December 4, 2001

Mr. D. N. Morey
Vice President - Farley Project
Southern Nuclear Operating
Company, Inc.
Post Office Box 1295
Birmingham, Alabama 35201-1295

SUBJECT: THIRD 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN REQUEST FOR RELIEF NOS. RR-44 AND RR-45 FOR UNITS 1 AND 2, AND RR-46 FOR UNIT 1, FOR JOSEPH M. FARLEY NUCLEAR PLANT (TAC NOS. MB0796 AND MB0797)

Dear Mr. Morey:

By letter dated December 18, 2000, as supplemented by letters dated July 5, and August 2, 2001, you submitted the third 10-year interval inservice inspection program plan Requests for Relief Nos. RR-44 and RR-45 for Units 1 and 2, and RR-46 for Unit 1 for the Joseph M. Farley Nuclear Plant. In your letter dated August 2, 2001, you withdrew the original Requests for Relief RR-45 (Unit 2) and RR-47 (Unit 2) contained in your letter dated December 18, 2000, provided a revised Request for Relief RR-45 (Unit 2), and noted that at a later date you would revise and resubmit Request for Relief RR-47 (Unit 2).

The staff has reviewed and evaluated the subject relief requests as documented in the enclosed Safety Evaluation. For RR-44, the staff determined that the proposed alternative will ensure that the overall level of plant quality and safety will not be compromised, and that compliance with the Code requirements is considered impractical. For relief requests RR-45 (except for the Category B-K-1 integrally welded attachment) and RR-46, the staff determined that to examine the subject welds as required by the Code, the subject components would have to be redesigned and modified resulting in a considerable burden. Therefore, RR-44, RR-45 (except for the Category B-K-1 integrally welded attachment), and RR-46 are granted in accordance with 10 CFR 50.55a(g)(6)(i) for the third 10-year inspection interval.

For the Category B-K-1 integrally welded attachment, you did not propose an alternative, nor an adequate justification as to why it would be a hardship or impractical to perform the Code required examination. You based your request for relief on the cost to install a temporary support in order to remove the interfering pipe clamp on the 4 inch pipe. The staff concludes

that this burden is not a sufficient basis to authorize or grant relief pursuant to 10 CFR 50.55a. Therefore, relief for the Category B-K-1 integrally welded attachment is denied.

Sincerely,

/RA/

Richard J. Laufer, Acting Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-348 and 50-364

Enclosure: As stated

cc w/encl: See next page

that this burden is not a sufficient basis to authorize or grant relief pursuant to 10 CFR 50.55a. Therefore, relief for the Category B-K-1 integrally welded attachment is denied.

Sincerely,

/RA/

Richard J. Laufer, Acting Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-348 and 50-364

Enclosure: As stated

cc w/encl: See next page

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ACCESSION NUMBER: ML013380130

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

THIRD 10-YEAR INTERVAL INSERVICE INSPECTION

REQUEST FOR RELIEF NOS.

RR-44 AND RR-45 FOR UNITS 1 AND 2, RR-46 FOR UNIT 1

JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2

SOUTHERN NUCLEAR OPERATING COMPANY

DOCKET NUMBERS 50-348 AND 50-364

1.0 INTRODUCTION

Inservice inspection (ISI) of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components is to be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel (B&PV) Code and applicable addenda as required by Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(g), except where specific relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). 10 CFR 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if the licensee demonstrates that: (i) the proposed alternatives would provide an acceptable level of quality and safety or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection (ISI) of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first ten-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) twelve months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The Code of record for the Joseph M. Farley Nuclear Plant, Units 1 and 2 third 10-year ISI interval is the 1989 Edition of the ASME B&PV Code. NRC Safety Evaluation dated March 20, 1997, approved an early update of the Unit 2 ISI and Inservice Testing (IST) Program Plans in order that the Joseph M. Farley Nuclear Plant, Units 1 and 2 would have the same ISI and IST program plan interval start and end date, and Code Edition.

Pursuant to 10 CFR 50.55a(g)(5), if the licensee determines that conformance with an examination requirement of Section XI of the ASME Code is not practical for its facility, information will be submitted to the Commission in support of that determination and a request must be made for relief from the ASME Code requirement. After evaluation of the determination, pursuant to 10 CFR 50.55a(g)(6)(i), the Commission may grant relief and/or may impose alternative requirements that are determined to be authorized by law, will not endanger life, property, or the common defense and security, and are otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed.

