November 20, 1996

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

SUBJECT: ISSUANCE OF AMENDMENT - JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 2 (TAC NO. M96383)

Dear Mr. Morey:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 117 to Facility Operating License No. NPF-8 for the Joseph M. Farley Nuclear Plant, Unit 2. The amendment changes the Technical Specifications (TS) in response to your submittal dated August 23, 1996, as supplemented by letters dated September 16, November 6, 11 and 14, 1996.

The amendment changes the TS to allow installation of laser welded elevated tubesheet sleeves. Specifically, the amendment is for one cycle only for Farley Unit 2. Permanent, generic TS changes for Westinghouse laser welded sleeves for both units will be submitted prior to the next Unit 1 refueling outage currently scheduled for spring 1997.

A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

ORIGINAL SIGNED BY:

Jacob I. Zimmerman, Project Manager
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-364

Enclosures:
1. Amendment No. 117 to NPF-8
2. Safety Evaluation

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 20, 1996

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See next page

cc:
Mr. R. D. Hill, Jr.
General Manager -
Southern Nuclear Operating Company
Post Office Box 470
Ashford, Alabama 36312

Mr. Mark Ajluni, Licensing Manager
Southern Nuclear Operating Company
Post Office Box 1295
Birmingham, Alabama 35201-1295

Mr. M. Stanford Blanton
Balch and Bingham Law Firm
Post Office Box 306
1710 Sixth Avenue North
Birmingham, Alabama 35201

Mr. J. D. Woodard
Executive Vice President
Southern Nuclear Operating Company
Post Office Box 1295
Birmingham, Alabama 35201

State Health Officer
Alabama Department of Public Health
434 Monroe Street
Montgomery, Alabama 36130-1701

Chairman
Houston County Commission
Post Office Box 6406
Dothan, Alabama 36302

Regional Administrator, Region II
U.S. Nuclear Regulatory Commission
101 Marietta Street, NW., Suite 2900
Atlanta, Georgia 30323

Resident Inspector
U.S. Nuclear Regulatory Commission
7388 N. State Highway 95
Columbia, Alabama 36319

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

ALABAMA POWER COMPANY

DOCKET NO. 50-364

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 117
License No. NPF-8

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Southern Nuclear Operating Company, Inc. (Southern Nuclear), dated August 23, 1996, as supplemented by letters dated September 16, November 6, 11 and 14, 1996, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 2.C.(2) of Facility Operating License No. NPF-8 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 117 , are hereby incorporated in the license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 20, 1996

ATTACHMENT TO LICENSE AMENDMENT NO. 117

TO FACILITY OPERATING LICENSE NO. NPF-8

DOCKET NO. 50-364

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

Remove	Insert
3/4 4-12a	3/4 4-12a
3/4 4-13	3/4 4-13

6. Plugging or Repair Limit means the imperfection depth at or beyond which the tube shall be repaired (i.e., sleeved) or removed from service by plugging and is greater than or equal to 40% of the nominal tube wall thickness. This definition does not apply for tubes that meet the F*/L*## criteria. For a tube that has been sleeved with a mechanical joint sleeve, through wall penetration of greater than or equal to 31% of sleeve nominal wall thickness in the sleeve requires the tube to be removed from service by plugging. For a tube that has been sleeved with a welded joint sleeve, through wall penetration greater than or equal to 37% of sleeve nominal wall thickness in the sleeve between the weld joints requires the tube to be removed from service by plugging. This definition does not apply to tube support plate intersections for which the voltage-based repair criteria are being applied. Refer to 4.4.6.4.a.16 for the repair limit applicable to these intersections. For a tube with an imperfection or flaw in the tubesheet below the lower joint of an installed elevated laser welded sleeve, no repair or plugging is required provided the installed sleeve meets all sleeved tube inspection requirements.

7. Unserviceable describes the condition of a tube or sleeve if it leaks or contains a defect large enough to affect its structural integrity in the event of an Operating Basis Earthquake, a loss-of-coolant accident, or a steam line or feedwater line break as specified in 4.4.6.3.c, above.

8. Tube Inspection means an inspection of the steam generator tube from the point of entry (hot leg side) completely around the U-bend to the top support of the cold leg. For a tube with a tube sheet sleeve installed, the point of entry is the bottom of the tube sheet sleeve below the lower sleeve joint. For a tube that has been repaired by sleeving, the tube inspection should include the sleeved portion of the tube.

