



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION II  
245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

November 7, 2016

Cheryl A. Gayheart  
Vice President  
Southern Nuclear Operating Company, Inc.  
Joseph M. Farley Nuclear Plant  
7388 North State Highway 95  
Columbia, AL 36319

**SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT, UNIT 1 – U.S. NUCLEAR REGULATORY  
COMMISSION POST-APPROVAL SITE INSPECTION FOR LICENSE RENEWAL,  
INSPECTION REPORT 05000348/2016009**

Dear Ms. Gayheart:

On October 14, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed a Post-Approval Site Inspection for License Renewal at your Joseph M. Farley Nuclear Plant, Unit 1. The enclosed report documents the inspection results that were discussed on October 14, 2016, with you and members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules, regulations, and conditions of your license. The inspectors reviewed selected procedures, records, observed activities, and interviewed personnel.

Based on the results of this inspection, no findings were identified.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public inspections, exemptions, requests for withholding" of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter, its Enclosure, and your response (if any), will be available electronically for public inspection in the NRC Public Document Room, or from the Publicly Available Records (PARS) component of NRC's Agencywide Documents Access and

Management System (ADAMS); accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

*/RA/*

Shakur A. Walker, Chief  
Engineering Branch 3  
Division of Reactor Safety

Docket No. 50-348  
License No. NPF-2

Enclosure:  
NRC Inspection Report 05000348/2016009  
w/Attachment: Supplementary Information

cc: Distribution via Listserv

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PUBLICLY AVAILABLE       NON-PUBLICLY AVAILABLE       SENSITIVE       NON-SENSITIVE  
ADAMS:  Yes      ACCESSION NUMBER: \_\_\_\_\_       SUNSI REVIEW COMPLETE       FORM 665 ATTACHED

OFFICE	RII:DRS	RII:DRS					
SIGNATURE	<b>PEC</b>	<b>SAW4</b>					
NAME	PCOOPER	SWALKER					
DATE	11/3/2016	11/7/2016					
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket No: 05000348

License No: NPF-2

Report No: 05000348/2016009

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Joseph M. Farley Nuclear Plant, Unit 1

Location: Columbia, AL

Dates: October 10 -14, 2016

Inspector: Paula E. Cooper, Reactor Inspector

Approved by: Shakur A. Walker, Branch Chief  
Engineering Branch 3  
Division of Reactor Safety

Enclosure

## **SUMMARY**

Inspection Report (IR) 05000348/2016009; 10/10/2016 – 10/14/2016; Joseph M. Farley Nuclear Plant, Unit 1; Post-Approval Site Inspection for License Renewal.

The report covers an inspection conducted by a regional inspector in accordance with the U.S. Nuclear Regulatory Commission (NRC) Inspector Manual Chapter (IMC) 2515, and NRC Inspection Procedure (IP) 71003, Post-Approval Site Inspection for License Renewal, dated July 1, 2016.

Based on the sample selected for review, the inspectors determined that commitments, license conditions, and regulatory requirements associated with the renewed facility operating license were either being met, or where commitment actions had not been completed, that the licensee had administrative controls in place to ensure completion before the period of extended operation.

The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

No findings were identified during this inspection.

## REPORT DETAILS

### 4. OTHER ACTIVITIES

#### 4OA5 Other Activities

##### .1 Post-Approval Site Inspection for License Renewal (Phase 1)

###### a. Inspection Scope

Implementation of License Conditions and Commitments, including Aging Management Programs: The inspectors reviewed a sample of license renewal activities scheduled for the Unit 1 Fall 2016 refueling outage, which was the last outage prior to the period of extended operation (PEO). The objective of the inspection was to maximize observations of the actual implementation of license renewal activities before the beginning of the PEO (June 26, 2017), and verify that the licensee completed the necessary actions to: (a) comply with the conditions stipulated in the renewed facility operating license; (b) meet the license renewal commitments described in NUREG-1825, "Safety Evaluation Report (SER) Related to the License Renewal of the Joseph M. Farley Nuclear Plant, Units 1 and 2" (ADAMS Accession Number ML050630571); and (c) meet the future activities, including Aging Management Programs (AMPs), described in the Updated Final Safety Analysis Report (UFSAR) supplement submitted pursuant to 10 CFR 54.21(d).

The inspectors reviewed supporting documents; conducted interviews with licensee staff; observed in-process outage activities; and performed visual inspection of structures, systems, and components (SSCs) including those not accessible during power operation. The commitment items and AMPs selected for the inspection sample are summarized below based on their description in Appendix A of the License Renewal Application. The specific inspection activities conducted for each AMP are also described below. Specific documents reviewed are also listed in the report Attachment.

###### Commitment #6 – Reactor Vessel Internals (RVI) Program

This commitment specified that the licensee will submit an inspection plan for the RVI Program for NRC review and approval prior to entering the PEO. The program will be used during the PEO to manage the effects of crack initiation and growth due to irradiation-assisted stress corrosion cracking; loss of fracture toughness due to irradiation embrittlement, thermal embrittlement, or void swelling; or changes in material properties (dimension) due to void swelling.

The inspectors reviewed correspondence submitted to the NRC to verify the commitment was in process as described in the licensee correspondence, and the NRC SER.

#### Commitment #7 – Flux Detector Thimble Inspection Program

This commitment specified that the new Flux Detector Thimble Inspection Program will be implemented prior to entering the PEO to formalize examinations already being performed. Specifically, this program will be used to identify loss of material due to fretting/wear in the detector thimbles.

The inspectors reviewed vendor correspondence and program documents, to verify the commitment was being implemented as described in the licensee correspondence, and the NRC SER.