2.0 EVALUATION

The staff has reviewed the information concerning third 10-year ISI program Requests for Relief Nos. RR-44 and RR-45 for Units 1 and 2, and RR-46 for Unit 1, for the Joseph M. Farley Nuclear Plant, in Southern Nuclear Operating Company (SNC or the licensee) letters dated December 18, 2000, July 5, 2001 and August 2, 2001. SNC in its letter dated July 5, 2001, provided a revised version of RR-44 wherein SNC proposed to accomplish an alternate "best-effort" visual examination. The licensee in its letter dated August 2, 2001, withdrew the original Requests for Relief RR-45 (Unit 2) and RR-47 (Unit 2) contained in its letter dated December 18, 2000. The licensee also provided a revised Request for Relief RR-45 (Unit 2), and noted that at a later date it would revise and resubmit Request for Relief RR-47 (Unit 2). The information provided by the licensee in support of the requests for relief from Code requirements has been evaluated and the basis for disposition is documented below.

2.1 Request for Relief No. 44 (Units 1 and 2)

By letter of December 18, 2000, the licensee requested relief from the requirements of ASME Code Section XI, 1989 Edition, Subsection IWF, with regard to visual examination of reactor pressure vessel supports. During a May 17, 2001 conference call, the staff raised a question regarding the lack of alternate examination provided in the licensee's relief request. In its letter of July 5, 2001, the licensee responded by providing a revised version of RR-44 wherein SNC proposed to accomplish an alternate "best-effort" visual examination.

Code Requirement

Per ASME Code Section XI, Subsection IWF, Table 2500-1, Item No. F1.40, Category F-A, supports other than piping supports are subjected to VT-3 visual examination. There are six reactor supports per unit which are required to be VT-3 examined in accordance with the Code requirements.

Licensee's Code Relief Request

Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee requested that relief be granted from performing the VT-3 visual examination of the reactor pressure vessel supports, on the basis that conformance with code requirements is impractical.

Licensee's Basis for Relief Request

The licensee stated that the reactor pressure vessels are essentially inaccessible for VT-3 examination. The configuration is such that it is almost entirely encased in concrete. A small section of one part of the supports extends out of the concrete immediately under the reactor vessel nozzle support bosses. Access to this small section of the support to perform a direct VT-3 examination, as required by the ASME Code Section XI, is prevented by the restrictive quarters within the "sand-box" area.

Licensee's Proposed Alternative to Code Requirements

As an alternative to the Code requirements, the licensee stated that a remote VT-3 visual examination of the support and associated components will be performed with a video camera. This method of remote visual examination permits coverage to the extent possible while minimizing the radiation dose to the examination personnel. The visual examination of three vessel supports and associated components per unit will be performed every five years. In addition, the licensee stated that a visual examination of the visible portion of the exterior concrete wall surrounding the reactor pressure vessel will be performed every five years to look for general condition of the concrete and associated components.

Evaluation

The concrete structure beneath and around the reactor pressure vessel nozzles prevents personnel access to the reactor vessel supports. To obtain access to the supports would require a design modification for the reactor vessel supports. The staff concurs with the licensee that the proposed periodic, remote visual examinations will provide reasonable assurance of the continued structural integrity of these supports and the adjacent concrete. The staff also concurs with the licensee that complying with the Code requirements of a direct VT-3 visual examination would cause an excessive burden on SNC, as modification of the area underneath the reactor pressure vessel is impractical.

2.2 Request for Relief No. 45 (Unit 1)

Code Requirements (as stated)

> Category B-J, Table IWB-2500-1 and Categories C-F-1 and C-F-2, Table IWC-2500-1, of ASME Section XI, 1989 Edition, no addenda, requires surface and volumetric examination of pressure-retaining welds in Class 1 and Class 2 piping. Applicable examination volumes are shown in ASME Section XI Figure IWB-2500-8 and IWC-2500-7 and includes essentially 100% of the weld length. For austenitic and dissimilar metal welds, ASME Section XI, Appendix III, Supplement 4, requires that the angle beam examination for reflectors transverse to the weld be performed on the weld crown and ½ inch of the base material on each side of the weld. For carbon steel, the weld plus 1/4 inch of base material on each side of the weld is required to be examined.
>
> Category B-K-1, Table IWB-2500-1, Item No. B10.10, requires a volumetric or surface examination of the attachment weld. Applicable examination areas, or

volumes, are shown in Figure IWB-2500-15 and includes essentially 100% percent of the weld length.

