

# AUDIT REPORT

Audit of NRC's License Renewal Program

OIG-07-A-15 September 6, 2007



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September 6, 2007

MEMORANDUM TO: Luis A. Reyes  
Executive Director for Operations

FROM: Stephen D. Dingbaum **/RA/**  
Assistant Inspector General for Audits

SUBJECT: AUDIT OF NRC'S LICENSE RENEWAL PROGRAM  
(OIG-07-A-15)

This report presents the results of the subject audit. The formal comments provided by your office on July 6, 2007, are presented in their entirety as Appendix E to this report. Appendix F contains OIG's response.

Please provide information on actions taken or planned on each of the recommendations within 30 days of the date of this memorandum. Actions taken or planned are subject to OIG follow-up as stated in Management Directive 6.1.

If you have any questions or wish to discuss other issues, please call Tony Lipuma at 415-5910 or me at 415-5915.

Attachment: As stated

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## **I. EXECUTIVE SUMMARY**

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### **BACKGROUND**

U.S. Nuclear Regulatory Commission (NRC) regulations limit the term of an initial nuclear reactor operating license to 40 years. However, the regulations also allow a license to be renewed for an additional 20 years given that the initial term was based on economic and anti-trust considerations, not technical limitations. Through technical research, NRC concluded that many aging phenomena are readily managed and therefore should not preclude renewal of a reactor license.

NRC published requirements for license renewal in the *Code of Federal Regulations* (CFR). 10 CFR Part 54<sup>1</sup> addresses operating safety issues – the main focus of this Office of the Inspector General (OIG) report. Part 54 was amended in 1995 to concentrate NRC's reviews on how licensees manage adverse effects of aging to provide reasonable assurance that plants will continue to operate in accordance with their current licensing basis for the period of extended operations.

### **PURPOSE**

The purpose of OIG's audit was to determine the effectiveness of NRC's license renewal safety reviews.

### **RESULTS IN BRIEF**

Overall, NRC has developed a comprehensive license renewal process to evaluate applications for extended periods of operation. However, OIG identified areas where improvements would enhance program operations. Specifically,

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<sup>1</sup>10 CFR Part 54, *Requirements for Renewal of Operating Licenses for Nuclear Power Plants*.

- License renewal reporting efforts need improvements
  - Reporting issues exist because the agency has not fully established report-writing standards or a report quality assurance process. As a result, those who read the reports could conclude that regulatory decisions are not adequately reviewed and documented.
- Guidance for removing licensee documents from audit sites could be clarified
  - Inconsistencies regarding removal of documents result from audit teams being prohibited by their management from removing licensee-supplied documents from audit sites, whereas the inspectors do keep such documents to assist in report writing. As a result, it is more difficult for audit team members to write their reports without using workaround tools.
- Consistent evaluation of operating experience would improve NRC reviews
  - Although expected to, audit team members do not consistently review or independently verify licensee-supplied operating experience information because program managers have not established requirements and controls to standardize the conduct and depth of such reviews. Consequently, license renewal auditors may not have adequate assurances that relevant operating experience was captured in the licensee's renewal application for NRC's consideration.
- More attention is needed to planning for post-renewal inspections
  - Post-renewal inspections are considered vital to ensure that licensees adhered to commitments made for license renewal. However, the agency has only recently focused its attention on developing and overseeing details associated with these inspections. Inadequate planning increases the risk that: licensees could enter into the extended period of operation without being in full compliance with license renewal terms; inspections will

be inconsistently implemented; and inspection and technical support resources will be unavailable when needed.

- License renewal issues need evaluation for backfit application
  - When NRC imposes new staff positions resulting in new review standards, a documented justification is required pursuant to the backfit rule. However, new license renewal review standards have not followed NRC's backfit policy because NRC does not have a mechanism or methodology to trigger such a backfit review. Consequently, the use of different review standards without a backfit justification may result in several management challenges.

## **RECOMMENDATIONS**

This report makes eight recommendations to help NRC improve the effectiveness of its License Renewal Program. Seven of the recommendations are addressed to the Executive Director for Operations. In consideration of the agency's formal comments concerning the applicability of the backfit rule to license renewal applicants, the last recommendation is directed to the Commission. A Consolidated List of Recommendations appears in Section IV.

## **OIG ANALYSIS OF AGENCY COMMENTS**

On May 8, 2007, OIG issued its draft report to the Executive Director for Operations. On July 6, 2007, the Deputy Executive Director for Reactor Programs provided a formal response to this report in which the agency disagreed with OIG's finding regarding applicability of the backfit rule to license renewal applicants. The agency's transmittal letter and specific comments on this report are included in their entirety as Appendix E.

This final report incorporates revisions made, where appropriate, as a result of the subsequent meetings with staff and the agency's written comments. Appendix F contains OIG's analysis of the agency's formal response.

