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Docket Nos.: 50-348

NL-16-2204

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

Joseph M. Farley Nuclear Plant Unit 1
Proposed Alternative FNP-ISI-ALT-21, Version 1.0

Ladies and Gentlemen:

Pursuant to 10 CFR 50.55a(z)(2), Southern Nuclear Operating Company (SNC) hereby requests Nuclear Regulatory Commission (NRC) staff approval of proposed Code Alternative FNP-ISI-ALT-21 Version 1.0. This Alternative will allow Farley Nuclear Plant (FNP) Unit 1 to delay the permanent Code repair or replacement of a 1" drain line leaking weld until prior to the start of the spring 2018 refueling outage 1R28. FNP Unit 1 is currently in refueling outage 1R27. Appendix IX, Article IX-1000(a) of ASME Section XI, 2001 Edition through the 2003 Addenda specifies that mechanical clamping devices used as a piping pressure boundary may remain in services only until the next refueling outage. As an alternate to the permanent code repair during this refueling outage 1R27, it is requested that approval be granted to allow a temporary code repair designed and implemented in accordance with ASME Code Section XI Appendix IX to remain in place for plant startup from refueling outage 1R27 and until no later than the beginning of 1R28, which is scheduled to begin in March 2018. By then, the fuel pool heat load will have diminished sufficiently to allow adequate margin for temperature rise in the pool while the repair is being implemented. Thus, the duration of this relief request is until the start of 1R28. Note that the 4th ten year ISI interval ends in November 2017 so this request would extend into the next ten year interval.

The details of the 10 CFR 50.55a alternative is contained in the enclosure. Approval is requested by October 21, 2016, to support startup of the Fall 2016 Outage at FNP Unit 1 to proceed according to the current schedule.

This letter contains no NRC commitments. If you have any questions, please contact Ken McElroy at 205.992.7369.

Respectfully submitted,

C. R. Pierce
Regulatory Affairs Director

CRP/RMJ

Enclosure: FNP-ISI-ALT-21, Version 1.0

cc: Southern Nuclear Operating Company
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Joseph M. Farley Nuclear Plant Unit 1
Proposed Alternative FNP-ISI-ALT-21, Version 1.0

Enclosure

FNP-ISI-ALT-21, Version 1.0

<u>Plant Site - UNIT:</u>	Farley Nuclear Plant (FNP) Unit 1
<u>Interval-Interval Dates:</u>	4 th ISI Interval extending from December 1, 2007, through November 30, 2017.
<u>Requested Date for Approval:</u>	Approval is requested by October 21, 2016, to support startup of the Fall 2016 Outage (1R27) at FNP Unit 1
<u>ASME Code Components Affected:</u>	<p>FNP Units: Unit 1</p> <p>ASME Code Class: Code Class 3</p> <p>Component: Stainless Steel Socket Weld on Line 1"-HCC-110, upstream side of drain valve Q1G31V017</p>
<u>Applicable Code Edition and Addenda:</u>	ASME Section XI, 2001 Edition through 2003 Addenda
<u>Applicable Code Requirements</u>	Appendix IX, Article IX-1000(a) specifies that "Mechanical clamping devices used as a piping pressure boundary may remain in service only until the next refueling outage, at which time the defect shall be removed or reduced to an acceptable size."
<u>Background and Reason for Request:</u>	<p>On October 11, 2016, during the 1R27 refueling outage, a through wall leak was discovered at a socket weld on valve Q1G31V017, a 1-inch drain line off of the 8-inch Spent Fuel Pool (SFP) cooling common return header. The leak location cannot be isolated using normal means because there is no isolation valve between the leak location and the SFP. Also, the FNP spent fuel pools are not cross-connected to allow cooling from the opposite unit.</p> <p>The leak was visually characterized as a circumferentially oriented linear indication at the toe of the socket weld at the valve. To perform a permanent Code repair or replacement (i.e., pipe replacement, or flaw removal and re-welding) at the location of the leak, both trains of the SFP cooling system will have to be removed from service and a non-conventional tagging boundary (e.g., freeze seal) will be required for personnel safety, to perform hot work, and to maintain the required inventory in the SFP. The total estimated time for establishing the boundary, implementing the code repair, and returning the SFP system to service is 24 hours. FNP has similar experience establishing a tagging boundary that would be required to conduct this repair.</p> <p>The issue was discovered after the reactor core was offloaded to the SFP. Performing a permanent repair during 1R27 with the reactor core offloaded or even shortly after the core reload is not a viable option based upon reaching 200 degrees F within approximately 10 hours if no SFP cooling were available. The</p>

