & CEO
Mr. D. G. Bost, Executive Vice President & Chief Nuclear Officer
Mr. T. A. Lynch, Vice President – Farley
Mr. B. L. Ivey, Vice President – Regulatory Affairs
Mr. B. J. Adams, Vice President – Fleet Operations
RTYPE: CFA04.054

U. S. Nuclear Regulatory Commission
Mr. V. M. McCree, Regional Administrator
Mr. R. E. Martin, NRR Project Manager – Farley
Mr. E. L. Crowe, Senior Resident Inspector – Farley

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Request for Additional Information (RAI) Response on Inservice Testing (IST)
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Enclosure 1

RAI Response on IST Proposed Alternative RR-P-3, Version 2

RAI #1: Flow rates

Provide the design flow rates for the four motor driven auxiliary feedwater (MDAFW) pumps. Also provide the expected flow rates through the 2-inch minimum flow line for the four MDAFW pumps.

RAI #1: Southern Nuclear Response

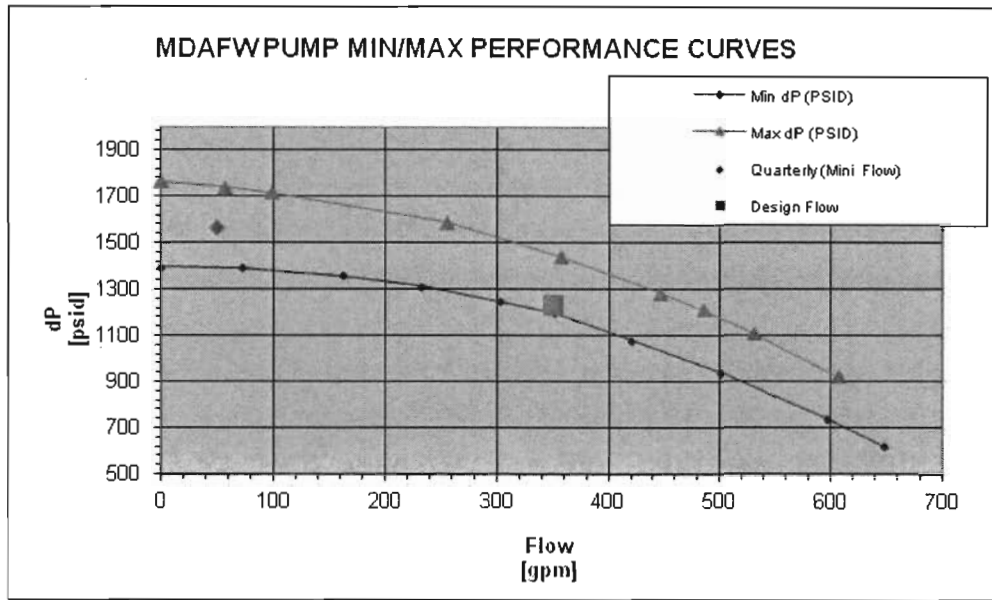
Each of the four motor driven auxiliary feedwater (MDAFW) pumps is designed to provide 350 gallons per minute (gpm) at a total dynamic head of 1233 psid. The expected flow rate through the 2-inch minimum (mini) flow line for each of the four pumps is 50 gpm at low flow operational conditions. Flow orifices, provided by the pump vendor, are in each mini flow line. Preliminary testing using ultrasonic flowmeters has verified the expected flow through each of the mini flow lines is consistent and approximately 50 gpm.

RAI #2: Pump Curves

Provide a pump curve(s) for the four MDAFW pumps. The pump curve(s) should be applicable to the pumps in their current conditions. Indicate on the curve(s) the points for the design flow rate and the expected flow rate through the 2-inch minimum flow line. Explain how degradation will be detected from the Group A tests when the MDAFW pumps are operating at the expected flow rate through the 2-inch minimum flow line.

RAI #2: Southern Nuclear Response

FNP is unable to produce the specific pump curve for each MDAFW pump; however, shown below are the maximum and minimum design flow rate pump curves for the MDAFW pumps at FNP. The area between the two curves defines the acceptable operating range for the pumps. The two points shown within the area between the two curves, labeled "Quarterly (Mini Flow)" and "Design Flow", represent the most recent IST flow measurements through the 2-inch mini flow line and the design flow rate, respectively. Degradation of the MDAFW pumps will be detected by measuring the flow through the mini flow line (ultrasonic meter) and the pump differential pressure. These values will be compared to the MDAFW mini flow reference value and pump curves as required by ISTB-5121(c) of ASME OM Code 2001.



RAI #3: Redesign and Modification of Return Lines

It is stated in the reference noted above that Southern Nuclear Operating Company, Inc. engineering subsequently recommended a complete redesign of the 4-inch return line piping and support system if the return lines were to be used for full flow inservice testing for the MDAFW pumps. It is then stated that "Redesign and modification of these 4" return lines would result in a significant hardship with minimal increase in the level of quality and safety, since each MDAFW pump is tested every refueling outage at the maximum required accident flow rate during the Comprehensive Pump Test (CPT)."

Provide a more detailed explanation as to why the redesign and modification of the return lines would result in a significant hardship. Also explain how seven quarterly Group A pump tests at the pump design flow rate and a biennial CPT at the maximum required accident flow rate is a minimal increase in the level of quality and safety over seven quarterly Group A pump tests at the reduced flow rate and a biennial CPT at the maximum required accident flow rate.

RAI #3: Southern Nuclear Response

Due to the piping configuration and a lack of adequate space, the physical constraints of the auxiliary water pump rooms limit the potential for additional design features to mitigate vibration in the return line. Additionally, if any modifications are made upstream, there is a risk of damage to the common return line to the Condensate Storage Tank (CST) due to the close proximity of where the pumps tie into the piping. Due to these physical constraints and the risk of additional damage to the common return piping to the CST, significant hardship would be induced by modification of the four-inch return line.

These pumps are only operated for relatively short periods of time during reactor startup and shutdown when there is inadequate steam for operation of the normal feedwater pumps and for routine IST. Due to the lack of operating time on each pump, significant degradation is not

anticipated between refueling outages. The CPTs performed during each refueling outage confirm pump performance. Each CPT is performed at a predetermined reference flowrate and utilizes more accurate pressure instrumentation. The resultant IST is more repeatable and provides test data very suitable for detecting and trending degradation.

The quarterly minimum flow line test confirms that the pumps start, come up to normal operating speed, and that all the associated control and operating logic functions properly. This test provides adequate data to detect any significant degradation and provides a high level of confidence that the pumps will perform their required safety function.

Therefore, the current quarterly mini flow tests and the CPT performed during each refueling outage provide reasonable assurance the pumps are operating acceptably and confirm acceptable variance from the pump curve. Performing the quarterly tests at the pump design flow rate would result in minimal increase in the level of quality and safety.

RAI #4: Fourth ten-year IST interval

In the reference noted above, it is stated that Alternative 2 will be applied no later than January 1, 2013, through November 1, 2017. The end of your fourth ten-year IST interval is November 30, 2017. Explain why Alternative 2 will not be applied no later than January 1, 2013, through November 30, 2017, the end of your fourth ten-year IST interval.

RAI #4: Southern Nuclear Response

The November 1, 2017 date listed in the referenced letter was a typographical error. The intent is that Alternative 2 will be applied no later than January 1, 2013 through November 30, 2017, the end of the fourth 10-year interval.