



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

December 2, 2015

MEMORANDUM TO: Scott A. Morris, Director  
Division of Inspection and Regional Support  
Office of Nuclear Reactor Regulation

FROM: Christopher G. Miller, Director */RA/*  
Division of License Renewal  
Office of Nuclear Reactor Regulation

SUBJECT: AGING MANAGEMENT INPUT FOR REACTOR OVERSIGHT  
PROCESS SELF ASSESSMENT TO FULFILL STAFF  
REQUIREMENTS MEMORANDUM FROM SECY-14-0016

The Commission, in staff requirements memorandum for SECY-14-0016 (ADAMS Accession No. ML14241A578), directed the staff to implement the inspection enhancements described in the Reactor Oversight Process (ROP) Enhancement Project (ADAMS Accession No. ML14017A338) related to aging management. The Commission also directed the staff to submit an information paper to the Commission by the end of 2015 reporting the progress. It was agreed that the Division of License Renewal (DLR) would provide input to the Division of Inspection and Regional Support (DIRS) for its 2016 ROP self-assessment to the Commission to fulfill the action in the staff requirements memorandum. The input on aging management is enclosed.

Enclosure:  
Aging management input to 2016 ROP Self-Assessment

CONTACT: Heather M. Jones, NRR/DLR  
(301) 415-4054

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ADAMS Accession No.: ML15309A306

<b>OFFICE</b>	LA:NRR/DLR/RPB2	PM:NRR/DLR/RSRG	BC:NRR/DLR/RSRG	D:NRR/DLR
<b>NAME</b>	IBetts	HJones	SBloom	CMiller
<b>DATE</b>	11/10/15	11/18/2015	11/20/2015	12/2/2015

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Memorandum to S. Morris from C. Miller, dated December 2, 2015

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ASSESSMENT TO FULFILL STAFF REQUIREMENTS MEMORANDUM FROM  
SECY-14-0016

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HJones

CMiller

JMarshall

SBloom

RFrahm

GLevasseur

SRose

## **INTRODUCTION**

On August 29, 2014, in response to SECY-14-0016 “Ongoing Staff Activities to Assess Regulatory Considerations for Power Reactor Subsequent License Renewal,” the Commission issued a staff requirements memorandum confirming that the current regulations were adequate for the review of subsequent license renewal applications. In this memorandum, the Commission directed the staff to do the following:

The staff should continue to implement the inspection enhancements described in the Reactor Oversight Process Enhancement Project (ML14017A338) related to aging management, i.e., the staff should integrate aging management inspection guidance into each existing and applicable ROP baseline inspection procedure and develop appropriate associated guidance and training.

The staff should submit an information paper to the Commission by the end of 2015 reporting the progress.

This action was assigned to the Division of Inspection and Regional Support (DIRS), however, the Division of License Renewal (DLR) agreed to provide input to the reactor oversight process (ROP) self-assessment that is issued to the Commission annually.

## **BACKGROUND**

At the time the ROP Enhancement Project effort began, three inspection procedures (IPs) had been updated to include limited aging management inspection guidance.

IP 71111.06, “Flood Protection Measures,” was updated to remind inspectors that bunkers/manholes within the scope of license renewal are subject to inspections as part of the licensee’s aging management program for inaccessible power cables for plants operating in the period of extended operation. The inspector also verifies that the licensee takes action to keep the cables dry and assess cable degradation in accordance with the licensee’s aging management program for inaccessible power cables.

IP 71111.21, “Component Design Basis Inspection,” was updated to instruct inspectors to determine whether aging management programs are effective in preventing component failures and ensure degradation is identified and corrected prior to loss of component function.

IP 71152, “Problem Identification and Resolution,” was updated to instruct inspectors to determine whether a system, structure or component (SSC) that has failed due to age-related degradation is being managed by an aging management program. If so, the inspector should also determine whether the activities in the aging management program are adequate to identify the aging effect prior to loss of the intended function of the system, structure or component, and whether the licensee’s corrective actions address the adequacy of the aging management program.

For the analysis phase of the ROP Enhancement Project review, the team used the information and knowledge from inspectors, recent events and results from previous inspections. DLR worked closely with its regional counterparts to understand which changes were necessary and how resources would be impacted. The team was sensitive to the fact that resources for

additional inspections would not be available. This would mean that other inspections would have to be removed from the baseline inspection program in order to add new aging management inspections to the program.

