



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

September 23, 2019

Ms. Cheryl A. Gayheart
Regulatory Affairs Director
Southern Nuclear Operating Company
3535 Colonnade Parkway
Birmingham, AL 35243

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2 – CORRECTION TO
SAFETY EVALUATION FOR AMENDMENT NOS. 225 AND 222 REGARDING
IMPLEMENTATION OF NEI 06-09, REVISION 0-A

Dear Ms. Gayheart:

By letter dated August 23, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19175A243), the U.S. Nuclear Regulatory Commission issued Amendment No. 225 to Renewed Facility Operating License No. NPF-2 and Amendment No. 222 to Renewed Facility Operating License No. NPF-8 for the Joseph M. Farley Nuclear Plant, Units 1 and 2, respectively.

Enclosed are revised pages 22, 24, and 70 to the Safety Evaluation that correct inaccurate supporting information. These corrections do not affect the conclusions in the Safety Evaluation or the notice as published in the Federal Register. The revised pages contain marginal lines indicating the areas of change.

Sincerely,

/RA/

Shawn A. Williams, Senior Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-348 and 50-364

Enclosure:
Corrected Safety Evaluation

cc: Listserv

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2 – CORRECTION TO SAFETY EVALUATION FOR AMENDMENT NOS. 225 AND 222 REGARDING IMPLEMENTATION OF NEI 06 09, REVISION 0-A DATED SEPTEMBER 23, 2019

DISTRIBUTION:

PUBLIC

RidsACRS_MailCTR Resource

RidsNrrDorlLpl2-1 Resource

RidsNrrDraApla Resource

RidsNrrLAKGoldstein Resource

RidsNrrPMFarley Resource

RidsRgn2MailCenter Resource

MBiro, NRR

BHartle, NRR

ADAMS Accession No.: ML19261A014

OFFICE	DORL/LPL2-1/PM	DORL/LPL2-1/LA	DRA/APLA/BC	DORL/LPL2-1/BC
NAME	SWilliams	KGoldstein	SRosenberg	MMarkley
DATE	9/17/19	09/19/19	9/20/19	9/23/19
OFFICE	DORL/LPL2-1/PM			
NAME	SWilliams			
DATE	9/23/19			

OFFICIAL RECORD COPY

The licensee also proposed to add restrictions to preclude RICT entry for LCOs that may result in TS LOF. However, the licensee has proposed the use of a RICT for emergent cases where the equipment may be PRA functional. With the incorporation of the RICT Program, the required performance levels of equipment specified in LCOs are not changed. Only the required CT for the Required Actions are modified by the RICT Program.

3.1.1.1 Key Principle 1 Conclusions

Section 3.1.2 and 3.3.3 of this SE provides an evaluation of the defense-in-depth and safety margin considerations associated with the proposed RICT Program. For the reasons described in those sections and for the reasons described above, the NRC staff concludes that the requirements of 10 CFR 50.36 are satisfied. This ensures that the plant will be operated in accordance with the design (i.e., the application as amended) and is safe. Therefore, the requirements of 10 CFR 50.57(a)(2) and 10 CFR 50.57(a)(6) are met.

Based on the above, the NRC staff finds that the proposed changes meet the first key safety principle of RG 1.174 and RG 1.177.

3.1.2 Key Principle 2: Evaluation of Defense-in-Depth

Defense-in-depth is an approach to designing and operating nuclear facilities that prevents and mitigates accidents that release radiation or hazardous materials. The key is creating multiple independent and redundant layers of defense to compensate for potential human and mechanical failures so that no single layer, no matter how robust, is exclusively relied upon. Defense-in-depth includes the use of access controls, physical barriers, redundant and diverse key safety functions, and emergency response measures.

As discussed throughout RG 1.174, consistency with the defense-in-depth philosophy is maintained by the following:

- Preserve a reasonable balance among the layers of defense.
- Preserve adequate capability of design features without an overreliance on programmatic activities as compensatory measures.
- Preserve system redundancy, independence, and diversity commensurate with the expected frequency and consequences of challenges to the system, including consideration of uncertainty.
- Preserve adequate defense against potential common-cause failures (CCFs).
- Maintain multiple fission product barriers.
- Preserve sufficient defense against human errors.
- Continue to meet the intent of the plant's design criteria.

The proposed change represents a robust technical approach that preserves a reasonable balance among redundant and diverse key safety functions that provide avoidance of core damage, avoidance of containment failure, and consequence mitigation. The three-tiered

proposed TS 5.5.20 are acceptable for meeting the Key Principle 2 because the proposed change is consistent with defense-in-depth philosophy.