Licensee's Code Relief Request (as stated)

Relief is requested from performing a full Code coverage volumetric examination of the Class 1 and Class 2 piping welds and a full code coverage surface examination of the Class 1 welded attachments identified in Attachment 1[1] to this request for relief.

System/Components(s) for Which Relief is Requested

Volumetric examination of the Class 1 and Class 2 pressure-retaining piping welds and surface examination of Class 1 welded attachments identified in Table 1 below.

Table 1

ASME Section XI Category/Item	Identification No.	Description	Limitation	Approximate Percentage
B-J/B9.11	ALA1-4101-8	12" Pipe to Valve	One sided examination due to valve configuration and two welded attachments	76%
B-J/B9.11	ALA1-4103-5	6" Pipe to Valve	One sided examination due to valve configuration	87%
B-J/B9.11	ALA1-4104-4	6" Valve to Pipe	One sided examination due to valve configuration and a 3" wide tag 1.2" from centerline	73%
B-K-1/B10.10	ALA1-4101-RC-R40	Integrally Welded Attachment	Pipe clamp restricts examination on one welded side of attachment	54%
C-F-2/C5.11	ALA2-4101-24	8" Tee to Pipe	Limitation due to 3" line obstruction	73%
C-F-1/C5.11	ALA2-4502-12	14" Tee to Valve	One sided examination due to valve configuration	73%
C-F-1/C5.11	ALA2-4502-16	14" Elbow to Valve	One sided examination due to flange configuration	67%

[1]Table 1 of this Safety Evaluation duplicates the licensee's Attachment 1 for Request for Relief No. RR-45 (Unit 1).

ASME Section XI Category/Item	Identification No.	Description	Limitation	Approximate Percentage
C-F-1/C5.11	ALA2-4502-24	14" Elbow to Pump	One sided examination due to flange configuration	86%
C-F-1/C5.21	ALA2-4523-5	3" Elbow to Valve	One sided examination due to valve configuration	86%
C-F-1/C5.21	ALA2-4528-17	4" valve to Pipe	One sided examination due to valve configuration	86%
C-F-1/C5.21	ALA2-4531-8	4" Pipe to Tee	One sided examination due to tee configuration	57%

Licensee's Basis for Requesting Relief (as stated)

Physical limitations, due to geometric configuration of the welded areas, restrict coverage of the category B-J, C-F-1, and C-F-2 piping welds and make it impossible to achieve 100% of the total examination volume required by Figure IWB-2500-8, IWC-2500-7, and ASME Section XI Appendix III, Supplement 4. To obtain 100% coverage, the ultrasonic beam must pass through the entire examination volume in four directions, axial up, axial down, circumferential clockwise, and circumferential counter-clockwise. Full axial coverage from one side may be accomplished by utilizing a 3T calibration (1½ node). However, weld configurations (crown, counterbore) and/or material properties may not allow examination coverage to extend beyond 1T (½ node). For earlier Ten-Year Intervals, the circumferential (parallel) scans were only required on the weld crown per Appendix III of the 1983 Edition of ASME Section XI with Summer 83 Addenda. This requirement can usually be met for most configurations. Reference Attachment 2[2] of this document for a typical representation of a single side access examination, along with limitations.

A pipe clamp located on one side of the category B-K-1 integrally welded attachment, prevented obtaining 100% coverage surface examination of the attachment weld. The clamp is part of a large pipe support and would require considerable effort to remove to allow a complete examination. This welded attachment is located on a 4-inch diameter line that runs in the vertical direction. The welded attachment rests on a large clamp that limits the amount of coverage that can be achieved on the area beneath the clamp. Since this is a vertical run of pipe, a temporary support would have to be installed before the clamp could be removed and SNC determined that the costs involved in removing the clamp were not justified. It should be noted that the requirement to remove clamps to accomplish a surface examination on a welded attachment has been removed

[2]The licensee's Attachment 2 is not included in this Safety Evaluation.

from later NRC-approved Code Editions (Figure IWB-2500-15 in the 1995 Addenda and subsequent Editions).

