



**License Renewal Inspection
Exit Meeting for
Tennessee Valley Authority (TVA)
Sequoyah Nuclear Plant
Units 1 and 2
(Category 1 Public Meeting)
December 17th, 2013**

Agenda

- **Meeting Objective**
- **License Renewal Activities to Date**
- **Team Inspection Exit Meeting**
 - **Inspection Objectives**
 - **Inspection Activities**
 - **Inspection Results**
 - **Meeting Summary**

Meeting Objective

To present the preliminary results of NRC's assessment of the scoping/screening methodology and implementation of aging management programs associated with TVA's application to extend the operating license of Sequoyah Nuclear Plant, Units 1 and 2.



License Renewal Application Review – Activities to Date

January 15, 2013	NRC Received License Renewal Application (ML13024A011)
March 11, 2013	NRC Audit – Scoping & Screening Methodology (ML13119A135)
March 18, 2013	NRC Audit – Aging Management Programs (ML13141A320)
April 3, 2013	Public Meeting – License Renewal Overview and Environmental Scoping Meeting (ML13114A107 & ML13114A124)
April 8, 2013	NRC Audit – Environmental
Oct. 25 – 29, 2013	NRC Inspection per Inspection Procedure
Nov. 18 – Dec 6, 2013	71002



License Renewal Inspection NRC Inspection Procedure (IP) 71002

Team Inspection Exit Meeting

Inspection Objectives (IP 71002):

- Verify consistency with the requirements of 10 CFR 54 and the license renewal application
- Verify adequacy of planned and existing programs
- Verify the information and documentation associated with the license renewal application

Inspection Requirements (IP 71002):

- Scoping and Screening Methodology of Structures, Systems, and Components
- Aging Management Programs for In-scope Structures, Systems, and Components
- Updates to the License Renewal Application and Open Items Inspection



NRC License Renewal Inspection IP 71002 Inspection Activities

Scoping and Screening Methodology:

- Selected the Essential Raw Cooling Water system for a review of scoping and screening results
- Reviewed scoping and screening evaluations
- Interviewed plant staff
- Conducted a walk-down of portions of the essential raw cooling water system



NRC License Renewal Inspection IP 71002 Inspection Activities

Aging Management Programs Inspection:

- Reviewed program implementing documents and use of operating experience
- Interviewed plant personnel
- Conducted walk-downs of selected structures, systems, and components
- Reviewed administrative controls for pending action items



NRC License Renewal Inspection IP 71002 Inspection Activities

Annual Updates and Open Items:

- Interviewed plant staff about the process and plans to update the license renewal application
- Verified that there were no open issues identified by other phases of the NRC review process
- Evaluated administrative controls for license renewal commitments



NRC License Renewal Inspection IP 71002 Inspection Results

Scoping and Screening Methodology:

- Selected structures, systems, and components associated with the Essential Raw Cooling Water (ERCW) system were scoped in accordance with 10 CFR 54.
- Two observations related to the screening of the following system components:
 - ERCW Buried Piping
 - ERCW Strainers



NRC License Renewal Inspection IP 71002 Inspection Results

Aging Management Programs Inspection:

- No significant aging issues related to the existing programs or the application.
- Existing programs were generally effective.
- Proposed programs would manage aging effects.
- Observations identified in this inspection area:
 - Operating Experience
 - Administrative Controls
 - Above Ground Metallic Tanks
 - Structures Monitoring Program



NRC License Renewal Inspection IP 71002 Inspection Results

Annual Updates and Open Items Inspection:

- No issues identified with TVA's plan to update the application
- Other than requests for additional information, there were no open license renewal issues
- Administrative controls were in place for regulatory commitments



NRC License Renewal Inspection IP 71002 Inspection

Conclusions:

- Scoping and screening performed in accordance with 10 CFR 54.
- Existing programs were generally effective in managing aging effects.
- Plans existed to implement enhancements and new programs.
- Information used to prepare the license renewal application was retrievable, auditable, and consistent with 10 CFR 54.