	<p>estimated time to reach 200 degrees F in the SFP, if cooling were removed from service, will increase throughout the operating cycle as the decay heat from the fuel decreases. The earliest FNP would consider performing the permanent repair, assuming no significant degradation, which is not expected, would be after decay heat is reduced sufficiently to allow time to perform the repair with margin. The desire would be to conduct the repair at least 40 to 50 weeks after the core reload. After 40 to 50 weeks, the decay heat would be low enough such that it would take at least 72 hours to reach 200 degrees F after SFP cooling is removed from service. The time to 200 degrees F is dependent on the initial SFP temperature when cooling is removed from service, which is related to environmental factors (i.e., service water temperatures).</p> <p>The issue has been entered into the corrective action program and the work management process will ensure the evolution is planned at the appropriate time and executed in a manner to manage the risk of the maintenance activity.</p>
<p><u>Proposed Alternative and Basis for Use:</u></p>	<p>Southern Nuclear Operating Company (SNC) proposes to install a mechanical clamping device in accordance with ASME Section XI, Appendix IX during and prior to the startup from the 1R27 refueling outage to address the through-wall leak on the line 1"-HCC-110, in lieu of implementing a permanent Code repair/ replacement. As a compensatory measure, operations will monitor the temporary repair at least once a day.</p> <p><u>Basis for Use</u></p> <p>Appendix IX, Article IX-1000(a) specifies that "Mechanical clamping devices used as a piping pressure boundary may remain in services only until the next refueling outage." However, since FNP is currently in the 1R27 refueling outage, this is interpreted to need implementation of a permanent Code repair/ replacement prior to startup from 1R27. The optimum time for repair of the leak from a decay heat load perspective is just prior to the next refueling outage. This will allow for the maximum time with adequate margin to repair or replace the weld while still protecting the fuel in the SFP. SNC proposes to install a Code compliant mechanical clamping device on the leak and repair or replace the leaking weld prior to the next refueling outage 1R28. It is estimated that the time to 200 degrees F for the SFP, after cooling is removed from service, will be at least 72 hours within 40 to 50 weeks after the 1R27 refueling outage. Installing the temporary repair now and scheduling the permanent repair later in the cycle will allow ample time with margin to isolate the leak, repair and inspect the weld, and return the system to service while ensuring the fuel in the SFP remains adequately cool. Temporary repairs utilizing ASME Code Section XI, Appendix IX are typically implemented on-line and left in</p>

	<p>place until plant shutdown. For the circumstances of this request, a refueling outage presents the greatest risk to the decay heat removal functionality of the SFP.</p> <p>In summary, the repair will meet all ASME Code Section XI, Appendix IX provisions with the exception of the IX-1000(a). The repair will be designed as a pressure retaining clamping device in accordance with Section IX 3200. Completing a permanent Code repair/replacement prior to startup from 1R27 would not result in a compensating increase in quality and safety given that the heat load on the SFP system is at a maximum during the current refueling outage and a permanent repair would necessitate isolating the common SFP cooling return header.</p> <p>Pursuant to 10CFR50.55a(z)(2), an alternative is being requested by SNC for FNP Unit 1 on the basis of a hardship without a compensating increase in quality and safety in the repair of a leak on the SFP Cooling System to allow the temporary repair to be in place until no later than the start of 1R28.</p>
<u>Duration of Proposed Alternative:</u>	This alternative will remain in effect until prior to the commencement of the 1R28 outage, currently scheduled in the Spring of 2018.
<u>Precedents:</u>	None
<u>References:</u>	American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components, 2001 Edition, through 2003 Addenda, the American Society of Mechanical Engineers, New York.
<u>Status:</u>	Relief awaiting NRC approval.