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

November 29, 2012

Mr. Joseph W. Shea
Vice President, Nuclear Licensing
Tennessee Valley Authority
1101 Market Street, LP 3D-C
Chattanooga, TN 37402-2801

SUBJECT: BROWNS FERRY UNIT 1 – NRC POST-APPROVAL SITE INSPECTION FOR LICENSE RENEWAL, INSPECTION REPORT 05000259/2012011

Dear Mr. Shea:

On November 1, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed a Post-Approval Site Inspection for License Renewal at your Browns Ferry Nuclear Station, Unit 1. The enclosed report documents the inspection results, which were discussed on November 1, 2012, with members of your staff.

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

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

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," 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 document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Steven J. Vias, Chief
Engineering Branch 3
Division of Reactor Safety

Docket Nos. 50-259
License Nos. DPR-33

Enclosure:
NRC Inspection Report 05000259/2012011
w/Attachment: Supplemental Information

cc: (See Page 3)

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cc: (See Page 3)

X PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE **X** NON-SENSITIVE

ADAMS: **X** Yes ACCESSION NUMBER: _____ **X** SUNSI REVIEW COMPLETE **X** FORM 665 ATTACHED

OFFICE	RII:DRS	RII:DRS	RII:DRS	RII:DRS			
SIGNATURE	RA	RA	RA				
NAME	C. Fletcher	M. Coursey	S. Vias	L. Lake			
DATE	11/ 29 /2012	11/ 29 /2012	11/ 29 /2012	11/ 29 /2012			
E-MAIL COPY	**YES** NO	**YES** NO	**YES** NO	**YES** NO			

OFFICIAL RECORD COPY DOCUMENT NAME: S:\DRS\ENG BRANCH 3\INSPECTIONS\INSPECTION AREAS\LICENSE RENEWAL\BROWNS FERRY\BFN U1 IR 2012011 LR 71003 PHASE 1 CAF MCC(1).DOCX

cc:
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Letter to Joseph W. Shea from Steven J. Vias dated November 29, 2012.

SUBJECT: BROWNS FERRY UNIT 1 – NRC POST-APPROVAL SITE INSPECTION FOR LICENSE RENEWAL, INSPECTION REPORT 05000259/2012011

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos:	50-259
License Nos:	DPR-33
Report No:	05000259/2012011
Licensee:	Tennessee Valley Authority
Facility:	Browns Ferry, Unit 1
Location:	Athens, AL 35611
Dates:	October 29 – November 1, 2012
Inspectors:	Cecil Fletcher, Senior Reactor Inspector Michael Coursey, Reactor Inspector
Approved by:	Steven J. Vias, Branch Chief Engineering Branch 3 Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000259/2012011; October 29 – November 1, 2012; Browns Ferry Nuclear Station Unit 1; Post-Approval Site Inspection for License Renewal.

The report covers an inspection conducted by regional inspectors in accordance with Nuclear Regulatory Commission (NRC) Manual Chapter 2516 and NRC Inspection Procedure 71003, Post-Approval Site Inspection for License Renewal.

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 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

None

B. Licensee-Identified Violations

None

REPORT DETAILS

4. OTHER ACTIVITIES

4OA5 Other Activities: Post-Approval Site Inspection for License Renewal (Phase 1)

.1 Implementation of License Conditions and Commitments, including Aging Management Programs

a. Inspection Scope

The inspectors reviewed a sample of license renewal activities scheduled for the Unit 1 fall 2012 refueling outage, which was the last outage prior to the period of extended operation (PEO). The inspectors selected this refueling outage because it would present the best opportunity to observe and review the majority of the one-time inspections associated with license renewal commitments. The objective of the inspection was to maximize observations of the actual implementation of license renewal activities before the beginning of the PEO (December 31, 2013), 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-1843, "Safety Evaluation Report (SER) Related to the License Renewal of the Browns Ferry Nuclear Plant (BFN), Units 1, 2,and 3; 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 performed a walk-down of the Unit 1 Drywell on the 561', 584', and 604' level to assess general conditions of civil engineering structures and components with regards to age related issues.

