

March 2, 2004

Mr. L. M. Stinson
Vice President
Southern Nuclear Operating Company
Post Office Box 1295
Birmingham, Alabama 35201

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE
JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2, LICENSE RENEWAL
APPLICATION

Dear Mr. Stinson:

By letter dated September 12, 2003, Southern Nuclear Operating Company, Inc. (SNC or the applicant) submitted an application pursuant to 10 CFR Part 54, to renew the operating licenses for Joseph M. Farley Nuclear Plant (FNP), Units 1 and 2, for review by the U.S. Nuclear Regulatory Commission's (NRC). The NRC staff is reviewing the information contained in the license renewal application (LRA) and has identified, in the enclosure, areas where additional information is needed to complete the review. Specifically, the enclosed requests for additional information (RAIs) are from Section 2.0, Structures and Components Subject to Aging Management Review (confirmatory and clarification in nature); Section 2.4.1, Containment Structures; Section 3.6, Aging Management of Electrical Supports; and Section 4.4, Environmental Qualification of Electrical Equipment.

These RAIs, in a draft format, have been provided to Mr. Jan Fridrichsen of your staff on December 9, 2003, January 28, and February 9, 2004. The NRC staff has discussed draft versions of these RAIs, via conference calls, to provide clarifications to the SNC staff on January 28, February 5 and 17, 2004. Your responses to these RAIs are requested within 30 days from the date of this letter. Mr. Fridrichsen has agreed to this request. If needed, the NRC staff is willing to meet or discuss with SNC again prior to the submittal of the applicant's responses to provide clarifications to the staff's RAIs.

If you have any questions, please contact me at 301-415-1315 or e-mail tyl1@nrc.gov.

Sincerely,

/RA/

Tilda Liu, Project Manager
License Renewal Section A
License Renewal and Environmental Impacts Program
Division of Regulatory Improvement Programs
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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**JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2
LICENSE RENEWAL APPLICATION
REQUEST FOR ADDITIONAL INFORMATION (RAI)**

Section 2.0: Structures and Components Subject to Aging Management Review

RAI 2.0-1

The following questions are CONFIRMATORY and CLARIFICATION (C/C) in nature. The corresponding draft RAI number associated with each question is indicated in parenthesis.

A. (D-RAI 2.3.1.1-1)

Please provide justifications for the exclusions or submit an AMR for each of the stated component:

- (a) Verify whether the component group "Head Vent Penetration" listed in LRA Table 2.3.1.1 includes head vent piping, which serves as a pressure boundary. In accordance with 10 CFR 54.4(a)(2), the piping should be within the scope of license renewal.
- (b) Verify whether the component group "Leakage Monitoring Tube Assembly" listed in LRA Table 2.3.1.1 includes O-Ring leak monitor tubes, which serves as a pressure boundary. In accordance with 10 CFR 54.4(a)(2), O-Ring leak monitor tubes should be within the scope of license renewal.

B. (D-RAI 2.3.1.1-2)

Instrumentation tubes and safe ends were not identified in the LRA (Table 2.3.1.1) as within the scope of license renewal. The subject components perform a pressure boundary function, and therefore, should be within scope. The staff requests the applicant to confirm that there are no instrumentation tubes and safe ends at Farley. However, if instrumentation tubes and safe ends do exist, then the applicant should identify them within scope, and submit an AMR for them.

C. (D-RAI 2.3.1.2-2)

Please clarify whether the following list of bolts are included in LRA Table 2.3.1.1 as part of the component group, "Baffle Bolts".

- Lower and Upper Support Column Bolts
- Baffle/Former Bolts
- Barrel/Former Bolts
- Guide Tube Bolts
- Clevis Insert Bolts

The above list usually provides structural support of the reactor core as well as flow distribution of reactor coolant to the reactor core. The above items meet the criteria identified in

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10 CFR 54.4(a)(2), and therefore, should be within the scope of license renewal. If the above items are not included in component group "Baffle Bolts" and exist at Farley, please provide justification for the exclusion or submit an AMR for the stated components.

D. (D-RAI 2.3.1.2-3)

Diffuser plates were not identified in the LRA (Table 2.3.1.2) as within the scope of license renewal. The above component provides flow distribution of reactor coolant to the reactor core and meets the criteria identified in 10 CFR 54.4(a)(2). Therefore, diffuser plates should be within the scope of license renewal. Please provide justification for the exclusion or submit an AMR for the stated component.