9. Tube Repair refers to mechanical sleeving, as described by Westinghouse report WCAP-11178, Rev. 1, or laser welded sleeving as described by Westinghouse report WCAP-12672, or, for elevated sleeves###, Southern Nuclear letters dated August 23, 1996, November 6, 1996, and November 11, 1996, which is used to maintain a tube in service or return a tube to service. This includes the removal of plugs that were installed as a corrective or preventive measure.

L* Criteria is applicable to Cycle 11 only.

The elevated tube sheet sleeve is authorized for installation only during the Unit 2 Eleventh Refueling outage.

15. Tube Expansion is that portion of a tube which has been increased in diameter by a rolling process such that no crevice exists between the outside diameter of the tube and the hole in the tubesheet. Tube expansion also refers to that portion of a sleeve which has been increased in diameter by a rolling process such that no crevice exists between the outside diameter of the sleeve and the parent steam generator tube.

16. Tube Support Plate Repair Limit is used for the disposition of an alloy 600 steam generator tube for continued service that is experiencing predominately axially oriented outside diameter stress corrosion cracking confined within the thickness of the tube support plates. At tube support plate intersections, the repair limit is based on maintaining steam generator tube serviceability as described below:

    a. Steam generator tubes, whose degradation is attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with bobbin voltages less than or equal to the lower voltage repair limit [2.0 volts], will be allowed to remain in service.

    b. Steam generator tubes, whose degradation is attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with a bobbin voltage greater than the lower voltage repair limit [2.0 volts], will be repaired or plugged except as noted in 4.4.6.4.a.16.c below.

    c. Steam generator tubes, with indications of potential degradation attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with a bobbin voltage greater than the lower voltage repair limit [2.0 volts] but less than or equal to the upper voltage repair limit*, may remain in service if a rotating probe inspection does not detect degradation. Steam generator tubes, with indications of outside diameter stress corrosion cracking degradation with a bobbin voltage greater than the upper voltage repair limit*, will be plugged or repaired.

* The upper voltage repair limit is calculated according to the methodology in Generic Letter 95-05 as supplemented.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 117 TO FACILITY OPERATING LICENSE NO. NPF-8

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 2

DOCKET NO. 50-364

1.0 INTRODUCTION

By letter dated August 23, 1996, as supplemented by letters dated September 16, November 6, 11 and 14, 1996, the Southern Nuclear Operating Company, Inc., et al. (the licensee), submitted a request for changes to the Joseph M. Farley Nuclear Plant, Unit 2, Technical Specifications (TS). The requested changes would revise the TS by modifying the installation method for previously licensed steam generator tube elevated tubesheet laser welded sleeves. The sleeves are designed and manufactured by Westinghouse Electric Corporation (W). The licensee requested approval for one cycle only for Farley Unit 2. Permanent, generic TS changes for W laser welded sleeves for both units will be submitted prior to the next Unit 1 refueling outage currently scheduled for spring 1997.

The September 16, November 6, 11 and 14, 1996, letters provided clarifying information that did not change the August 23, 1996, application and the initial proposed no significant hazards consideration determination.

An elevated tubesheet sleeve is designed to repair tubes with degradation in the expansion transition zone at the top of the tubesheet. The sleeve is inserted inside the tube and held in position by hydraulically expanding the ends of the sleeve. This hydraulic expansion prepares the sleeve ends for subsequent structural joining by welding or rolling. The most up-to-date installation method for Westinghouse sleeves is to laser weld the upper (freespan) joint and mechanically roll the lower joint (within the tubesheet).

For the Farley plants' previously licensed sleeving method, the lower joint design differs from the most current Westinghouse design by specifying both a rolled joint and a laser seal weld in combination. The licensee has determined that this combination joint (rolled plus seal welded) is undesirable. Consequently, the licensee has proposed changes to the previously licensed lower joint design. The proposed changes entail:

1. Deletion of the laser seal weld.

2. Adoption of a modified rolled joint design that involves a double roll.

3. Revision of the installation sequence to specify laser welding and heat treating the upper sleeve joint (in the tube free span) prior to rolling the lower joint (within the tubesheet).

Items 1. and 3. above reflect the changes that would update the existing Farley sleeving method to the most current Westinghouse standard. The current standard is based upon the experiences gained and improvements incorporated by Westinghouse during the large sleeving campaign conducted at the Maine Yankee facility in 1995. Item 2. above is a plant-specific modification proposed by the licensee because of a certain unit-specific construction detail that is not generic to all Westinghouse steam generators (SGs).