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 (LRA). The specific inspection activities conducted for each AMP are also described below. Specific documents reviewed are listed in the report attachment.

BFN One-Time Inspection Program: The One-Time Inspection Program at BFN is a new program described in the BFN UFSAR (section O.1.26) as a program which includes measures to verify that unacceptable degradation is not occurring: thereby validating the effectiveness of existing programs or confirming that there is no need to manage aging related degradation for the period of extended operation. The One-Time inspection Program is to be completed prior to entering the PEO. The elements of the One-Time Inspection Program include:

(a) Determination of the sample size based on an assessment of materials of fabrication, environment, plausible aging effects, and operating experience.

(b) Identification of the inspection locations in structures or components based on the aging effect.

(c) Determination of the examination technique, including acceptance criteria that would be effective in detecting the age related effect for which the component is examined. Non-destructive techniques will generally be used.

(d) Evaluation of the need for follow up examinations to monitor the progression of any aging degradation. When one-time inspections fail to meet the established acceptance criteria, the corrective action program will be used to schedule, trace, and trend the appropriate corrective actions and follow up inspections.

The inspectors observed/reviewed inspection activities, reviewed licensing basis documents, AMP administrative procedures, and implementing inspection and test procedures to verify that the program was developed as described in the LRA and corresponding SER. The inspectors also discussed the process used to select the inspection samples under this AMP and the criteria to be used for scope expansion with licensee personnel. The inspectors reviewed the examination reports listed below to verify that the implementation of the program was in accordance with the established procedures and consistent with the program attributes described in the licensing basis documents for the following activities:

- WO 112772844, License Renewal One-Time RW2-UT Inspections Sys 074 Piping
- Work Order (WO) 112763854, License Renewal One-Time RW3/TW3 Inspection of the heat exchanger plates for BFN-1-HEX-068-0001AA
- WO 113273618, Contingency, License Renewal One-Time RW2 inspection of piping between 1-TV-071-0528 & 1-SHV-071-0527
- WO 113680358, License Renewal One-Time RW2 Inspection BFN-1-CKV-077-0652

Bus Inspection Program: The Bus Inspection Program is described in section O.2.2 of the BFN UFSAR as a program that will provide reasonable assurance that the intended functions of isolated and non-segregated phase busses will be maintained consistent with the current licensing basis through the PEO. This program will manage non-segregated phase bus insulation exposed to adverse localized environments caused by heat in the presence of oxygen and loosening of fastening hardware associated with isolated and non-segregated phase bus due to cyclic loading resulting from thermal expansion and contraction of the bus. The program will also include inspection of the bus enclosure. This program will manage all portions of the isolated and non-segregated phase bus, within the scope of license renewal associated with the unit station service transformers, main transformers, and common station service transformers.

The inspectors performed a walkdown and observed the licensee perform inspections on the Main Transformer Bus in the switchyard and in the Auxiliary Building associated with WO 113221054, Inspection and Cleaning of the Switchyard Bus, Unit 1 between the Main 500 KV Transformers.

.2 License Renewal Commitment Changes

The inspectors reviewed license renewal commitment change documents to verify the licensee followed the guidance in Nuclear Energy Institute (NEI) 99-04, "Guidelines for Managing NRC Commitment Changes," for the following commitment changes:

- NCO 040006070, Underground Piping and Tanks Integrity Program
- NCO 0400006083, Inspection of Overhead Heavy Load and Light Load Handling Systems Program

The inspectors verified that the licensee properly evaluated, reported, and approved, where necessary, changes to license renewal commitments listed in the UFSAR in accordance with 10 CFR 50.59.

The inspectors did not identify any examples where commitment changes were not consistent with the guidance in NEI 99-04. The review of remaining license renewal commitment changes is scheduled to be completed during the Phase 2 implementation of inspection procedure 71003, scheduled to be performed in 2013.

.3 Newly-Identified SSCs

This inspection requirement will be completed during the Phase 2 implementation of inspection procedure 71003.