E. (D-RAI 2.3.1.3-2)

The following components were not identified in the LRA (Table 2.3.1.3) as within the scope of license renewal:

- a. Primary loop elbows
- b. Reactor coolant pump lugs

These components provide pressure boundaries and meet the criteria identified in 10 CFR 54.4(a)(2). Therefore, these components should be within the scope of license renewal. Please provide justification for the exclusion or submit an AMR for each of the stated components.

F. (D-RAI 2.3.1.4-3)

The following components were not identified in the LRA (Table 2.3.1.4) as within the scope of license renewal:

- a. Internal shroud
- b. Lattice grid tube supports
- c. U-Bend restraints
- d. Support pad
- e. Seismic lugs

The above components provide structural support functions and meet the criteria identified in 10 CFR 54.4(a)(2). Therefore, these component should be within the scope of license renewal. Please provide justification for the exclusion or submit an AMR for each of the stated component.

G. (D-RAI 2.3.1.4-5)

Steam generator (SG) tube plugs were not identified in the LRA (Table 2.3.1.4) as within the scope of license renewal. The subject components perform a pressure boundary function, and therefore, should be within scope. The staff requests the applicant to confirm that there are no SG tube plugs inside the SGs at Farley. If there are tube plugs inside the SGs, then the applicant should identify them within scope, and submit an AMR for them.

H. (D-RAI 2.3.3.8-1c)

Flow element was not identified in the LRA (Table 2.3.3.8) as within the scope of license renewal. This component provides pressure boundary functions and meets the criteria identified in 10 CFR 54.4(a)(2). Therefore, it should be within the scope of license renewal. Provide justification for the exclusion or submit an AMR for the stated component.

I. (D-RAI 2.4-2)

Based on its review of LRA Sections 2.1, 2.2, 2.3, 2.4, and 2.5, the staff identified the following cross-references between the mechanical and structural scoping and screening, that require clarification and/or additional information:

LRA Table 2.3.1.3 identifies “Pressurizer-Support Lugs” and “Pressurizer-Support Skirt and Flange”, with a “Structural Support” intended function. These component types appear to be the ASME Class 1 component support for the pressurizer. However, LRA Section 2.4.1.4 “Containment Internal Structures” states “RCS supports are addressed in Section 2.4.3, “Component Supports”. LRA Section 2.4.3.1 “Supports for ASME and Non-ASME Piping and Components” describes the supports for the reactor vessel, steam generator, reactor coolant pumps, and pressurizer.

In order to clarify the treatment of pressurizer supports in the LRA,

- a. verify that the ASME Class 1 component supports for the reactor vessel, steam generators, reactor coolant pumps, and pressurizer are included in the Structures scope, under Component Supports. In LRA Table 2.4.3, only “RPV Supports” are explicitly identified.
- b. explain the Pressurizer-Support Lugs and Pressurizer-Support Skirt and Flange entries in LRA Table 2.3.1.3.

J. (D-RAI 2.4-4)

In LRA Section 2.4.2.6 “Steel Tank Structures (Foundations and Retaining Walls)”, it states:

“The Emergency Diesel Generator Fuel Oil Storage Tanks are 40,000 gallon, seismic Category I underground tanks. The tanks are supported by poured concrete and buried for protection.”

LRA Table 2.4.2.6 does not specifically identify a component type to cover a buried concrete foundation. The staff requests the applicant to confirm that the subject buried concrete foundation is in the scope of license renewal, and to identify the component type in LRA Table 2.4.2.6 that includes this foundation.

K. (D-RAI 2.4-6)

LRA Section 2.4.2.1 states that the Auxiliary Building is a reinforced concrete slab, bearing directly on the Lisbon foundation. However, FSAR Section 3.8.4.1A indicates that portions of the foundation consist of a reinforced concrete slab placed over 9 ft. 5 in. of concrete fill, which

in turn bears on the Lisbon formation. FSAR Section 3.8.4.1A further indicates that another portion of the foundation consists of a reinforced concrete slab placed over 30 ft. of compacted fill, which in turn rests on a reinforced concrete mat bearing directly on the Lisbon formation. In addition, FSAR Section 3.8.5.1B indicates that the eastern section of the Auxiliary Building is supported on spread footings which bear on the Lisbon formation, and also states that loads are transmitted through cast-in place reinforced concrete columns. The applicant is requested to clarify whether all the concrete structural elements of the Auxiliary Building foundation (as described in the FSAR) are within the scope of license renewal. If not, provide the technical basis for their exclusion.