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## **ABBREVIATIONS AND ACRONYMS**

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ACRS	Advisory Committee on Reactor Safeguards
ADAMS	Agencywide Documents Access and Management System
CFR	<i>Code of Federal Regulations</i>
DLR	Division of License Renewal
FY	fiscal year
GALL	<i>Generic Aging Lessons Learned</i>
ISG	Interim Staff Guidance
LRA	license renewal application
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
OGC	Office of the General Counsel
OIG	Office of the Inspector General
SOC	Statement of Considerations
SSC	systems, structures, and components



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## **TABLE OF CONTENTS**

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EXECUTIVE SUMMARY.....	i
ABBREVIATIONS AND ACRONYMS .....	v
I. BACKGROUND .....	1
II. PURPOSE.....	6
III. FINDINGS .....	7
A. LICENSE RENEWAL REPORTING EFFORTS NEED IMPROVEMENTS .....	7
B. GUIDANCE FOR REMOVING LICENSEE DOCUMENTS FROM AUDIT SITES COULD BE CLARIFIED .....	14
C. CONSISTENT EVALUATION OF OPERATING EXPERIENCE WOULD IMPROVE NRC REVIEWS.....	18
D. MORE ATTENTION IS NEEDED TO PLANNING FOR POST-RENEWAL INSPECTIONS.....	24
E. LICENSE RENEWAL ISSUES NEED EVALUATION FOR BACKFIT APPLICATION.....	31
IV. CONSOLIDATED LIST OF RECOMMENDATIONS .....	36
V. AGENCY COMMENTS .....	39
 <u>APPENDICES</u>	
A. SCOPE AND METHODOLOGY .....	41
B. NRC'S DUAL-TRACK LICENSE RENEWAL REVIEW PROCESS .....	43
C. OIG CONTENT ANALYSIS .....	45
D. EXAMPLES OF LICENSE RENEWAL APPLICATION TEXT REPEATED IN NRC DOCUMENTS .....	49
E. FORMAL AGENCY COMMENTS .....	51
F. OIG ANALYSIS OF AGENCY COMMENTS.....	55

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## I. BACKGROUND

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The Atomic Energy Act of 1954, as amended, and U.S. Nuclear Regulatory Commission (NRC) regulations limit the term of an initial nuclear reactor operating license to 40 years. The regulations also allow a license to be renewed for an additional 20 years given that the initial term was based on economic and anti-trust considerations, not technical limitations. Nonetheless, NRC recognizes that some plant systems, structures, and components (SSC) may have been engineered with the expectation of a limited 40-year service life. Through technical research, NRC concluded that many aging phenomena are readily managed and therefore should not preclude renewal of a reactor license.

In the early 1990s, NRC published requirements for license renewal in the *Code of Federal Regulations* (CFR). 10 CFR Part 51 addresses environmental issues.<sup>2</sup> 10 CFR Part 54<sup>3</sup> addresses operating safety issues – the main focus of this Office of the Inspector General (OIG) report. Part 54 was amended in 1995 to concentrate NRC's reviews on how licensees manage adverse effects of aging to provide reasonable assurance that plants will continue to operate in accordance with their current licensing basis for the period of extended operations.

In July 2001, NRC issued NUREG-1801, *Generic Aging Lessons Learned (GALL) Report*, as the agency's primary technical basis document for NRC-approved programs for managing the aging of a large number of structures and components that are subject to aging management reviews.

### ***Agency Assumptions***

The two key principles of license renewal are: 1) NRC's existing regulatory process adequately ensures that currently operating plants will continue to maintain adequate levels of safety during extended operation, with the possible exception of detrimental

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<sup>2</sup> In response to the National Environmental Policy Act, NRC also pursued an environmental rule, 10 CFR Part 51, *Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions*, revised 1996.

<sup>3</sup> 10 CFR Part 54, *Requirements for Renewal of Operating Licenses for Nuclear Power Plants*.

effects of aging on certain SSCs, and a few other issues that may arise during the period of extended operation; and 2) each plant's licensing basis is required to be maintained during the renewal term in the same manner and extent as during the original licensing term. NRC incorporates the following assumptions into its reviews of license renewal applications:

- an applicant should rely on the plant's current licensing basis,<sup>4</sup> actual plant-specific experience, applicable industry-wide operating experience, and existing engineering evaluations to determine which plant SSCs are the initial focus of a license renewal review; and
- a plant's "active" components<sup>5</sup> do not require additional review during license renewal because aging effects of active components are more readily detected and corrected through routine surveillance and maintenance. Therefore, the license renewal process limits its reviews to "passive and long-lived" plant structures and components,<sup>6</sup> time-limited aging analyses,<sup>7</sup> and aging management programs for renewal-related components.

### ***Review Process and Program Responsibilities***

In order to assess the reliability of its assumptions about aging, NRC uses a review process that proceeds along two parallel tracks:

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<sup>4</sup> "Current licensing basis" is the set of NRC requirements applicable to a specific plant and a licensee's written regulatory commitments for ensuring compliance and operation within applicable NRC requirements and the plant-specific design basis that are docketed and in effect.

