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SOUTHERN COMPANY
Energy to Serve Your World℠

August 3, 2007

Docket Nos.: 50-348
50-364

NL-07-1523

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

Joseph M. Farley Nuclear Plant – Units 1 and 2
Relief Request RR-60
Proposed Alternative In Accordance with 10 CFR 50.55a(a)(3)(ii)

Ladies and Gentlemen:

Pursuant to 10 CFR 50.55a(a)(3)(ii), Southern Nuclear Operating Company (SNC) hereby requests NRC approval of proposed alternative RR-60 to allow visual examination (VT-2) at potential zero nominal pressure, of a section of the Chemical Volume and Control System piping. This is an alternative to the ASME Section XI Code, 1989 Edition with no addenda.

This alternative is for the Farley Nuclear Plant (FNP) 3rd 10-Year ISI Interval. The details of the request for alternative are contained in the enclosure to this letter.

Approval is requested to support the Unit 1 outage at FNP beginning September 29, 2007.

If you have any questions, please advise.

Sincerely,

B. J. George
Manager, Nuclear Licensing

BJG/JLS/daj

Enclosure: Relief Request RR-60, Proposed Alternative In Accordance with 10 CFR 50.55a(a)(3)(ii)

cc: Southern Nuclear Operating Company
Mr. J. T. Gasser, Executive Vice President
Mr. J. R. Johnson, Vice President – Plant Farley
Mr. D. H. Jones, Vice President – Engineering
RType: CFA04.054; CVC7000; LC# 14616

U. S. Nuclear Regulatory Commission
Dr. W. D. Travers, Regional Administrator
Ms. K. R. Cotton, NRR Project Manager – Farley
Mr. E. L. Crowe, Senior Resident Inspector – Farley

Joseph M. Farley Nuclear Plant – Units 1 and 2

Enclosure

Relief Request RR-60, Proposed Alternative In Accordance with
10 CFR 50.55a(a)(3)(ii)

Enclosure

Joseph M. Farley Nuclear Plant – Units 1 and 2
Relief Request RR-60
Proposed Alternative In Accordance with 10 CFR 50.55a(a)(3)(ii)

Plant Unit

Joseph M. Farley Nuclear Plant (FNP) Unit 1

ASME Code Component(s) Affected

A 2″ nominal pipe size Chemical Volume and Control System (CVCS) piping segment between check valve Q1E21V109 and Air Operated Valve (AOV) Q1E21V245.

Applicable Code Edition and Addenda

ASME Section XI Code 1989 Edition with no Addenda

Applicable Code Requirement

Table IWB-2500-1, Items B15.51 (piping) and B15.71 (valves) and ASME Section XI Code Case N-498-4 require a pressure test of the entire Class 1 System boundary, once every 10-years, at nominal operating pressure, accompanied by visual examination (VT-2) after a hold time of 10-minutes for non-insulated and 4-hours for insulated components.

Reason for Request

This 2″ CVCS auxiliary Pressurizer (PRZR) Spray Line piping segment cannot be pressurized in accordance with the ASME Section XI requirements without undue hardship.

Proposed Alternative and Basis for Use

FNP proposes VT-2 examination of this piping segment at potentially zero nominal pressure after the remainder of the Reactor Coolant System (RCS) has been at nominal operating pressure for at least 4-hours.

From the CVCS Regenerative Heat Exchanger, a 2″ branch line goes to AOV Q1E21V245, on to 2″ check valve Q1E21V109, then through a 2″ by 4″ pipe expander, then to the auxiliary PRZR spray nozzle. This flow path is used to provide an alternative PRZR pressure control method during off normal conditions, such as when no Reactor Coolant Pumps are running. CVCS is continuously inservice during normal plant operation, therefore the piping up to valve Q1E21V245 is at a pressure ≥ RCS pressure. RCS pressure is controlled by the PRZR which is at ≥ RCS pressure during normal operation. However, the 2″ pipe segment between AOV Q1E21V245 and check valve Q1E21V109 cannot be pressurized without impacting proper RCS pressure control.

The only practicable way to pressurize the piping segment between check valve Q1E21V109 and AOV Q1E21V245 to nominal RCS pressure would require disassembly of check valve Q1E21V109, removal of the valve disc, reassembly of check valve, pressurize RCS, hold for 4-hours and then perform the VT-2 examination. This method would provide compliance with the Code and Code Case, but results in the following hardships.

1. Valve Q1E21V109 is located inside the containment shield wall in close proximity to RCS piping and the PRZR. This area is considered a High Radiation Area and maintaining personnel dose for ALARA would be of concern. Disassembly of this valve would subject personnel not only to general radiation dose rates but also very high radiation doses once the valve is opened. Once opened, personnel contamination is also of concern since this valve provides a RCS boundary.
2. Unit would not be able to progress directly from pressure test completion into plant startup due to the required RCS depressurization and cooldown to enable disassembly/ reassembly of check valve Q1E21V109 prior to startup. It is estimated that this iteration would require ≥ 96 hours (based on; cooldown to < 200°F (Mode 5), degas RCS (remove hydrogen), depressurize RCS, disassemble valve Q1E21V109 and re-install disc, reassemble valve, fill and vent the RCS, and then heat-up and pressurize to Normal Operating Temperature and Pressure). Valve Q1E21V109 would then require a post reassembly VT-2 examination at normal operating pressure. All this would be critical path time which would extend the refueling outage duration.
3. Check valve disassembly/reassembly increases the opportunity for human error and mechanical damage resulting in unacceptable RCS pressure boundary integrity and valve operation.
4. Q1E21V109 is a Y-Type, socket welded, check valve with a seal weld at the cover to body connection. Disassembly requires grinding away the seal weld which creates additional opportunities for valve damage. Reassembly requires machining the cover to body surface area to allow for a quality seal weld to prevent leakage during operation.