The examinations identified herein are being conducted to the fullest extent practical. As noted for the welds listed in Attachment 1, physical access is restricted thereby preventing full Code required examination coverage.

In order to examine 100% of the weld volume, systems would require extensive modifications. While Code coverage during this ten-year interval may vary due to the imposition of the new Code requirement, the level of quality will not change from that obtained during earlier intervals.

As a result, SNC requests that relief be authorized pursuant to 10 CFR 50.55a(g)(6)(i) since complete Code required examination coverage is impractical.

Licensee's Proposed Alternative Examination (as stated)

No alternate examination is proposed. However, refracted longitudinal (RL) waves, which have been shown to provide a more reliable detection of circumferential flaws when passing through the weld material, are used on all single side access austenitic weld examinations.

Evaluation

The ASME Section XI, 1989 Edition, no addenda, Category B-J, Table IWB-2500-1 and Categories C-F-1 and C-F-2, Table IWC-2500-1 requires surface and volumetric examination of pressure-retaining welds in Class 1 and Class 2 piping. Physical limitations, due to geometric configuration of the welded areas, restrict coverage of the category B-J, C-F-1, and C-F-2 piping welds and make it impossible to achieve 100% of the total examination volume required by the Code. To obtain 100% coverage, the ultrasonic beam must pass through the entire examination volume in four directions, axial up, axial down, circumferential clockwise, and circumferential counter-clockwise. Full axial coverage from one side may be accomplished by utilizing a 3T calibration (1½ node). However, weld configurations (crown, counterbore) and/or material properties do not allow examination coverage to extend beyond 1T (½ node).

To examine these welds as required by the Code, the welds would have to be redesigned and modified resulting in a considerable burden on the licensee. Therefore, the Code volumetric examination requirements are impractical to perform. The licensee is conducting these examinations to the fullest extent practical. The licensee obtained 57% to 87% of the subject welds and the licensee completed 100% of the Code required surface examinations. These examinations should have detected any significant areas of degradation, if present, and therefore, provide reasonable assurance of continued structural integrity.

For the Category B-K-1 integrally welded attachment (a pipe clamp on a vertical 4 inch pipe) the licensee did not propose an alternative (e.g., request the use of a later NRC-approved Code Edition) nor has it provided a sufficient justification why the Code requirement is a hardship or impractical to perform. The licensee based its relief on the cost to install a temporary support in order to remove the interfering pipe clamp on the 4 inch pipe. The staff concludes that this

burden on the licensee is not a sufficient basis to authorize or grant relief pursuant to 10 CFR 50.55a. Therefore, this relief is denied.

2.3 Request for Relief No. 45 (Unit 2)

The licensee in its letter dated August 2, 2001, withdrew the original Requests for Relief RR-45 (Unit 2) and provided a revised Request for Relief RR-45 (Unit 2).

Code Requirements (as stated)

> Category B-J, Table IWB-2500-1 and Categories C-F-1 and C-F-2, Table IWC-2500-1, of ASME Section XI, 1989 Edition, no addenda, require surface and volumetric examination of pressure-retaining welds in Class 1 and Class 2 piping. Applicable examination volumes are shown in ASME Section XI Figure IWB-2500-8 and IWC-2500-7 and include essentially 100% of the weld length. ASME Section XI Appendix III, Article III-4420 requires that the examinations shall be performed using a sufficiently long examination beam path to provide coverage of the required examination volume in two beam-path directions. The examination shall be performed from two sides of the weld, where practicable, or from one side of the weld as a minimum. For austenitic and dissimilar metal welds, ASME Section XI Appendix III, Supplement 4, requires that the angle beam examination for reflectors transverse to the weld be performed on the weld crown and ½ inch of the base material on each side of the weld. This requirement became effective at Farley-2 at the start of the 1989 Code portion of the second 10- year interval on December 1, 1997.

Licensee's Code Relief Request (as stated)

> Relief is requested from performing a full Code coverage volumetric and/or surface examination of the Class 1 and 2 piping welds identified in Attachment 1[3] to this request for relief.