Extensive analyses and testing were performed on the W sleeve and modified sleeve/tube rolled joint to demonstrate that Regulatory and Code design criteria were satisfied under normal operating and postulated accident conditions. The details of the sleeve qualifications for Farley are discussed in Westinghouse reports WCAP-12672, "Steam Generator Sleeving Report Laser Welded Sleeves J. M. Farley Units 1 and 2" (proprietary), WCAP-13115, "Steam Generator Sleeving Integration Report J. M. Farley Units 1 and 2," dated March 1996 (proprietary), and Westinghouse letter NSD-JLH-6384, "Summary of Farley LWS Lower Joint Development - Task C Qualification Testing" (proprietary), dated November 8, 1996. These sleeving reports present the technical bases supporting the proposed change to the licensing of elevated tubesheet laser welded sleeves for use in 7/8-inch diameter SG tubes at Farley.

The staff has previously reviewed similar W documents supporting TS amendments for sleeve installations at other plants. The bulk of the technical and regulatory issues for the present request are identical to those reviewed in previous Safety Evaluations (SEs) concerning the use of W laser welded sleeves. This SE provides the principal issues discussed in previous reviews and adds discussion of those warranting revision, amplification, or inclusion based upon current experience. Details of the prior staff evaluation of W sleeves may be found in SEs for Calvert Cliffs Nuclear Power Plant Units 1 and 2, Docket Nos. 50-317 and 50-318, dated March 22, 1996; D. C. Cook Nuclear Power Plant Unit 1, Docket No. 50-315, dated January 4, 1996; and Maine Yankee Nuclear Power Plant, Docket No. 50-309, dated May 22, 1995. Additionally, prior evaluations of W sleeves have been performed for the Farley plant. The relevant TS amendments were dated September 18, 1987, and October 22, 1990.

2.0 BACKGROUND

When the major causes of service-related SG tube degradation were identified, it became possible to avert and/or manage them. It was further recognized that much of the service induced degradation was confined to specific areas of an SG tube and thus predictable with respect to locations. The locations and consistency of the predominant degradation mechanisms allowed for the development of a uniform repair technique. The repair technology, sleeving, was then developed to restore affected tubes.

A sleeve is a tube slightly smaller in diameter than an SG tube that is inserted into an SG tube to bridge a degraded or susceptible section of tube. The length of a sleeve is selected according to the individual installation circumstance. Generally, they vary in length between 1 and 3 feet. The sleeve becomes the pressure boundary and thereby restores the structural integrity of a degraded or potentially degraded portion of the original SG tube.

Tube sleeves are the preferred method for repairing SG tubes. Prior to the development of sleeve technology, a defective SG tube was removed from service by plugging. However, this reduced the heat transfer area. The reduction in heat transfer (or other thermal-hydraulic operating parameters) could be tolerated up to a point before other system consequences of the reduced SG performance became limiting. Beyond this point, a utility was forced to make operational changes resulting in reduced electrical generating capacity of the affected unit.

Because sleeves have minimal effect upon the thermal-hydraulics of an SG, their use is essentially unrestricted. This means a licensee may restore degraded sections of SG tubes to like-new condition without experiencing a penalty with regard to unit generating capacity. This has led to increased use of sleeves versus plugs where practical. Recently, some foreign and domestic plants have installed sleeves in previously unprecedented numbers, up to 100 percent of the SG tubes on a single unit.

About 29,000 W laser welded sleeves have been installed in foreign and domestic plants since 1988. Over 8 years of operating experience with W sleeves has shown the technology to be highly reliable. No operationally induced degradation or leakage has occurred in any W laser welded sleeves.

3.0 SUMMARY OF PREVIOUS REVIEWS

Previous staff evaluations of W sleeves addressed the technical adequacy of the sleeves in the principal areas of pressure retaining component design: structural requirements, material of construction, welding and post-weld heat treatment effects, and nondestructive examination. Along with these design evaluations, the staff has included evaluations of sleeve design changes based upon operating experiences with previous sleeving installations. The staff position and findings regarding sleeving methods are summarized below:

3.1 Structural Requirements

The function of sleeves is to restore the structural integrity of the tube pressure boundary. Consequently, structural analyses were performed for a variety of loadings including design pressure, operating transients, and other parameters selected to envelope loads imposed during normal operating, upset, and accident conditions. Stress analyses of sleeved tube assemblies were performed in accordance with the requirements of the ASME Boiler and Pressure Vessel Code, Section III. These analyses, along with the results of qualification testing and previous plant operating experience, were cited to demonstrate the sleeved tube assembly is capable of restoring steam generator tube structural integrity.