#### Commitment #8 – External Surfaces Monitoring Program

This commitment specified that the new External Surfaces Monitoring Program will be implemented prior to entering the PEO. This program will include periodic visual inspections of external surfaces of carbon steel, low alloy steel, and other susceptible materials in components requiring aging management for license renewal.

The inspectors interviewed plant personnel and program owners during a containment walkdown to confirm the commitment was being implemented as described in the licensee correspondence, and the NRC SER.

#### Commitment #9 – Buried Piping and Tanks Inspection Program

This commitment specified that the new Buried Piping and Tank Inspection Program will be implemented prior to the PEO. This program will be used to manage the loss of material from external surfaces of in-scope pressure-retaining buried carbon steel piping and tanks and buried stainless steel and copper alloy piping during the PEO. In addition, this program will be consistent with the 10 attributes of the AMP described in NUREG-1801, Section XI.M34, with the exception that it also includes provisions for inspection of buried stainless steel and copper alloy piping.

The inspectors reviewed work orders and program documents, to verify the commitment was being implemented as described in the licensee correspondence, and the NRC SER.

#### Commitment #10 – One-Time Inspection Program

This commitment specified that the One-Time Inspection Program will be implemented prior to the PEO. This program will include measures to verify the effectiveness of various other AMPs and confirm the absence of aging effects requiring management. During this refueling outage, the one-time inspection associated with the ultrasonic thickness measurements of the bottom of the condensate storage tank, as well as the eddy current examination of the Residual Heat Removal Heat Exchanger, was performed.

The inspectors reviewed and observed portions of the work orders to verify the commitment was completed as described in the licensee correspondence, and the NRC SER.

### Commitment #11 – Nickel Alloy Management Program

This commitment specified that the licensee will submit an inspection plan for the NiCrFe Component Assessment (Nickel Alloy Management) Program for NRC review and approval at least 24 months prior to entering the PEO. This program will address the potential for primary water stress corrosion cracking in nickel alloy components exposed to the reactor coolant environment.

The inspectors reviewed correspondence submitted to the NRC, which was submitted 24 months prior to entering the PEO, to verify the commitment was completed as described in the licensee correspondence, and the NRC SER.

### Commitment #12 - Inaccessible Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements

This commitment specified that the Inaccessible Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program will be implemented prior to the PEO, with subsequent tests performed at least every 6 years thereafter. During this refueling outage, the licensee implemented the portion of the program associated with the inaccessible medium voltage cables that are simultaneously exposed to significant moisture and voltage.

The inspectors reviewed test results, procedures, and work orders to verify the commitment was completed as described in the licensee correspondence, and the NRC SER.

Review of Newly-Identified SSCs: This inspection requirement will be completed during the Phase 2 implementation of IP 71003.

Descriptions of AMPs and Time-Limited Aging Analysis (TLAA) in the UFSAR Supplement: The review of the description of AMPs and TLAA in the UFSAR supplement submitted pursuant 10 CFR 54.21(d) will be completed during the Phase 2 implementation of IP 71003.

Review of License Renewal Commitment Changes: This inspection requirement will be completed during the Phase 2 implementation of IP 71003.

#### b. Findings and Observations

No findings were identified.

#### 4OA6 Management Meetings

##### .1 Exit Meeting Summary

On October 14, 2016, the inspector presented the inspection results to Cheryl A. Gayheart, Vice President, and other members of station staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION



## **SUPPLEMENTARY INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee Personnel

Julie Collier, Licensing  
Kassondra Moore, LR Engineering  
Dan Meendering, LR Aging Management Program Coordinator  
Scott Walden, LR Civil/ Seismic  
Tyler Campbell, LR Medium Voltage Cables

#### NRC

P. Niebaum, Senior Resident Inspector  
K. Miller, Resident Inspector

### **LIST OF DOCUMENTS REVIEWED**

#### Buried Piping and Tanks Inspection Program

NMP-ES-036, Underground Pipe and Tanks Monitoring Program, Ver. 13  
NMP-ES-036-001, Underground Pipe and Tanks Monitoring Program Implementation, Ver. 10  
WO#SNC356988, Install Pull Box 1AN1M211 and Connect Associated Conduits, 1/4/12

#### Flux Detector Thimble Inspection Program

FNPO-SYP-22.0, Flux Detector Thimble Inspection Program, Ver. 1.0  
Letter From Larry E Markel, Westinghouse, to Cheryl A. Gayheart, Southern Nuclear Operating Company, Joseph M. Farley Nuclear Plant, Transmittal of LTR-SEE-III-15-79, Flux Thimble Eddy Current Evaluation and USRS-15-9, Field Service Report for Farley 1R26, 6/18/15

#### Nickel Alloy Management Program

Letter From C.R. Pierce, Southern Company, to U.S. NRC, Joseph M. Farley Nuclear Plant – Units 1 and 2, License Renewal Commitment Item 11, 6/22/15

#### Reactor Vessel Internals (RVI) Program

Letter from C.R. Pierce, Southern Nuclear, to U.S. NRC, Joseph M. Farley Nuclear Plant – Unit 1 and 2, License Renewal Commitment Item 6, 8/12/15

#### One-Time Inspection Program

WO#SNC799315, UT Thickness on Bottom of CST, 10/9/16

### **LIST OF ACRONYMS**

AMPs	Aging Management Programs
BWRVIP	Boiling Water Reactors Vessel and Internals Project
IP	Inspection Procedure
PEO	Period of Extended Operation
SER	Safety Evaluation Report
SSCs	Systems, Structures, or Components
TLAA	Time-Limited Aging Analysis
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Examination
WOs	Work Orders