The PRA Functionality determination is also applicable without the stipulations of proposed TS 5.5.20 for situations in which the TS function is met but a redundant SSC for that TS function is TS inoperable. In this case, redundancy is ensured since there are sufficient trains remaining that are determined to be PRA functional, and these trains are fully able to fulfill the TS safety function.

The proposed RICT Program uses plant-specific operating experience for component reliability and availability data. Thus, the allowances permitted by the RICT Program are directly reflective of actual component performance in conjunction with component risk significance. In some cases, the RICT Program may use compensatory actions to reduce calculated risk in some configurations. Where credited in the PRA, these actions are incorporated into station procedures or work instructions and have been modeled using appropriate human reliability considerations. Application of the RICT Program determines the risk significance of plant configurations. It also permits the operator to identify the equipment that has the greatest effect on the existing configuration risk. With this information, the operator can manage the out-of-service duration and determine the consequences of removing additional equipment from service.

The application of the RICT Program places high value on key safety functions and works to ensure that they remain a top priority over all plant conditions. The RICT would be applied to extend CTs on key electrical power distribution systems. Failures in electrical power distribution systems can simultaneously affect multiple safety functions; therefore, potential degradation to defense-in-depth during the extended CTs are discussed further below.

3.1.2.1 Use of Compensatory Measures to Retain Defense-in-Depth

Application of the RICT Program provides a structure to assist the operator in identifying effective compensatory actions for various plant maintenance configurations to maintain and manage acceptable risk levels. NEI 06-09, Revision 0-A, addresses potential compensatory actions and RMA measures by stating, in generic terms, that compensatory measures may include but are not limited to the following:

- Reduce the duration of risk-sensitive activities.
- Remove risk-sensitive activities from the planned work scope.
- Reschedule work activities to avoid high risk-sensitive equipment outages or maintenance states that result in high-risk plant configurations.
- Accelerate the restoration of out-of-service equipment.
- Determine and establish the safest plant configuration.

The NEI 06-09, Revision 0-A, requires that compensatory measures be initiated when the PRA calculated RMA time (RMAT) is exceeded or, for preplanned maintenance for which the RMAT is expected to be exceeded, RMAs shall be implemented at the earliest appropriate time. Therefore, quantitative risk analysis, the qualitative considerations, and the prohibition on loss of all trains of a required system ensure that a reasonable balance of defense-in-depth is

implementation of the new method in its RMTS program. The focus of the NRC staff's review and approval will be on the technical adequacy of the methodology and analyses relied upon for the RMTS application.

This constraint appropriately requires the licensee to utilize the risk assessment approaches and methods previously approved by the NRC and/or incorporated in the RICT Program and requires prior NRC approval for any change in PRA methods to assess risk that are outside those approval boundaries. The NRC staff finds that this requirement is appropriately reflected in the Administrative Controls section of the Farley TS.

The regulations at 10 CFR 50.36(c)(5) require the TS to contain administrative controls providing "provisions relating to organization and management, procedures, recordkeeping, review and audit, and reporting necessary to assure operation of the facility in a safe manner." The NRC staff has determined that the Administrative Controls section of the Farley TS, as amended, will ensure operation of the facility in a safe manner when the facility uses the RICT Program. Therefore, the NRC staff has determined that the requirements of 10 CFR 50.36(c)(5) are satisfied.

4.0 PROPOSED LICENSE CONDITION

In its letter dated May 3, 2019, the licensee proposed the following license condition to be added to Appendix C of the Farley Units 1 and 2 renewed facility operating licenses:

Southern Nuclear Operating Company (SNC) is approved to implement the Risk Informed Completion Time (RICT) Program as specified in the license amendment request submittal dated July 27, 2018, as supplemented on ... [May 3, 2019.]

Updates from the Findings and Observation resolutions of the Internal Events Internal Flooding Probabilistic Risk Assessment (PRA) model shall be incorporated into the Fire PRA per the internal SNC PRA configuration process, prior to implementation of the RICT program.

The risk assessment approach and methods, shall be acceptable to the NRC, be based on the as-built, as-operated, and maintained plant, and reflect the operating experience of the plant as specified in RG 1.200. Methods to assess the risk from extending the completion times must be PRA methods accepted as part of this license amendment, or other methods approved by the NRC for generic use. If the licensee wishes to change its methods, and the change is outside the bounds of this license condition, the licensee will seek prior NRC approval, via a license amendment.

The NRC staff notes that prior approval would be required for a change to the proposed RICT Program or the implementation of the proposed RICT Program as described in the TS Administrative Controls Section 5.5.20. Prior NRC approval would also be required for changes to the PRA methods that have not been previously approved by the NRC in this SE or for generic use. The NRC staff finds that the license condition is acceptable because, with it, the