NRC License Renewal Inspection IP 71002 Inspection

Upcoming Activities:

- Final NRC review of inspection results
- NRC Inspection Report Numbers:
05000327/2013012 and 05000328/2013012
- Support to other milestones of the license renewal process



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Units 1 and 2**

Questions

**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE N.E., SUITE 1200
ATLANTA, GA 30303**

**License Renewal Inspection Exit Meeting for
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Sequoyah Nuclear Plant Units 1 and 2
(Category 1 Public Meeting)**

Inspection Exit Meeting Notes**

Presenters:

Harold O. Christensen, Deputy Director
Region II/Division of Reactor Safety (DRS)

Steven J. Vias, Chief
Region II/DRS/Engineering Branch 3 (EB3)

Joel E. Rivera-Ortiz, Sr. Reactor Inspector
Region II/DRS/EB3

**December 17th, 2013
Sequoyah Training Center
2460 Igou Ferry Road
Soddy-Daisy, TN 37379**

** NOTE: Actual presentation may have varied slightly from these notes.

SLIDE 1 (H. Christensen)

Good evening. My name is Harold "Chris" Christensen. I am the Deputy Director of the Division of Reactor Safety in the NRC Region 2 Office. We are responsible for implementing the NRC's Reactor Oversight Program in the areas of engineering, maintenance, radiological controls, emergency preparedness, security, operator license requalification, independent spent fuel storage installations, and license renewal.

We are meeting today to present the preliminary results of a license renewal inspection conducted at Sequoyah Nuclear Plant.

I want to personally thank you for taking your time to observe this meeting. I hope you will find it informative.

Before we get any farther along, I want to conduct introductions. As I just said, my name is Chris Christensen. I am the Deputy Director of the Division of Reactor Safety located in the NRC's Region II office in Atlanta, GA.

I will let the other members of the NRC staff with us tonight to introduce themselves.

Any NRC representatives joining us through the bridge line?

I would also like TVA representatives at the table to introduce themselves.

Do we have any Federal, State, or local elected officials or their representatives in the audience today? If so, could you please stand and introduce yourselves.

If there are any members of the press, would you please identify yourselves and your affiliation?

I want to thank the members of the TVA security team who are here tonight to watch for our safety and security.

I want to point out that in the unlikely event of an emergency in the building tonight requiring evacuation, please follow the TVA security staff to the identified emergency exits.

This meeting will be conducted as a Category 1 meeting, between the NRC and TVA. It will be open to public observation, and following the business portion of the meeting, we will take a very short break, after which the NRC staff will take questions from the audience related to the inspection scope and results.

At this time I would like to turn the meeting over to Steven Vias, who is the regional manager over this inspection activity.

SLIDE 2 (S. Vias)

Good Evening, My name is Steven Vias, Chief of Engineering Branch 3 out of Region 2 office in Atlanta.

Today's meeting is a meeting between the NRC and TVA to present the preliminary results of a license renewal inspection conducted at Sequoyah Nuclear Plant from October 25 to December 6 of this year.

Inspection exit meetings with licensee management are not typically held as public meetings, but because we are aware of the significant interest in the renewal of the operating license for Sequoyah Nuclear Plant and in an attempt to be as open and transparent as possible about our inspection and oversight of this facility, we have elected to conduct this meeting in a public format.

Our agenda tonight will consist of my presentation of the meeting objective and background information followed by the inspection team leader's presentation on the inspection scope and results.

We will then give TVA an opportunity to present their perspectives on the topics discussed.

Following any dialogue that may result from the presentations, the business portion of the meeting will be completed.

When you came in tonight, you should have received some handouts. I want to specifically speak to one; it is our public meeting feedback form. Your feedback is very important to us; it allows us to gauge where we have been successful in meeting our goals of being open and transparent in our regulatory oversight of this facility and where we may have opportunities to continue to work to better serve the local community's needs.

So, please take a few minutes and provide us your feedback through any of the 3 options provided in the form.

SLIDE 3 (S. Vias)

The main objective of this meeting is to present the preliminary results of the NRC's inspection of the scoping and screening methodology and implementation of aging management programs associated with TVA's application to extend the operating license of Sequoyah Nuclear Plant, Units 1 and 2.

The scoping and screening processes are critical steps in the preparation of the license renewal application since they identify the structures, systems, and components subject to aging management in accordance with the regulations. This process also identifies the applicable aging effects that need to be managed via aging management programs to maintain the function of plant equipment throughout the period of extended operation

SLIDE 4 (S. Vias)

I want to briefly discuss some of the major activities completed by the NRC to date for the review of the Sequoyah license renewal application.

On January 15, 2013, the NRC received the license renewal application submitted by TVA to extend the operating license of Sequoyah Nuclear Plant, Units 1 and 2, for a period of 20 years. The current operating licenses for Unit 1 and 2 expire at midnight on September 7, 2020 and September 15, 2021, respectively.