3.2 Material of Construction

The sleeves are fabricated from thermally treated alloy 690, a Code-approved material (ASME SB-163) covered by ASME Code Case N-20. The staff found the use of alloy 690 is an improvement over the alloy 600 material used in the original SG tubing. Corrosion tests conducted under Electric Power Research Institute (EPRI) sponsorship confirmed test results regarding the improved corrosion resistance of alloy 690 over that of alloy 600. Accelerated stress

corrosion tests in caustic and aqueous chloride solutions also indicated alloy 690 resists general corrosion in aggressive environments. Isothermal tests in high purity water have shown that, at normal stress levels, alloy 690 has high resistance to intergranular stress corrosion cracking (IGSCC) in extended high temperature exposure. The NRC concluded, as a result of these laboratory corrosion tests, that alloy 690 is acceptable for use in nuclear power plants. The NRC endorsed the use of Code Case N-20 in Regulatory Guide 1.85, "Materials Code Case Acceptability, ASME Section III, Division 1." The NRC staff has approved use of alloy 690 tubing in replacement steam generators as well as sleeving applications.

3.3 Cracking in Sleeved SG Tubes

Recent experiences at two U.S. plants indicated the free span joint of a sleeved alloy 600 steam generator tube may be susceptible to IGSCC. The affected joints are of the mechanically expanded type. These employ a hydraulic expansion followed by a hard roll in the center of the hydraulically expanded region. The hard roll forms the structural joint and leak limiting seal. Cracks have been detected in the alloy 600 parent tube material at the lower hard roll transition and lower hydraulic transition of free span joints. The cracks were detected after 4 to 7 years of service. Since a number of sleeved tubes with this joint type have operated up to 14 years in one of the affected units, it is clear that not all such sleeved tubes are likely to develop cracks after a given service interval. No such degradation has occurred in laser welded sleeves because of the differences in the amount of cold work and residual stress between the two joint types. Since the mechanically expanded joint has greater amounts of cold work and residual stress, the observed cracking locations are predictable. The staff is monitoring these developments for potential impact on welded sleeve installations.

Accelerated corrosion tests of laser welded sleeve joints have shown the hydraulic transition to have little or no susceptibility to IGSCC. Service times exceeding 8 years have been achieved for sleeved tubes with laser welded joints at U.S. plants. No instances of service induced IGSCC have occurred in any of these joints.

3.4 Welding and Post-Weld Heat Treatment

Automatic autogenous laser welding is employed to join the sleeve to the parent tube in the free span regions. The application of this process to the W sleeve design was specifically qualified and demonstrated during laboratory tests employing full scale sleeve/tube mockups. Qualification of the welding procedures and welding equipment operators was performed in accordance with the requirements of the ASME Code, Section IX.

Accelerated corrosion tests have confirmed that a post-weld heat treatment (PWHT) significantly improves the IGSCC resistance of the alloy 600 parent tube material in the weld zone. A PWHT reduces the residual stresses resulting from welding. Residual stresses from forming operations (such as bending, welding, etc.) are known to be a principal contributor to IGSCC in alloy 600. Performance of a PWHT greatly reduces the residual stresses from welding thereby enhancing the IGSCC resistance of the alloy 600 portion of the

weld zone. The alloy 690 sleeve material is highly resistant to IGSCC either with or without PWHT. All free span laser welded joints will be heat treated in accordance with the W generic sleeving report (WCAP-12672) and the NRR staff position.

The rolled joint used to join the sleeve to the tube within the tubesheet effectively isolates the alloy 600 of the parent tube from the environment and thus is not susceptible to IGSCC. Stress relief of these joints is unwarranted. PWHT of lower joint seal welds (where used) is undesirable due to potentially deleterious effects upon the tubesheet material and the integrity of the rolled joint.

3.5 PWHT and Tube Lockup

Field experience with the installation of welded sleeves with PWHT indicated that SG tubes may be constrained in their tube supports ("tube lockup"). The result of such tube locking is distortion of the tube (bowing or bulging) during the PWHT. After the heat treatment is completed, the bow or bulge remains. Measurements of the bowing and bulging have shown them to be negligible. These distortions have been analyzed and found to be immaterial to the examination, operation, structural integrity, and safety of the sleeved tubes.