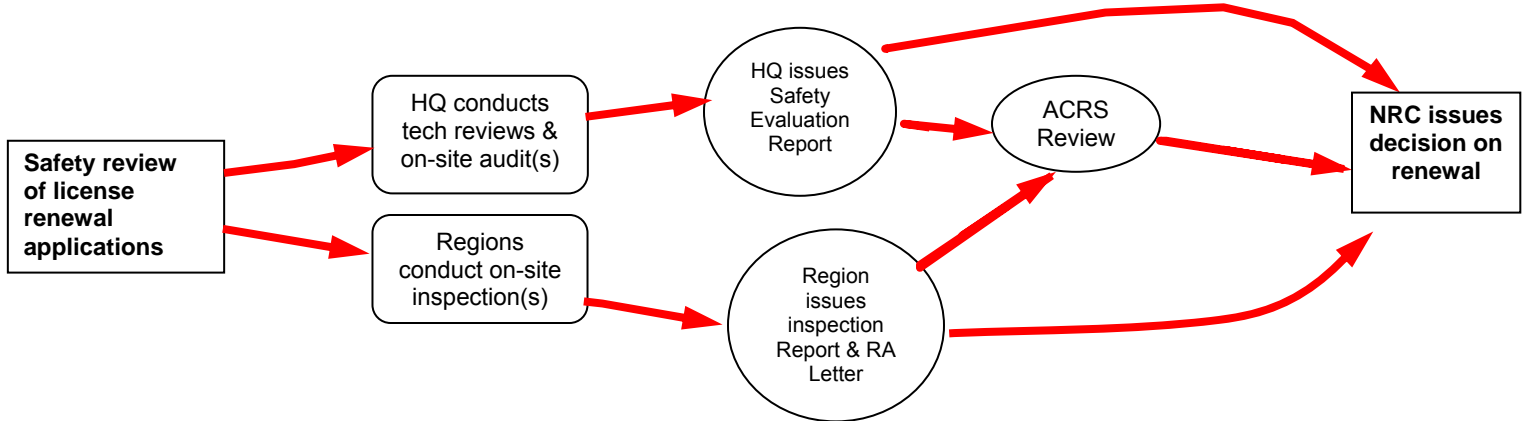
<sup>5</sup> "Active" components include motors, diesel generators, cooling fans, batteries, relays, and switches.

<sup>6</sup> "Passive" and "long-lived" structures and components are those that perform an intended function without moving parts or a change in properties, and those not subject to replacement based on qualified life or specified time period, respectively. Passive and long-lived SSCs include reactor vessels, reactor coolant system piping, steam generators, pressurizers, pump casings, and valve bodies.

<sup>7</sup> "Time-limited aging analyses" are licensee calculations and analyses that: involve SSCs within the scope of license renewal; consider aging effects; involve assumptions defined by the current 40-year operating term; are relevant for making a safety decision; involve basis for decision that SSCs are capable of performing their intended functions; and are contained in or referenced in the current license basis.

a safety review (Part 54) and an environmental review (Part 51). Figure 1 reflects a simplified license renewal safety review process. (See Appendix B for the NRC's dual-track license renewal review process.)

**Figure 1**  
**Simplified Safety Review Process**



Source: OIG-creation based on NRC information

As reflected in Figure 1, the safety review process consists of headquarters-based technical reviews, on-site audits, and region-based inspections. Primary responsibility for the license renewal program lies within NRC's Office of Nuclear Reactor Regulation (NRR), Division of License Renewal (DLR). DLR project teams, consisting of technical auditors and engineer consultants, perform on-site audits to review the supporting documentation for those aging management programs and aging management reviews cited in the licensee's application as consistent with the *GALL Report* or based on NRC-accepted past precedence. Concurrently, NRR's headquarters-based engineering divisions review scoping and screening of SSCs, plant-specific aging management programs and aging management reviews, and other items not addressed in the *GALL Report* (e.g., unresolved or emergent issues). The results of the NRC staff's review are documented in a safety evaluation report.

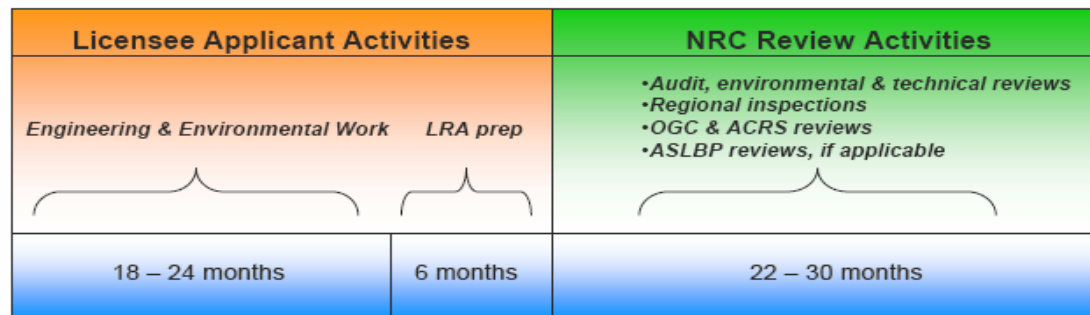
Additionally, teams of specialized inspectors from NRC's four region offices travel to the reactor sites to verify the licensees' claims that current or proposed aging management programs will be effective.