Between March and April 2013, the NRC conducted several audits as part of the license renewal review process. In March the NRC conducted audits of the scoping and screening methodology used by TVA to prepare the application. In April the NRC conducted an environmental audit and held a public meeting to discuss the license renewal and environmental scoping process for the license renewal application review. This meeting also provided members of the public with the opportunity to provide comments regarding environmental issues that the NRC should consider during its review.

And most recently, from October to December 2013, the NRC conducted inspections of the scoping and screening process, and aging management programs in accordance with NRC inspection procedure 71002. This meeting specifically presents the results of these inspection activities.

SLIDE 5 (S. Vias)

At this time I would like to turn the next part of the meeting over to Joel Rivera who was the team leader of this inspection.

SLIDE 5 (J. Rivera)

Good evening, my name is Joel Rivera, Sr. Reactor Inspector out of NRC's Region 2 office in Atlanta and team leader of this inspection.

During the weeks of October 25, November 18, and December 2, 2013, the NRC conducted inspections at your Sequoyah Nuclear Plant in accordance with NRC Inspection Procedure 71002 to support the NRC's review of the license renewal application that TVA submitted in January 2013.

The rest of the team members were:

Louis Lake, Sr. Reactor Inspector in the Region 2 Office

Manuel Crespo, Sr. Fuel Facility Inspector in the Region 2 Office

Brendan Collins, Reactor Inspector in the Region 2 Office

Paula Cooper, Reactor Inspector in the Region 2 Office

Bart Fu, Materials Engineer from the Division of License Renewal in the Office of Nuclear Reactor Regulation who is joining us via phone

I would like to provide our **conclusions** up front and then discuss the inspection activities and team's observations which supported these conclusions.

On the basis of the sample selected for review, the team determined that license renewal activities were consistent with the provisions in the Code of Federal Regulations. The team also determined that the proposed aging management programs, when implemented in accordance with the application, your response to NRC requests for information, regulatory commitments, and applicable quality assurance measures will provide reasonable assurance that aging effects of structures, systems, and components will be managed to maintain their intended functions.

The team also found that documentation used to support the application was retrievable, auditable, and consistent with the Code of Federal Regulations.

SLIDE 6 (J. Rivera)

This team inspection had three major objectives.

The first objective was to verify that your license renewal program, including supporting activities, were planned or implemented consistent with the requirements of Title 10 of the Code of Federal Regulations, Part 54 and the license renewal application.

The second objective was to verify that your staff had adequate programs planned or in place to implement aging management for the systems, structures and components that require an aging management review, in order to maintain their intended functions in accordance with Part 54, existing NRC safety evaluations, and your license renewal program.

The third objective was to verify that the information and documentation required to document compliance with Part 54 were retrievable, auditable, and consistent with the regulations and TVA's programs and procedures.

SLIDE 7 (J. Rivera)

In order to meet the inspection objectives, the team conducted inspection activities in three specific areas as directed by inspection procedure 71002. These three areas were: (a) scoping and screening methodology of structures, systems, and components; (b) Aging Management Programs for those structures, systems, and components identified in the scoping and screening process; and third, (c) the review of updates to the application and open items.

We will discuss the specific inspection activities and results in each one of these areas in the next part of the presentation.

SLIDE 8 (J. Rivera)

For the inspection of screening and scoping methodology, the team selected the Essential Raw Cooling Water System to verify, on a sampling basis, that the system was scoped in accordance with Part 54 and applicable structures, systems, and components received an aging management review. The team selected this system because of its safety-related function, its risk significance, and its interactions with other plant systems and components in the plant.

The team reviewed scoping and screening evaluations along with license renewal boundary drawings to identify the system's interactions, especially the boundaries between safety-related and non-safety-related components. This review was conducted to verify that non-safety related components whose failure could affect the safety related function of the system were included within the scope of license renewal as required by Part 54. The team also reviewed aging management evaluations to verify that your staff accounted for all possible environmental aging effects and programs were identified to manage the applicable aging effects.

The team also interviewed plant personnel about the scoping and screening methodology used for the system components and surrounding structures.

The inspectors conducted walk-downs of portions of the system to verify that scoping and screening results were consistent with the application and supporting technical evaluations.

SLIDE 9 (J. Rivera)

For the inspection of aging management programs, the team selected all 43 programs credited in the license renewal application to manage the aging effects of structures, systems, and components in-scope of license renewal. The team selected a sample of plant structures and equipment within the scope of the programs to assess how the aging effects would be managed during the period of extended operation.