Therefore, compliance with ASME Section XI Code and Code Case N-498-4 requirements results in hardship or unusual difficulty without a compensating increase in the level of quality and safety and this proposed alternative is warranted per 10CFR50.55a(a)(3)(ii).

Duration of Proposed Alternative

One time, end of 3rd 10-year ISI Interval, ending November 30, 2007.

Plant Unit

Joseph M. Farley Nuclear Plant (FNP) Unit 2

ASME Code Component(s) Affected

A 2" nominal pipe size Chemical Volume and Control System (CVCS) piping segment between check valve Q2E21V109 and Air Operated Valve (AOV) Q2E21V245.

Applicable Code Edition and Addenda

ASME Section XI Code 1989 Edition with no Addenda

Applicable Code Requirements

Table IWB-2500-1, Items B15.51 (piping) and B15.71 (valves) and ASME Section XI Code Case N-498-4 require a pressure test of the entire Class 1 System boundary, once every 10-years, at nominal operating pressure, accompanied by visual examination (VT-2) after a hold time of 10-minutes for non-insulated and 4-hours for insulated components.

Reason for Request

This 2" CVCS auxiliary Pressurizer (PRZR) Spray Line piping segment cannot be pressurized in accordance with the ASME Section XI requirements without undue hardship.

Proposed Alternative and Basis for Use

FNP proposes VT-2 examination of this piping segment at potentially zero nominal pressure after the remainder of the Reactor Coolant System (RCS) has been at nominal operating pressure for at least 4-hours.

From the CVCS Regenerative Heat Exchanger, a 2" branch line goes to AOV Q2E21V245, on to 2" check valve Q2E21V109, then through a 2" by 4" pipe expander, then to the auxiliary PRZR spray nozzle. This flow path is used to provide an alternative PRZR pressure control method during off normal conditions, such as when no Reactor Coolant Pumps are running. CVCS is continuously inservice during normal plant operation, therefore the piping up to valve Q2E21V245 is at a pressure $\geq$ RCS pressure. RCS pressure is controlled by the PRZR which is at $\geq$ RCS pressure during normal operation. However, the 2" pipe segment between AOV Q2E21V245 and check valve Q2E21V109 cannot be pressurized without impacting proper RCS pressure control.

The only practicable way to pressurize the piping segment between check valve Q2E21V109 and AOV Q2E21V245 to nominal RCS pressure would require disassembly of check valve Q2E21V109, removal of the valve disc, reassembly of check valve, pressurize RCS, hold for 4-hours and then perform the VT-2

examination. This method would provide compliance with the Code and Code Case, but results in the following hardships.

1. Valve Q2E21V109 is located inside the containment shield wall in close proximity to RCS piping and the PRZR. This area is considered a High Radiation Area and maintaining personnel dose for ALARA would be of concern. Disassembly of this valve would subject personnel not only to general radiation dose rates but also very high radiation doses once the valve is opened. Once opened, personnel contamination is also of concern since this valve provides a RCS boundary.
2. Unit would not be able to progress directly from pressure test completion into plant startup due to the required RCS depressurization and cooldown to enable disassembly/ reassembly of check valve Q2E21V109 prior to startup. It is estimated that this iteration would require ≥ 96 hours (based on; cooldown to < 200°F (Mode 5), degas RCS (remove hydrogen), depressurize RCS, disassemble valve Q2E21V109 and re-install disc, reassemble valve, fill and vent the RCS, and then heat-up and pressurize to Normal Operating Temperature and Pressure). Valve Q2E21V109 would then require a post reassembly VT-2 examination at normal operating pressure. All this would be critical path time which would extend the refueling outage duration.
3. Check valve disassembly/reassembly increases the opportunity for human error and mechanical damage resulting in unacceptable RCS pressure boundary integrity and valve operation.
4. Q2E21V109 is a Y-Type, socket welded, check valve with a seal weld at the cover to body connection. Disassembly requires grinding away the seal weld which creates additional opportunities for valve damage. Reassembly requires machining the cover to body surface area to allow for a quality seal weld to prevent leakage during operation.

Therefore, compliance with ASME Section XI Code and Code Case N-498-4 requirements results in hardship or unusual difficulty without a compensating increase in the level of quality and safety and this proposed alternative is warranted per 10CFR50.55a(a)(3)(ii).

Duration of Proposed Alternative

One time, end of 3rd 10-year ISI Interval, ending November 30, 2007.