System/Components(s) for Which Relief is Requested

> Class 1 and 2 pressure-retaining piping welds identified in Table 2 below:

[3]Table 2 in this Safety Evaluation duplicates the licensee's Attachment 1 for Request for Relief No. RR-45 (Unit 2).

Table 2

ASME Section XI Category/Item No.	Identification No./Description	Outage/ASME Code Requirements	Limitation	Approximate Percentage
B-J/B9.11	APR1-4304-24 6" Pipe to Branch Connection	U2R12 (Outage 2-3-1) Surface and Volumetric	Limitation due to the configuration of the branch connection	UT - 47% PT -100%
B-J/B9.11	APR1-4501-5 6" Elbow to Elbow	U2R13 (Outage 2-3-2); Surface and Volumetric	Whip restraint limits all scans	UT 35% PT 38%
C-F-2/C5.11	APR2-4301-5 32" Pipe to Tee	U2R13 (Outage 2-3-2); Surface and Volumetric	Header to valve weld configuration limits all scans	MT - 100% UT -22%
C-F-1/C5.51	APR2-4518-14 14" Pipe to valve	U2R13 (Outage 2-3-2); Surface and Volumetric	Limitation due to configuration of tee	PT - 100% UT - 55%
C-F-1/C5.11	APR2-4518-15 14" Tee to Pipe	U2R13 (Outage 2-3-2); Surface and Volumetric	Limitation due to configuration of tee	PT - 100% UT - 55%

Licensee's Basis for Requesting Relief (as stated)

Physical limitations restrict coverage of the Category B-J, C-F-1 and C-F-2 piping welds and prevent 100% examination of the total volume required by Figure IWB-2500-8, IWC-2500-7, and ASME Section XI Appendix III. These limitations are due to the geometric configuration of the welds (access from only one side) as well as the location of a whip restraint adjacent to one weld. Reference Attachment 2[4] of this document for a typical representation of a single side access examination, along with limitations for those examinations performed to the 1989 Edition of ASME Section XI.

The examinations identified herein are being conducted to the fullest extent practical. As noted for the welds listed in Attachment 1, physical access is restricted thereby preventing full Code-required examination coverage.

In order to examine 100% of the weld volume, systems would require extensive modifications. While Code coverage during this ten-year interval may vary from the coverage in previous intervals due to different Code requirements, the level of quality will not change from that obtained during earlier intervals.

[4]The licensee's Attachment 2 is not included in this Safety Evaluation.

As a result, SNC requests that relief is authorized pursuant to 10 CFR 50.55a(g)(6)(i) since complete Code required examination coverage is impractical.

Licensee's Proposed Alternative Examination (as stated)

None. Coverage, to the maximum extent practical, has been obtained.

Evaluation

ASME Section XI, 1989 Edition, no addenda Categories B-J, Table IWB-2500-1 and Categories C-F-1 and C-F-2, Table IWC-2500-1, requires surface and volumetric examination of pressure-retaining welds in Class 1 and Class 2 piping. The licensee noted that physical limitations restrict coverage of the Category B-J, C-F-1 and C-F-2 piping welds and prevent 100% examination of the total volume and surface (for weld APRI-4501-5) required by the Code. These limitations are due to the geometric configuration of the welds (access from only one side) as well as the location of a whip restraint adjacent to one weld.

To examine these welds as required by the Code, the welds would have to be redesigned and modified resulting in a considerable burden on the licensee. Therefore, the Code volumetric and surface (for weld APRI-4501-5) examination requirements are impractical to perform. The licensee is conducting these examinations to the fullest extent practical. The licensee obtained 22% to 55% volumetric coverage of the subject welds and completed 100% of the Code required surface examinations with the exception of weld APRI-4501-5, of which 38% of the required surface examination was obtained. These examinations should have detected any significant areas of degradation, if present, and therefore, provide reasonable assurance of continued structural integrity of the subject components.