The team focused on the most non-intrusive method of inspecting aging management with the least amount of change to the existing and available inspection resources. The team also focused on leveraging existing inspections in baseline inspection program and limiting the scope of the review to equipment in the scope of license renewal at plants that are in the period of extended operation.

## **RESULTS**

As a result of the ROP Enhancement effort, aging management inspection and guidance has been integrated into the three existing baseline IPs as this was the most resource-neutral option that would fulfill the desired inspection objectives for aging management inspections. In addition, a one-time inspection to assess the effectiveness of aging management programs 5-10 years into the period of extended operation was incorporated into a license renewal IP listed in inspection manual chapter 2515, "Light-Water Reactor Inspection Program-Operations Phase" Appendix C, "Special and Infrequently Performed Inspections." Furthermore, ROP feedback forms recommending the incorporation of aging management inspection guidance into several baseline IPs have been submitted and remain to be dispositioned.

### **Integration into Existing Baseline IPs**

IP 71111.04, "Equipment Alignment," was updated to include an inspection requirement to observe whether there is indication of age-related degradation on SSCs. Inspection guidance was included to consider whether the observed degradation has been entered into the licensee's corrective action program at the appropriate threshold and ensure the degradation is being appropriately managed in accordance with an aging management program, if one exists for the degraded structure or component.

IP 71111.08, "Inservice Inspection Activities," was updated to remind inspectors that equivalent inspections performed to fulfill a license renewal activity may be credited as a sample under this IP.

IP 71111.17T, "Evaluations of Changes, Tests and Experiments and Permanent Plant Modifications," was updated to remind inspectors that changes to equipment may lead to a review of the updated final safety analysis report supplement for aging management.

### **Integration into License Renewal IP**

IP 71003, "Post-Approval Site Inspection for License Renewal," was updated to include an additional one-time inspection Phase that would occur 5-10 years into the period of extended operation to verify that the licensee is managing aging effects in accordance with the aging management programs described in the updated final safety analysis report. This inspection phase is intended to review the effectiveness of the licensee's aging management programs to ensure SSCs have maintained their ability to perform their intended function. The resources for

this phase of the inspection is being extracted from the other three phases within this same IP, resulting in no additional resources being requested to perform the inspection.

### **Outstanding ROP Feedback Forms**

ROP feedback forms recommending the incorporation of aging management inspections and guidance have been submitted and remain to be dispositioned for several inspection procedures.

In ROP feedback form 71111.05T-2056, DLR recommended updating IP 71111.05T, "Fire Protection Triennial," to include guidance to verify that the aging management program activities associated with fire protection equipment are being implemented in accordance with a renewed license.

In ROP feedback form 71111.07-2059, DLR recommended updating IP 71111.07, "Heat Sink Performance," to include guidance for the inspector to consider aging management program enhancements that resulted from the renewed license, if applicable, to determine which heat exchangers and/or heat sinks should be selected as samples for this inspection.

In ROP feedback form 71111.12-2061, DLR recommended updating IP 71111.12, "Maintenance Effectiveness," to include guidance to inspect the condition monitoring of structures identified in the licensee's Structures Monitoring Program documents which may have been updated as a result of the licensee renewal review process, to include specific quantitative and qualitative condition monitoring criteria derived from applicable industry standards.

In ROP feedback form 71111.20-2065, DLR recommended updating IP 71111.20, "Refueling and Other Outage Activities," to include guidance to ensure the licensee has corrective actions in place to correct degraded conditions. The procedure already includes guidance to inspect the supports, braces, and snubbers in the containment as soon as practical after shutdown to verify there is no damage or deformation due to excessive stress, water hammer, or aging.

In ROP feedback form 71111.21-2066, DLR recommended updating IP 71111.21, "Component Design Basis Inspection," to include additional guidance for evaluating age-related degradation in selected samples.

In ROP feedback form 71111.22-2067, DLR recommended updating IP 71111.22, "Surveillance Testing," to remind inspectors to consider, when selecting samples, that aging effects could increase the likelihood of failures in passive components and increased containment leakage. The procedure already includes guidance to review the licensee's corrective actions when degraded performance is identified.