The Advisory Committee on Reactor Safeguards (ACRS) acts as an independent third-party oversight group who reviews safety evaluation report findings as well as inspection report findings and makes recommendations on the renewal application to the Commission. Throughout the process, NRC's Office of the General Counsel (OGC) provides legal and regulatory interpretations as needed and formally reviews and concurs on the safety evaluation reports. When applicable, the Atomic Safety and Licensing Board rules on stakeholders' requests for license renewal hearings.

**Application Review Timelines and Costs <sup>8</sup>**

As shown in Figure 2, renewal application processing can take more than 4 years – approximately 2 years and \$20 million is spent by licensees to research, document, and prepare a license renewal application for submission. For NRC's review and decision on an application, it typically takes 22 months and \$4 million without a hearing, and a projected 30 months<sup>9</sup> with a hearing.

**Figure 2  
Application Preparation and Review Process**



<sup>8</sup> Regulations allow for renewal applications to be submitted as early as 20 years before expiration of a current license, but licensees technically have until the end of their 40-year license to apply for an extension. However, NRC notes that if a "sufficient" application is not submitted at least 5 years prior to license expiration, a plant may have to cease operations until the renewal decision is made.

<sup>9</sup> OIG notes that NRC's projected 30-month schedule, including a hearing, has not yet been tested because none of the license renewals granted to date went through a hearing process.

### ***Status of License Renewals***

The agency's extensive experience with license renewal issues began in 1982. As of April 2007, approximately one-half of the Nation's licensed reactors have either received renewed licenses or are currently under review. Specifically, license extension requests for 48 of the 104 licensed power reactor units in the U.S. have been reviewed and approved. Additionally, eight renewal applications are currently under review while licensees representing an additional 23 plants have announced intentions to submit renewal applications through 2013.

### ***Proactive License Renewal Program Features***

NRC incorporated several features into the license renewal program that correspond to the agency's Principles of Good Regulation. For example,

- Several facets of openness are built into the process for public involvement, including open meetings and opportunities to request an adjudicatory hearing.
- For a more efficient license renewal review process:
  - the *GALL Report* was developed to document the basis for determining whether existing programs are adequate and for identifying those programs that warrant particular attention during NRC's review of a license renewal application,
  - NRC Regulatory Guide 1.188<sup>10</sup> helps standardize the format and content of license renewal applications, and
  - the audit function enables NRC staff to review more applications simultaneously by reducing the need for requests for additional information.

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<sup>10</sup> Regulatory Guide 1.188, *Standard Format and Content For Applications to Renew Nuclear Power Plant Operating Licenses*.



- Some NRC staff and industry representatives made favorable comments to OIG about the clarity of NRC's guidance regarding the expected content for a renewal application and NRC's adherence to its established review schedule, which provides reliable planning assistance to NRC technical engineering divisions and future license renewal applicants.

## **II. PURPOSE**

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The purpose of OIG's audit was to determine the effectiveness of NRC's license renewal safety reviews. Appendix A provides a detailed description of the audit's scope and methodology.

### **III. FINDINGS**

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Overall, NRC has developed a comprehensive license renewal process to evaluate applications for extended periods of operation. However, OIG identified areas where improvements would enhance program operations. Specifically,

- A. license renewal reporting efforts need improvements,
- B. guidance for removing licensee documents from audit sites could be clarified,
- C. consistent evaluation of operating experience would improve NRC reviews,
- D. more attention is needed to planning for post-renewal inspections, and
- E. license renewal issues need evaluation for backfit application.

#### **A. NRC's License Renewal Reporting Efforts Need Improvements**

Improvements to the staff's reporting efforts could provide necessary support for NRC's license renewal decisions. Adequate documentation of review methodologies and support for staff conclusions in license renewal reports is important for supporting the sufficiency and rigor of NRC's review process. However, the NRC staff does not consistently provide adequate descriptions of audit methodology or support for conclusions in license renewal reports. This is because DLR has not fully established report-writing standards and does not have a report quality assurance process to ensure adequate documentation. As a result, stakeholders and others who read the reports could conclude that regulatory decisions are not adequately reviewed and documented.

##### **Review Documentation Standards and Current Guidance**

NRC's license renewal reviews must be supported to demonstrate the adequacy and rigor of NRC's review process. One way to accomplish this is to have documentation to support conclusions in NRC's license renewal reports, which include the license renewal

audit, inspection, and safety evaluation reports. DLR's audit guidance also acknowledges the importance of documentation for reaching conclusions in the audit reports.

DLR is responsible for conducting on-site audits of the license renewal applications. The license renewal auditors, referred to internally as the project team, use a handbook titled, *Project Team Guidance for License Renewal Application Safety Reviews*, to guide the conduct of the audit. A peer review checklist in the *Project Team Guidance* reminds the reviewer to make sure the conclusions in the audit report are supported by adequate technical bases.

### **Review Methodology and Conclusions are Not Fully Described in Reports**

License renewal audit, inspection, and safety evaluation reports do not provide full descriptions of the methodology the staff used to review an aging management program or provide full support for the staff's conclusions. In some cases, the language presented in the audit and safety evaluation reports mirrors the language provided by the licensee in its license renewal application, which, according to NRC, may have been taken by the licensee out of the *GALL Report* and placed in the application.