2.4 Requests for Relief No. 46 (Unit 1)

Code Requirements (as stated)

Category B-F, Item No. B5.70, Table IWB-2500-1 of ASME Section XI requires a volumetric and surface examination of pressure retaining dissimilar metal welds. Category B-J, Item No. B9.11 requires a volumetric and surface examination of pressure retaining circumferential welds. The applicable examination volume for both categories is shown in Figure IWB-2500-8. Section XI, Article I-2200 applies to these welds and requires that ultrasonic examinations of vessel welds, less than or equal to two inches in thickness, and all piping welds be conducted in accordance with Appendix III. Appendix III-3230 requires full coverage of the examination volume from four directions. ASME Section XI, Appendix III, Supplement 4, requires that when scanning for reflectors oriented transverse (perpendicular) to the weld seam in austenitic and dissimilar metal welds, that examinations be performed in two directions along the axis of the weld such that a minimum area from ½-inch from one side of the weld crown to ½-inch from the other side of the weld crown (including the crown) be examined.

Category C-B, Item No. C2.21 requires a volumetric and surface examination of nozzle to shell welds in vessels. The applicable examination volume is shown in

Figure IWC-2504(a). Section XI, Article I-2100 requires ultrasonic examination of vessel welds greater than 2-inch thickness to be conducted in accordance with Article 4 of Section V as supplemented by Table I-2000-1. Article T-441.3.2.5 requires scanning with angle beam search units both at right angles to the weld axis and along the weld axis. Wherever feasible, each examination shall be performed in two directions. T-441.3.2.6 and T-441.3.2.7 describe the scanning requirements for reflectors oriented parallel and transverse to the weld.

Licensee's Code Relief Request (as stated)

Complete coverage cannot be obtained for the code required examination volume.

System/Component(s) for Which Relief is Requested

The Steam Generator nozzle to safe-end welds and the safe-end to elbow welds on the primary side and the feedwater nozzle to shell welds on the secondary side. This request applies to the new steam generators installed during refueling outage IR16. Specific welds are identified in Table 3 below:

Table 3

ASME Section XI Category/Item No.	Identification No.	Description	Limitation	Approximate Percentage
B-F/B5.70	ALA1-4100-26RDM	Safe-end to Inlet Nozzle	One-sided examination due to nozzle configuration	75%
B-F/B5.70	ALA1-4100-27RDM	Outlet Nozzle to Safe-end	One-sided examination due to nozzle configuration	75%
B-J/B9.11	ALA1-4100-4R	Elbow to Safe-end	Taper of Safe- End	75%
B-J/B9.11	ALA1-4100-5R	Safe-end to Elbow	Taper of Safe- End	75%
B-F/B5.70	ALA14200-26RDM	Safe-end to Inlet Nozzle	One-sided examination due to nozzle configuration	75%
B-F/B5.70	ALA14200-27RDM	Outlet Nozzle to Safe-end	One-sided examination due to nozzle configuration	75%
B-J/B9.11	ALA1-4200-4R	Elbow to Safe-end	Taper of Safe-End	75%
B-J/B9.11	ALA1-4200-5R	Safe-end to Elbow	Taper of Safe-End	75%
B-F/B5.70	ALA1-4300-27RDM	Safe-end to Inlet Nozzle	One-sided examination due to nozzle configuration	75%

ASME Section XI Category/Item No.	Identification No.	Description	Limitation	Approximate Percentage
B-F/B5.70	ALA1-4300-27RDM	Outlet Nozzle to Safe-end	One-sided examination due to nozzle configuration	75%
B-J/B9.11	ALA1-4300-4R	Elbow to Safe- End	Taper of Safe-End	75%
B-J/B9.11	ALA1-4300-5R	Safe-end to Elbow	Taper of Safe-End	75%
C-B/C2.21	ALA2-3100-8	Steam Generator to Feedwater Nozzle Weld	One-sided examination due to nozzle configuration	75%
C-B/C2.21	ALA2-3200-8	Steam Generator to Feedwater Nozzle Weld	One-sided examination due to nozzle configuration	75%
C-B/C2.21	ALA2-3300-8	Steam Generator to Feedwater Nozzle Weld	One-sided examination due to nozzle configuration	75%

Licensee's Basis for Requesting Relief (as stated)

Complete volumetric examination of these welds requires access from both sides of the weld; however, examination is limited on the B-F welds by the nozzle geometry and on the B-J welds by the safe end taper. Complete ultrasonic examination coverage can be obtained from the pipe side on the B-J welds; however, the safe-end taper prevents complete scanning from this direction even when using transducer wedges of various degrees of tilt. Composite coverage for the B-F and B-J welds is calculated to be 75%. Typical examination volume coverages are shown in Attachment 2 and Attachment 3[5].