Along with the observed distortion (bowing or bulging) is a residual stress remaining after the heat treatment is completed. Strain gage measurements of this residual stress have shown it to be moderate compared to the stress resulting from welding without subsequent PWHT. This issue was the subject of additional testing and analysis related to the use of laser welded sleeves at the Maine Yankee facility during a sleeve installation project. Based upon the finding that many tubes are fixed in the tube supports, W modified their sleeve installation procedure on the assumption that all tubes are locked. The modified installation procedure thereby minimizes the residual stress of PWHT regardless of tube condition.

3.6 Service Life Predictions for Sleeved SG Tubes

The staff position on sleeving considers the method unable to assure an unlimited service life for a repaired tube. The conservative view is sleeving creates new locations in the parent tube which may be susceptible to IGSCC after new incubation times are expended. Incubation times are not quantified. They are observed to vary between individual steam generators and the various tubes within, based upon prior experiences with U-bend and roll transition cracking.

This staff position that sleeving has limited service life is based upon the circumstances of the sleeving processes. Sleeve installation methods can enhance one or two of the conditions necessary for IGSCC. The primary contributor is the residual stress resulting from the various joining methods. Secondarily, the local environment of the tube may be altered as a result of the formation of a wetted crevice between the tube and sleeve. Remediation of these contributors would benefit sleeved tube life. Of the two, stress relieving may be the most beneficial given the underlying causes of IGSCC and present sleeve designs. As discussed earlier, the sleeve installation

procedure includes a PWHT of the weld joints to increase the resistance to IGSCC.

3.7 Nondestructive Examination

The sleeve assemblies can be inspected by nondestructive techniques in accordance with the recommendations of Regulatory Guide 1.83, "Inservice Inspection of Pressurized Water Reactor Steam Generator Tubes." Nondestructive examination of sleeved tubes is conducted in two primary ways. Ultrasonic testing (UT) is performed after welding to confirm the laser welds are consistent with critical process dimensions and are of acceptable weld quality. W presented data on a UT system demonstrating that post-weld examinations of the sleeve/tube assembly will be adequate. Standards which included undersized welds were used in the qualification of the UT technique. The results of the qualification tests demonstrate the system can confirm there is a continuous metallurgical bond between the sleeve and tube and that the weld size (width) meets minimum acceptable dimensions.

Eddy current testing (ECT) is then used to establish baseline inspection data for every installed sleeve/tube. This data is compared with subsequent ECT inspections to aid in identifying any possible service-induced degradation, should it occur. The licensee uses inspection techniques and ECT probes qualified in accordance with Appendix H of the EPRI PWR Steam Generator Tube Examination Guidelines.

4.0 DISCUSSION

The previous section addressed generic topics applicable to steam generator tube sleeve installations using W laser welded sleeves. For the Farley amendment request, plant-specific modifications were proposed:

4.1 Modified Sleeve Rolling Procedure and Deletion of Laser Weld for the Tubesheet Joint

Currently, an elevated tubesheet laser welded sleeve is included in the Farley Unit 2 TS by reference to WCAP-12672. However, the lower joint of the currently licensed elevated tubesheet sleeve includes a laser weld (as a seal weld) within the tubesheet. Until the present outage, the licensee had no need to exercise the option of using elevated tubesheet sleeves. As discussed in WCAP-13115, use of a laser weld in conjunction with the lower rolled joint is now regarded as unnecessary.

The laser seal weld practice originated from the desire to preclude any leakage through the lower rolled joint. However, numerous tests performed by Westinghouse have consistently demonstrated that any rolled joint leakage, should it occur, results in a fraction of the 10 CFR Part 100 dose limits. Additionally, extensive operating experience with thousands of sleeves, installed only with rolled joints, has demonstrated actual performance to be essentially leak-tight. Consequently, the licensee sought to delete the laser weld from the lower joint design.

Additionally, the licensee sought further assurance that certain original construction details peculiar to Farley Unit 1 (not the subject of this

proposed amendment) would not cause installation and operational difficulties with rolled only lower joints. The construction difference between the two units' steam generators involves the WEXTEX expansion method that was employed on Unit 1. Unit 2's SGs were constructed with full depth rolling. In the interests of commonality, the licensee sought a lower joint rolling method that would be applicable to both units. Consequently, the licensee engaged Westinghouse to develop a modified rolling procedure (called a two-roll pass lower joint) for use at Farley.