OIG performed a content analysis of audit, inspection, and safety evaluation reports for a judgmental sample<sup>11</sup> of license renewal applications submitted between September 2000 and January 2006.<sup>12</sup> For its analysis, OIG focused on narrative passages in the applications and reports that addressed the operating experience program element for a selection of aging management programs.<sup>13</sup> OIG's analysis resulted in 458 report narrative samples.

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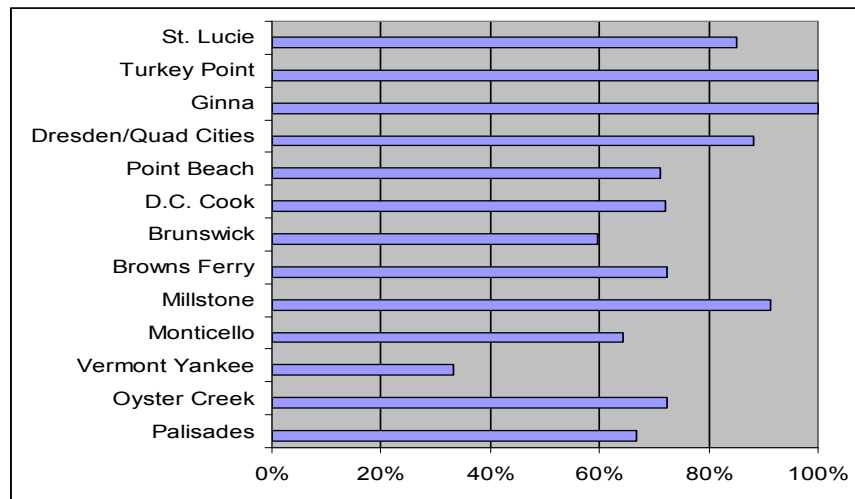
<sup>11</sup> Results of this judgmental sample are limited to the population of license renewal applications sampled.

<sup>12</sup> The judgmental sample of applications represents a cross-section of plant ages, technologies, year of renewal, NRC application review process used, and NRC region. A detailed description of OIG's content analysis methodology is presented in Appendix C.

<sup>13</sup> Operating experience is one of ten GALL program elements that a licensee's aging management program must satisfy in order to secure approval from NRC.

OIG found that approximately 76 percent of the audit, inspection, and safety evaluation report samples did not provide substantive NRC comments about operating experience. Operating experience is a critical facet of the review process. For its analysis, OIG defined non-substantive samples as those that 1) did not describe *any* review methodology for operating experience or provide *any* specific support for the staff's conclusions; or 2) provided information that was identical or nearly identical to the information provided in the licensee's renewal application. Figure 3 depicts, by plant license renewal application, the percent of report samples that did not provide substantive NRC comments about operating experience.

**Figure 3**  
**Percent of Report Samples Lacking Substantive Operating Experience Comments, by Plant**



Source: OIG analysis of NRC license renewal audit, inspection, and safety evaluation reports; and of license renewal applications.

In some cases, the identical or nearly identical word-for-word repetition of renewal application text found in the audit, inspection, or safety evaluation reports are not offset or otherwise marked to indicate the text is identical to that found in the license renewal application. The lack of precision in differentiating quoted and unquoted text makes it difficult for the reader to distinguish between the licensee-provided data and NRC staff's independent assessment methodology and conclusion. A reader could conclude that they were reading NRC's independent analysis and conclusions when, in fact, it was the licensee's conclusions. While

NRC reviewers may have actually performed such an independent review, a comparison between the license renewal application and the audit report may cast doubt as to what, exactly, NRC did to independently review the licensee's program other than restate what was provided in the renewal application.

For example, NRC's narrative description of operating experience for Millstone's flow-accelerated corrosion program is nearly identical to the description provided in the licensee's renewal application. NRC's Millstone audit report, shown on the right side of Table 1 below, presents information about the trending successes in the Millstone flow-accelerated corrosion program and gives the appearance of the audit team's independent review and analysis. In fact, this passage is nearly identical to that presented in the license renewal application, shown in the left column of the table. Moreover, while NRC states that the project team reviewed operating experience, there is no discussion of what precisely was reviewed.

**Table 1**  
**Sample Comparison of Licensee and NRC Report Narrative<sup>14</sup>**

<b>Millstone Unit 2 renewal application</b>	<b>NRC's Millstone renewal audit report</b>
<p><i>The number of planned and unplanned replacements has generally trended downward over the past several years due to the establishment of the Flow-Accelerated Corrosion program and following the recommendations identified in NSAC-202L. (p. B-42)</i></p>	<p><i>The project team reviewed operating experience for the applicant's Flow-Accelerated Corrosion program. The number of planned and unplanned replacements has generally trended downward over the past several years due to the establishment of the Flow-Accelerated Corrosion program and following the recommendations identified in NSAC-202L. (p. 67-8)</i></p>

Source: OIG analysis

<sup>14</sup> Additional examples are provided in Appendix D.

NRC staff stated that when the licensee claims an aging management program is consistent with the *GALL Report*, the licensee may copy the operating experience from the *GALL Report*, and the safety evaluation report may copy the application. However, OIG's analysis shows that—for the audit, inspection, and safety evaluation reports sampled—the staff's description of the methods used and the support they provided for their conclusions often lack substance.