When available, the team reviewed program implementing procedures and samples of inspection, testing, and surveillance results to assess the implementation of the program as described in the application.

The review of aging management programs included technical reports documenting the evaluation of site-specific and industry operating experience considered during the preparation of the application.

The team also conducted interviews with plant personnel to discuss the implementation of existing programs and planned activities for enhancements and new programs.

The team conducted various walk-downs of plant areas to assess material conditions, effectiveness of existing programs, and verify that applicable aging effects had been accurately identified in the license renewal application.

Finally, the inspectors reviewed your administrative controls to obtain reasonable assurance that essential tasks necessary for the implementation of the programs would be completed prior to the period of extended operation.

SLIDE 10 (J. Rivera)

For the review of annual updates and open items, the team interviewed plant personnel about potential material changes to the application such as plant modifications or changes to the current licensing basis to verify that your staff was planning to revise the application in accordance with Part 54.

The team also contacted the NRC staff in the Office of Nuclear Reactor Regulation to identify any technical open items that needed additional review besides the issues captured in the request for additional information process.

And last, the team verified that official administrative controls were in-place to ensure that committed tasks were being tracked to be accomplished prior to and during the period of extended operation.

SLIDE 11 (J. Rivera)

Now we will present the results in each inspection area, starting with the results of the scoping and screening inspection.

Based on the inspection sample selected for review, the team determined that the Essential Raw Cooling Water (ERCW) system was adequately scoped in accordance with the criteria established in Part 54.

The team identified two observations related to the screening and aging management review of certain components in the ERCW system. These observations did not represent operability concerns with existing plant equipment and were entered into the corrective action program for resolution.

First, the team identified two locations containing underground piping components that were not fully described in the aging management review included in the license renewal application. These components are the discharge header valves upstream the ERCW discharge box and piping interfaces with out-of-service piping under the deck of the old pump station. The team determined that these locations contained new combinations of component, material, environment, and aging effects that were not fully characterized in the application. Your staff entered this issue in the corrective action program to revise the application as needed and identify the aging management programs to manage the applicable aging effects.

Similarly, the team identified that the ERCW system strainers located inside the intake pump house were frequently exposed to raw water as a result of normal strainer operation. The inspectors determined that the aging management review of the system in the license renewal application did not include "raw water" as part of the applicable environments for these strainers. Your staff entered this issue in the corrective action program to revise the application as needed and identify the aging management programs to manage the applicable aging effects.

SLIDE 12 (J. Rivera)

In the second inspection area, Aging Management Programs, the review of existing programs did not result in the identification of significant aging issues that reflected ineffective program implementation or major inconsistencies with the application. Based on the assessment of plant conditions during walk-downs and the review of program results, the team did not identify signs of significant degradation that were not managed or challenged the ability of structures, systems, and components to perform their design functions.

The team confirmed that several existing programs would be enhanced and new programs developed prior to the period of extended operation.

On the basis of the sample selected for review, the inspectors determined that the proposed programs, when implemented in accordance with the application, your response to NRC requests for additional information, regulatory commitments, and the applicable quality assurance measures will provide reasonable assurance that the applicable aging effects of those structures, systems, and components within the scope of license renewal will be managed during the period of extended operation in order to maintain their intended functions.

The inspectors identified four observations in this inspection area. These observations did not represent operability concerns with existing plant equipment and were entered into the corrective action program for resolution.

The first observation is related to the use of operating experience. The team noted that the plant-specific operating experience referenced in the application to demonstrate the effectiveness of the existing programs was based on the review of plant documents and

interviews with plant staff. However, the inspectors identified that some Operating Experience evaluations did not include comprehensive search criteria. Specifically, the team identified some examples of key word searches in the corrective action program system that were not fully representative of the aging issues potentially affecting the plant systems and structures.