Section 2.4.1: Containment Structures

RAI 2.4-7

LRA Section 2.4.1 “Containment Structure” contains the following discussion related to electrical penetrations through containment:

2.4.1.3 Penetrations

In general, a containment penetration consists of a sleeve embedded in the concrete wall or floor and welded to the containment liner plate. Loads on the penetration are transferred to the containment structure. The process pipe or cable feed-through assembly passes through the sleeve and is seal welded to the sleeve via an appropriate adapter. Additional detail is provided below.

Electrical Penetrations

Electrical penetrations consist of a sleeve that passes through the containment boundary. The sleeve is welded to the containment liner plate. A cable feed-through assembly is inserted in the sleeve and welded to the sleeve inside containment for Conax and GE type penetrations. The feed-through assembly is screwed to the clip angle for a Westinghouse type penetration.

LRA Table 2.2-1f “Systems and Structures within the Scope of License Renewal – Electrical Components” specifically lists “(Electrical) Containment Penetrations”. However, LRA Table 2.5.1 “Electrical Component Types Subject to Aging Management Review and their Intended Functions” does not specifically identify the cable feed-through assembly.

LRA Table 2.4.1 “Containment Structure Component Types Subject to Aging Management Review and their Intended Functions” does not identify any component group that would obviously include the cable feed-through assembly.

From the information in the LRA, the staff cannot determine whether the applicant is treating the cable feed-through assembly as a component of the containment structure or as an electrical component. The staff requests the applicant to clarify its treatment of the cable feed-through assembly, and also to identify where the AMR is located in the LRA.

Section 3.6: Aging Management of Electrical Supports

RAI 3.6.2-1

Table 3.6.2-1, Electrical Components - Summary of Aging Management Review, discusses the intended functions and aging effects and aging management programs associated with the Oil-Static Cables. Under the "Pressure Boundary" function, the AMPs referenced are Buried Piping and Tank Inspection Program [B.5.4] and External Surfaces Monitoring Program [B.5.3]. These programs list the Oil-Static Cable Pressurization System. Under the "Provide Electrical Connections" function, it states that there is no aging effect and no AMP is required. The table does not address the effect of aging on the oil impregnated paper insulation system and the terminations at each end of the cable.

- a. LR boundary drawing D-372816L does not appear to include the Oil-Static Cable. Confirm that the boundary of the Oil-Static Cable pressurization system includes the Oil-Static Cable. If not, describe the AMP that covers the Oil-Static Cable.
- b. Describe how the aging effects on the Oil-Static Cable insulation system is to be monitored. Provide operating experience with this cable system at FNP.

Section 4.4: Environmental Qualification of Electrical Equipment

RAI 4.4-1

The FNP LRA, Table 4.4, List of EQ Packages, lists the Electrical Penetration Assemblies in a number of different packages (09B, 09C, 09E, 18 and 42). SNC stated during the Aging Management Program Audit conducted from November 3 to 7, 2003, and confirmed in its letter dated December 5, 2003, NL-03-2418, Enclosure 1, Electrical Question E2, that the 4160 kV power penetrations were not safety related and their electrical connection functions were covered under the Non-EQ Cables and Connections Program. The response did not identify any other Non-EQ penetrations in low voltage power control or instrumentation applications. The response also did not address the pressure/fission product boundary functions of the electrical penetrations.

- a. Confirm that all electrical penetration assemblies (other than the 4160 kV power penetrations described in your letter) are included in the different packages listed in Table 4.4 of the LRA.
- b. Identify where the pressure/fission product boundary functions of the EQ and Non-EQ electrical penetrations assemblies are evaluated and how those functions will be maintained.
- c. Confirm that the electrical penetrations assemblies associated with the personnel air locks, if any, are either included in one of the penetration items listed in Table 4.4 of the LRA or provide an evaluation that addresses the license renewal requirements.

Joseph M. Farley Nuclear Plant

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