### **Staff Report-Writing Standards Are Not Fully Established**

DLR management has not fully established report-writing standards for describing the license renewal review methodology and providing support for conclusions in NRC license renewal audit, inspection, and safety evaluation reports. DLR managers said that they expected license renewal staff to use their own language and avoid copying directly from the license renewal application when writing renewal reports. The managers said they are aware of the importance of demonstrating NRC's independence in the license renewal reviews. DLR managers also said that they have verbally communicated and stressed their expectations to the staff. Yet, the *Project Team Guidance* does not reiterate these expectations or provide any report-writing standards that would support management's expectations. The *Project Team Guidance* instead focuses on the process of compiling the audit and safety evaluation reports and not on the quality of information presented in these reports.

DLR management pointed to some report quality assurance tools that involved audit team leader, peer group, and branch chief reviews of the audit and safety evaluation reports. DLR places the greatest emphasis on the audit team leader review to control report quality. DLR management and staff said that the peer review, conducted near the end of the report-writing process, is not a page-by-page review of the audit and safety evaluation reports but is primarily a spot review seeking to correct major mistakes in the reports. However, these tools have not ensured that the reports contain substantive documentation of NRC's application review methodology and independent support for staff conclusions.

Essentially, DLR lacks a complete report quality assurance process to ensure documentation of the staff's aging management program review methodology and substantive support for staff conclusions.

While the team leader and peer review tools currently in place could form the basis of a report quality assurance process, DLR does not currently have any way to measure or determine the effectiveness of these team leader and peer reviews. Nor does the Division have procedures that would specify additional report quality assurance steps to take, given a pattern or trend in discovered problems. Such procedures would help DLR management refine the report quality assurance process to meet the quality assurance needs of the audit teams and division directors, as well as those—like ACRS members—who depend on the audit and safety evaluation reports for their review responsibilities.

### **NRC Basis for Conclusions Important to Stakeholders**

The basis for conclusions reached by NRC license renewal review staff is important to stakeholders and others who read NRC's reports. The lack of an effective report quality assurance process to ensure that review methodology and support for conclusions are provided in the license renewal reports could lead readers to conclude that regulatory decisions are not adequately reviewed and documented. Furthermore, providing more substantive analysis and conclusions would help NRC better meet its strategic goal of transparency.

NRC internal users—such as members of the ACRS—benefit from more substantive discussions of license renewal review methodologies and support for conclusions. ACRS members said that they rely on information in all of the license renewal reports, and pointed specifically to the value of the level of detail in the audit reports.

### **RECOMMENDATIONS:**

OIG recommends that the Executive Director for Operations:

1. Establish report-writing standards in the *Project Team Guidance* for describing the license renewal review methodology and providing support for conclusions in the license renewal reports.

2. Revise the report quality assurance process for license renewal report review to include:
  - establishing management controls for NRR and DLR management to gauge the effectiveness of team leader and peer group report reviews, and
  - implementing procedures that would specify additional report quality assurance steps to be taken in the event that the team leader and peer group report reviews fail to ensure report quality to management's expectations.



## **B. Guidance for Removing Licensee Documents from Audit Sites Could Be Clarified**

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OIG found inconsistencies in the guidance provided to license renewal auditors with regard to removing licensee documents obtained at audit sites. License renewal audit teams should collect and document the information they review during site visits. However, audit teams are prohibited by DLR from removing licensee documents from the audit site, which makes it more difficult for audit team members to write their reports without using workaround tools. DLR's policy also creates document handling inconsistencies with inspectors, who do keep documents obtained from the licensee's site.

### **Information Collection Guidance**

As noted earlier, the license renewal audit team uses the *Project Team Guidance*, to guide the conduct of the audit. With regard to documentation, the *Project Team Guidance* exhorts auditors to "properly collect and document the information they review during site visits," especially for information used as a basis for reaching a conclusion regarding the audit and safety evaluation reports.

### **Audit Teams Prohibited from Removing Licensee Documents from Audit Site**

License renewal audit teams, as a matter of DLR policy, are prohibited by their management from removing copies of licensee-provided documents from the audit site. The licensee provides an extensive amount of bases and technical documents for DLR auditors. DLR auditors review these documents for information that may answer their questions about the license renewal application. Licensee staff may exert great effort to make multiple copies of documents available, both in hard copy and on compact disc. Because DLR management prohibits auditors from removing licensee-provided documents, auditors use the time available on-site to peruse the documents and interview licensee staff.

License renewal auditors said that being allowed to take documents offsite would aid them in writing and supporting their audit and safety evaluation report inputs. They thus resorted to removing documents provided by the licensee in violation of the Division's policy.

DLR management's policy to prohibit license renewal auditors from removing licensee-provided documents from the audit site is also contrary to the policy and practice for license renewal inspectors. For example, NRC region-based license renewal inspectors said that the renewal inspection teams can and do take documents from the site. The inspectors said it is standard procedure to dispose of licensee documents once their report is written.