Since the modified rolling procedure was a departure from that previously qualified and adopted at other installations (and previously reviewed by the staff), a new series of qualification tests were performed. The principal tests concern measured leak rate (if any) and structural integrity for all design conditions. Mock-ups of the modified rolled joint were produced and laboratory tested for conformance with the requirements for leak rate and structural capability.

Leak test specimens subjected to a range of pressures (reflecting primary-to-secondary pressure differentials) showed no test samples exceeding 20% of the acceptance criteria. This would result in a total leakage, under worst case accident conditions (steam line break), based upon 2000 elevated tubesheet sleeves in one generator, of approximately 1.3×10^{-3} gpm. Therefore, it can be concluded that primary-to-secondary leakage under these worst case conditions would be insignificant or zero for plant normal and postulated faulted event pressure conditions for the two-step roll joint configuration.

The mechanical strength of the two-step rolled joint was tested by loading mock-up joints to failure and noting the load (pull-out test). In every case, the samples had pull-out strengths that exceeded the most stringent criteria of Regulatory Guide 1.121 (which specifies a minimum load capability of 3 times the normal operating value).

The staff finds that the leakage and structural capability tests are consistent with previous tests of rolled joints and demonstrate that the repaired tubes meet the dose limits in 10 CFR Part 100 and Regulatory Guide 1.121 criteria for satisfying General Design Criterion 14 of 10 CFR Part 50 Appendix A.

4.2 Licensee Commitments Regarding the Use of the Proposed Amendment

The proposed amendment addresses the modification of an existing approved elevated tubesheet sleeving methodology. This narrow scope modification deviates from the staff position that new or revised sleeve amendments should incorporate the latest Westinghouse WCAP for laser welded sleeves that is applicable to the subject unit(s). This has benefits in the incorporation of all of the technical "lessons learned" that have accrued from the most recent sleeving campaigns along with the administrative benefits of having only one or two current documents referenced as the governing technical bases for a sleeve installation. However, the governing WCAP that would be applicable to Farley is still in preparation and not expected to be available until sometime after the current outage. As a result, the licensee has committed, and the proposed TS Surveillance Requirement (SR) 4.4.6.4, "Acceptance Criteria," includes a provision to employ the amendment for one-time use during the

ongoing Farley Unit 2 outage. The licensee intends to submit a comprehensive amendment request for all Westinghouse sleeve types when the revised WCAP governing Farley becomes available. This is expected to occur prior to the next refueling outage, currently scheduled for spring 1997 for Farley Unit 1.

4.3 Technical Specification Changes

The staff finds acceptable the following proposed technical and editorial changes to the plant TS SR 4.4.6.4.

1. The definition of tube repair has been modified to indicate that elevated tubesheet sleeves will be installed as described in docketed letters (with attached Westinghouse documents) dated August 23, November 6, and November 11, 1996.

2. A footnote has been added which states that the elevated tube sheet sleeve is authorized for installation only during the Farley Unit 2 cycle 11 refueling outage.

3. The definition of tube repair and inspection for elevated tubesheet laser welded sleeves has been modified to provide that, for tubes with elevated sleeves, the point of entry for tube inspection is the bottom of the tubesheet sleeve below the lower sleeved joint. Additionally, tubes with imperfections or flaws below the lower joint of an installed elevated tubesheet laser welded sleeve would not be required to be plugged or repaired provided the installed sleeve meets all sleeved tube inspection requirements.

4. The definition of tube expansion has been modified to include the portion of the sleeve which has been increased in diameter by a rolling process as part of the sleeve installation.

The staff finds these TS changes consistent with the elevated tubesheet laser welded sleeve installation.

5.0 STAFF CONCLUSIONS

Based on the preceding analysis, the NRC staff finds:

1. The modified lower rolled joint without a laser seal weld meets the dose limits in 10 CFR Part 100 and Regulatory Guide 1.121 criteria for satisfying General Design Criterion 14 of 10 CFR Part 50 Appendix A.

2. The proposed amendment to the elevated tubesheet sleeves incorporates the desired improvements to the installations method(s) resulting from the "lessons learned" at recent large scale sleeving campaigns (such as at the Maine Yankee facility).

3. The repair of SG tubes at Farley Unit 2 using Westinghouse laser welded elevated tubesheet sleeves with a modified lower (rolled) joint is acceptable.

6.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of Alabama official was notified of the proposed issuance of the amendments. The State official had no comments.

7.0 ENVIRONMENTAL CONSIDERATION

The amendment changes the surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (61 FR 47982 dated September 11, 1996. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

8.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: G. Hornseth

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