Complete examination of each Category C-B nozzle to shell weld requires access from both sides of the weld. Access from the nozzle side of the weld is limited by nozzle geometry, however, and only a partial examination is possible. Composite coverage is calculated to be 75%.

The examinations identified herein are being conducted to the fullest extent practical. Various techniques were evaluated for the piping welds such as bouncing the ultrasound off the inside surface; however, they are not practical for use on cast stainless steel components.

Compliance with Code coverage requirements would cause an excessive burden upon SNC because refabrication of the nozzles to perform the Code required examinations is impractical; therefore, approval should be granted pursuant to 10 CFR 50.55a(g)(6)(i).

[5]The licensee's Attachments 2 and 3 are not included in this Safety Evaluation.

Licensee's Proposed Alternative Examination (as stated)

None. Coverage, to the maximum extent practical, has been obtained.

Evaluation

ASME Code, Section XI, Category B-F, Item No. B5.70, Table IWB-2500-1 requires a volumetric and surface examination of pressure retaining dissimilar metal welds and Category B-J, Item No. B9.11 requires a volumetric and surface examination of pressure retaining circumferential welds. The staff determined that the Code examinations are limited on the B-F welds by the nozzle geometry and on the B-J welds by the safe-end taper. The licensee noted that complete ultrasonic examination coverage can be obtained from the pipe side on the B-J welds; however, the safe-end taper prevents complete scanning from this direction even when using transducer wedges of various degrees of tilt. Composite coverage for the B-F and B-J welds was calculated to be 75%.

The licensee noted that complete examination of each Category C-B nozzle to shell weld requires access from both sides of the weld. However, access from the nozzle side of the weld is limited by nozzle geometry and only a partial examination is possible. The licensee obtained a calculated composite coverage of 75%.

To examine these welds as required by the Code, the welds would have to be redesigned and modified resulting in a considerable burden on the licensee. Therefore, the Code volumetric examination requirements are impractical to perform. The licensee is conducting these examinations to the fullest extent practical. The licensee obtained a calculated composite coverage of 75% of the subject welds and the licensee completed 100% of the Code required surface examinations. These examinations should have detected any significant areas of degradation, if present, and therefore, provide reasonable assurance of continued structural integrity.

3.0 CONCLUSION

For Requests for Relief RR-44 (Units 1 and 2), the staff concludes that the licensee has presented an adequate justification for relief from the requirements of ASME Code 1989 Edition, Section XI, with regard to visual examination of Farley, Units 1 and 2 reactor pressure vessel supports. The staff determines that complying with the Code requirements of a direct VT-3 visual examination is impractical. The staff also determines that the proposed alternative use of a periodic, remote visual examinations, coupled with a visual examination of the visible portion of the exterior concrete wall surrounding the reactor pressure vessel, will ensure that the overall level of plant quality and safety will not be compromised. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), the licensee's request for relief for the third ten-year inspection interval of Farley Units 1 and 2 is authorized.

For Requests for Relief RR-45 (Unit 1) except for the Category B-K-1 integrally welded attachment, RR-45 (Unit 2), and RR-46 (Unit 1), the staff concludes that to examine the subject welds as required by the Code, the subject components would have to be redesigned and modified resulting in a considerable burden on the licensee. Therefore, the staff concludes that the Code volumetric examination and surface (for weld APRI-4501-5) requirements are impractical to perform. The licensee conducted these examinations to the fullest extent

practical. The licensee obtained significant coverage of the subject welds and completed 100% of the Code required surface examinations with the exception of weld APRI-4501-5 which 38% of the required surface examination was obtained. These examinations should have detected any significant areas of degradation, if present, and therefore, provide reasonable assurance of continued structural integrity. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i).

For the Category B-K-1 integrally welded attachment (a pipe clamp on a vertical 4 inch pipe) the licensee did not propose an alternative (e.g. use of later NRC-approved Code Edition) nor did it provide a sufficient justification as to why it would be a hardship or impractical to perform the Code required examination. The licensee based its relief on the cost to install a temporary support in order to remove the interfering pipe clamp on the 4 inch pipe. The staff concludes that this burden on the licensee is not a sufficient basis to authorize or grant relief pursuant to 10 CFR 50.55a. Therefore, this relief is denied.

Principal Reviewers: T. McLellan
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