### **Guidance for Removing Licensee Documents from Audit Sites is Inconsistent**

OIG found inconsistencies in the guidance provided to license renewal auditors with regard to removing copies of licensee-provided documents from audit sites. DLR management provides the audit teams with verbal guidance to never remove licensee documents obtained from the audit site. However, DLR's *Project Team Guidance* appears to permit some removal of licensee documents from an audit site, as indicated on page 26:

*“The project team shall not take documents from an applicant’s site for in-office review, unless the documents are either already in ADAMS or the applicant agrees that the NRC can put the document in ADAMS.”<sup>15</sup>*

Elsewhere, the *Project Team Guidance* states that “if the documentation cannot go on the docket or into ADAMS then it cannot be taken off site.” A more permissive document removal policy is provided to inspectors through Inspection Manual Chapter 0620.<sup>16</sup> It provides a number of acceptable practices for obtaining licensee documents, including sending an inspector to the site or using the licensee’s equipment to make copies of relevant materials. The guidance states that copies of licensee records and documents may be reviewed offsite with the licensee’s permission.

When asked the reason for the more restrictive verbal removal policy, DLR managers echoed the rationale provided by the *Project Team Guidance*. They said that most documents provided by the

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<sup>15</sup> ADAMS is NRC's Agencywide Documents Access and Management System.

<sup>16</sup> Inspection Manual Chapter 0620, *Inspection Documents and Records*, dated January 27, 2006.

licensee at the audit site have not been docketed by NRC and, therefore, DLR does not want license renewal auditors to bring the undocketed items back to headquarters. According to DLR management, OGC told NRR staff that all documents that NRC auditors bring back "must be docketed."

A senior attorney involved with the License Renewal Program said that OGC warned NRR management not to take documents unless they are willing to "give them up" through a Freedom of Information Act request or via a mandatory disclosure requirement for a hearing. The OGC attorney could not identify any specific guidance that required NRC to put licensee documents on the docket, and admitted that NRC's criteria regarding what licensee documents must be docketed by the agency is unclear.

The OGC attorney also said that the practice among region-based inspectors to remove licensee-provided documents from a license renewal site is acceptable. However, the attorney expressed concern about the inconsistent practices of the license renewal audit and inspection staffs regarding the removal of documents from license renewal sites.

### **Consequences of DLR's Documentation Policies and Practices**

DLR's prohibition on its audit staff from removing documents provided by the licensee at license renewal sites makes it more difficult for the auditors to write their inputs to the audit and safety evaluation reports. Instead, the audit staff has to rely on notes and memory, and use other source document workarounds—such as worksheets and the licensee-managed database of questions and answers—to construct input for the audit and safety evaluation reports. Given the Division's greater reliance on the staff to perform audits with fewer contractors, any effort to provide auditors with source documents may contribute to review efficiencies.

Furthermore, NRR's policy also leads to document handling inconsistencies between the license renewal audit and inspection teams. The same blanket prohibition on removal of licensee documents from the licensee's site does not extend to license renewal inspectors.

**RECOMMENDATION:**

OIG recommends that the Executive Director for Operations:

3. Clarify guidance and adjust procedures for auditors' and inspectors' removal of licensee-provided documents from license renewal sites

## C. Consistent Evaluation of Operating Experience Would Improve NRC Reviews

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License renewal audit teams have a unique opportunity to improve the NRC license renewal review with a deeper and more consistent approach to reviewing operating experience. Operating experience plays an important role in license renewal, and the license renewal staff is expected to review plant-specific operating experience, including corrective actions. Yet, audit team members do not review operating experience consistently. Furthermore, most audit team members do not conduct independent verification of operating experience, instead relying on licensee-supplied information. This is because program managers have not established requirements and controls to standardize the conduct and depth of such reviews. In the absence of conducting independent verification of plant-specific operating experience, license renewal auditors may not have adequate assurances that relevant operating experience was captured in the licensee's renewal application for NRC's consideration.

### The Importance of Operating Experience to License Renewal

Operating experience plays an important role in license renewal and figures prominently in a licensee's renewal application. NRC's *Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants* (Standard Review Plan) instructs NRC staff to assess 10 program elements for each aging management program submitted in a licensee's renewal application. Operating experience is listed as one of these 10 elements, and defined in brief in the *Generic Aging Lessons Learned (GALL) Report* summary as follows:

*“Operating experience involving the aging management program, including past corrective actions resulting in program enhancements or additional programs, should provide objective evidence to support a determination that the effects of aging will be adequately managed so that the structure and component intended functions will be maintained during the period of extended operation.” (p. 2)*

Operating experience is also an important part of two other aging management program elements: specifically, detection of aging effects, and monitoring and trending. The Standard Review Plan

also calls attention to the importance of the licensee's plant-specific operating experience in relation to scoping and screening, aging management review, and time-limited aging analyses activities. DLR management also said that it expects its license renewal staff to review plant-specific operating experience, including corrective actions. Given the Standard Review Plan's emphasis on operating experience and on management's expectations, OIG concludes there is ample reason for the licensee to provide—and NRC to review—sufficient amounts of operating experience information and data.