.4 Description of AMPs and Time-Limited Aging Analysis (TLAA) in the UFSAR Supplement

The review of the description of AMPs and TLAAs in the UFSAR supplement submitted pursuant 10 CFR 54.21(d) will be completed during the Phase 2 implementation of inspection procedure 71003.

b. Findings and Observations

No findings were identified. The inspectors determined that the licensee met the license renewal commitments, license conditions, and applicable regulatory requirements for the inspection samples selected for review. The inspectors determined that the overall implementation of AMP activities reviewed during the Unit 1 fall 2012 refueling outage was consistent with the license renewal commitments. The inspectors also determined that the licensee had administrative controls in place to ensure completion of pending actions scheduled both prior and during the PEO.

4OA6 Management Meetings

.1 Exit Meeting Summary

On November 1, 2012, the inspectors presented the inspection results to Mr. K. Polson, Site Vice President, and other members of the licensee staff. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel:

T. Rogers, License Renewal Engineer
J. Davenport, Licensing Engineer
J. Emens, Licensing Manager

NRC:

D. Dumbacher, Senior Resident Inspector
L. Pressley, Resident Inspector
C. Stancil, Resident Inspector

LIST OF REPORT ITEMS

Opened

None

Opened and Closed

None

Closed

None

Attachment

LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety, but rather, that selected sections of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance or endorsement of the document or any part of it.

Procedures

0-TI-565, One-Time Inspection Procedure, Rev. 05
N-UT-26, Ultrasonic Examination for the Detection of ID Pitting, Erosion, and Corrosion, Rev. 26
0-TI-567, Selective Leaching Program Inspections, Rev. 05
MCI-0-000-CKV006, Generic Maintenance Instructions for Wafer Check Valves, Revision 4

Work Orders

WO 10518971, License Renewal to document thermography inspections of U1 Bus and document results of U1 Bus Insp
WO 113221054, Perform Inspection and Cleaning of the Switchyard Bus, Unit 1 between the Main 500 KV Transformers
WO 113273618, Contingency, License Renewal One-Time RW2 inspection of piping between 1-TV-071-0528 & 1-SHV-071-0527
WO 113680358, License Renewal One-Time RW2 Inspection BFN-1-CKV-077-0652
WO 112763854, License Renewal On—Time RW3/TW3 Inspection of the heat exchanger plates for BFN-1-HEX-068-0001AA
WO 112772844, License Renewal One-Time RW2-UT Inspections Sys 074 Piping

Drawings

DWG 1-47E811-1, Flow Diagram Residual Heat Removal System (Revision number not identified)
DWG 1-47-E813-1, Flow Diagram Reactor Core Isolation Cooling System, R035
DWG 0-47W482-4, Mechanical Radwaste Sump Pump Disch & Miscellaneous Piping, R007
DWG 1-47E852-2, Flow Diagram Clean Radwaste & Decontamination Drainage, R026
DWG 2-459725, Sheet 8 of 15, Drive Liquid-to-Liquid Heat Exchanger, Rev. G
DWG 1-47E822-2, Flow Diagram Raw Cooling Water, R049

Corrective Action Documents

PER 562226, License Renewal Focused Self-Assessment CRP-ENG-F-12-026 Deficiency
PER 618132, B2 East CRD Scram Discharge Volume HI WTR LVL SEN Relay
PER 623254, Underground Piping and Tanks Integrity Program commitment change

Other Documents

EPI-0-242-BUS001, Main Transformer, Unit Station Transformer and Associated Bus Work (Major Outage), Rev. 42
NCO 040006086, Perform one-time UT thickness measurements on cylindrical sections of Units 2 and 3 drywells
NCO 040006055, Inspection of Top Guide Beams
NCO 040006051, Implement Inspection of Weld TS-2 (BWRVIP-41)
NCO 040006083, Inspection of Overhead Heavy Load and Light Load Handling Systems
BFN-ENG-S-12-010, Snapshot Assessment Report for BFN License Renewal Implementation
Tennessee Valley Authority Browns Ferry Nuclear Plant, Unit 1, Docket No. 50-259, Renewed Facility Operating License, Renewed License No. DPR-33

BFN Units 1, 2, and 3 – License Renewal Application (LRA) – Revised Commitment List
BFN UFSAR Appendix O, Aging Management Programs

Attachment