The second observation is related to the administrative controls for aging management programs. The inspectors noted that the corrective action program and Commitment Tracking System were used to track the implementation of commitment action items associated with enhancements to existing programs and the creation of new programs. However, the inspectors identified that additional administrative controls for other key license renewal actions – besides the commitments – were not established to ensure that all programs (regardless if they are existing, enhanced, or new) are reliably implemented prior to and during the period of extended operation. The team recognized that your staff was aware, to some extent, of the need for such administrative controls, but no specific strategy or approach was defined at the time of this inspection. Some of the gaps associated with this observation involved creating administrative controls to ensure that:

- existing procedures credited for license renewal are adequately identified
- administrative controls to ensure that programs are governed by appropriate administrative procedures in order to maintain the program elements described in the application.
- administrative controls to ensure that program basis information is consolidated and easily available to facilitate effective knowledge transfer among program owners and ensure program sustainability, and
- administrative controls to ensure adequate closure of license renewal action items

The last two observations are associated with above ground tanks and structures within the scope of license renewal. During plant walk-downs, the team identified minor aging indications on some plant components; specifically the Unit 2 Refueling Water Storage Tank, the Condensate Storage Tank “A,” and a mechanical (piping) penetration for the Unit 1 shield building. The condition of these components did not represent a concern relative to the ability of the components to perform their intended function. The team determined that the new Above Ground Metallic Tanks program and the enhancements to the existing Structures Monitoring Program, as described in the application, would address the inspection of above ground tanks and shield building penetrations in more details, which provided reasonable assurance that aging effects identified by the team would be adequately managed during the period of extended operation

SLIDE 13 (J. Rivera)

In the third inspection area, the inspection of annual updates and open items, the inspectors did not identify any concerns with your process and plans to update the application. Based on discussions with your staff about the current plan to update the application, the team concluded that the staff was aware of the requirements in Part 54 to update the application on an annual basis and the types of changes that needed to be included.

The team also confirmed that there were no open license renewal technical issues identified by previous NRC reviews and audits that were not already addressed in docketed correspondence between TVA and the NRC, such as requests for additional information and associated responses.

Finally, the team confirmed that regulatory commitments for license renewal were being tracked in an official plant work control system to ensure completion prior to the period of extended operation.

SLIDE 14 (J. Rivera)

In conclusion, on the basis of the samples selected for review, the team determined that structures, systems, and components within the scope of license renewal were adequately identified in accordance with Part 54. The team concluded that your staff conducted aging management reviews of those structures, systems, and components in accordance with Part 54. Based on the sample of plant areas visually inspected and the review of program records, the team concluded that existing programs were generally effective in managing aging effects for applicable plant structures and equipment. The team confirmed that your staff had plans to implement enhancements and develop new aging management programs in accordance with the application. The team determined that the proposed aging management programs, when implemented in accordance with the application, your response to NRC requests for additional information, regulatory commitments, and applicable quality assurance measures, will provide reasonable assurance that aging effects will be managed to maintain the function of applicable structures, systems, and components. Additionally, the team confirmed that the information used to prepare the license renewal application was retrievable, auditable, and consistent with Part 54.

SLIDE 15 (J. Rivera)

The results of this inspection are preliminary and subject to further NRC review.

These inspection results will be documented in a standalone inspection report, NRC Inspection Report number 2013012. The inspection report should be issued within 45 days from today.

The results of this inspection will provide input to the remaining steps of the license renewal process, particularly the Advisory Committee on Reactor Safeguards Review and the recommendation from the Region 2 Regional Administrator for the approval or disapproval of the renewed operating license.

This concludes the discussion of inspection results, at this time I would like to turn the meeting over to S. Vias.

SLIDE 16 (S. Vias)

Do you have any questions about the inspection results presented to you?

We also want to give TVA the opportunity to provide any comments of our effort with respect to the inspection results and observations.

Thanks, at this time I would like to turn the meeting over to Chris Christensen for his closing remarks.

CLOSING REMARKS (H. Christensen)

I want to thank TVA staff for your comments and feedback tonight.

Also, I want to thank the TVA staff who directly supported this inspection. The inspection team appreciates the high quality support provided, which resulted in a productive inspection.

The results of this team inspection indicate that your staff has conducted a thorough review of plant specific information to identify the equipment in-scope of license renewal and propose adequate aging management programs to maintain the equipment design function during the period of extended operation.

The team noted that a large number of programmatic changes and inspections would be implemented prior to the period of extended operation to meet the aging management program descriptions and regulatory commitments in your license renewal application. We believe that it is essential for you to establish and maintain adequate administrative controls to ensure that all the necessary license renewal tasks are adequately identified and tracked to completion prior to the period of extended operation.

If the NRC approves the extension of your operating license, the post-approval inspection program will provide another opportunity to review the implementation of your aging management programs and verify consistency with the application, the conditions in your license, and the NRC's safety evaluation report prior to the period of extended operation.

This brings the business portion of the meeting to a close. After a five minute break we will reconvene and the NRC staff will answer questions from the audience.

Thank you for your attendance tonight.

Please travel home safely.