### **Operating Experience Is Not Consistently Reviewed or Independently Verified**

When reviewing aging management programs, license renewal audit team members do not approach their reviews of operating experience consistently and, furthermore, most team members do not conduct independent verification of operating experience. Team members are assigned aging management programs to review based on their areas of expertise. A more experienced reviewer or auditor may look more in-depth at, or conduct independent spot checks of, licensee-submitted information provided in the license renewal application.

OIG asked license renewal auditors and management about the appropriateness of conducting independent searches of licensee operating experience. Such searches might examine the licensees' corrective actions, system health reports, and inspection results. NRR managers said that they expect the audit teams to review plant-specific operating experience. Some managers said they expected license renewal auditors to perform their own searches of corrective actions rather than rely solely on information provided by the licensee.

However, license renewal auditors said that they generally do not conduct independent searches of licensee corrective action databases and that auditors would not normally review a plant's corrective action program for each aging management program because the industry-wide experience is already known. One reviewer said that it is the licensee's responsibility to provide NRC with plant-specific operating experience that is different from industry-wide operating experience. The auditor reviews only what the licensee provided in its application. Another reviewer said

that capturing plant-specific operating experience is time-consuming or that it is too difficult to learn how to use the licensees' corrective action program databases.

With the assistance of an OIG technical advisor having a general engineering background, OIG sought to learn how difficult it would be to generate a useful database report of corrective actions. OIG staff visited two separate plants owned by large utility companies and, using computers attached to the respective owners' local area networks, performed keyword searches of the corrective action databases.<sup>17</sup> OIG's technical advisor searched the available network data for the host plant and for several other already renewed plants in their respective fleets.<sup>18</sup>

From these searches, OIG was able to identify a number of areas for each plant that would warrant follow-up questions for licensees regarding past performance of license renewal aging management programs. Given the time to conduct and analyze the database searches, OIG concluded that accessing the corrective action databases was relatively easy and provided access to a good deal of information of potential value to license renewal audit teams. OIG does not believe that the results of such a search would necessarily validate an entire aging management program, but the endeavor does identify a relatively easy way for license renewal auditors to conduct an independent check of the information provided by the licensee.

### **Requirements to Independently Verify Operating Experience Have Not Been Established**

License renewal program managers have not established requirements or controls to standardize the conduct of independent verifications and depth of probes of plant-specific operating experience during audit reviews of licensee applications. That is not to suggest that DLR management has failed to mention the importance of reviewing operating experience to audit teams. On

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<sup>17</sup> Keywords included "corrosion," "cracking," "fatigue," "leak," "pitting," "drywell," "HPCI," "primary containment," "secondary containment," and "Torus."

<sup>18</sup> It is important to note that OIG staff had no previous experience or familiarity using these databases. At both plant sites, OIG staff needed approximately 5 hours total to learn basic search mechanisms for the corrective action databases, and then perform the keyword search for three plants in each fleet.

the contrary, OIG observed DLR management discussing the importance of plant-specific operating experience with license renewal auditors at a team meeting.

DLR management has not set any formal requirements that license renewal audit teams independently verify plant-specific operating experience as a standard part of their reviews. The *Project Team Guidance* handbook instructs reviewers to compare program elements for the plant's aging management programs to the corresponding program elements for GALL-identified aging management programs. But the *Project Team Guidance* handbook does not include any specific direction about how this should be accomplished. Essentially, the guidance leaves a lot of leeway to individual auditors to review operating experience as they see fit.

DLR also has no controls to monitor and enforce operating experience verification, which incorporate independent searches of corrective action databases. One manager said that more management controls to bring consistency to the reviews would be welcomed. The manager pointed out that DLR management can require audit teams to perform deeper probes of operating experience, but has no way of determining whether the auditors follow through.

### **Auditors May Not Be Aware of All Relevant Operating Experience**

In the absence of conducting independent verification of plant-specific operating experience, license renewal auditors may not have adequate assurances that all relevant operating experience was captured in the licensee's renewal application. As reported above, OIG was able to identify a number of areas for each plant that would warrant follow-up questions for licensees regarding past performance of license renewal aging management programs.

OIG's work in this area was, in part, informed by a discrepancy noted while reviewing the Oconee license renewal application. NRC received the Oconee plant's license renewal application in July 1998, whereupon the application remained under review until renewal was granted in May 2000. The application stated that minor local containment coatings failures had been observed and



repaired. Yet, the Oconee corrective action program contained 20 entries for degraded coatings from 1995-2003.<sup>19</sup> OIG's analysis of this corrective action program indicates that the coatings aging management program had not been implemented consistent with the statements in the Oconee license renewal application. In fact, coatings degradation was a continuing problem at the Oconee Nuclear Station as of Spring 2004, the date of the photograph presented in Figure 4 below, casting doubt on the efficacy of Oconee's aging management program for coatings.

**Figure 4**  
**Example of Coatings Degradation at Oconee**



Source: NRC Inspector

NRC license renewal reports do not indicate that NRC reviewers independently verified Oconee's operating experience for coatings. The license renewal inspection report states that the inspection included a review of the program description documents and discussion of the program with a site engineer. The inspection report concluded, based on the program document review and the

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<sup>19</sup> Six of the entries were made prior to the submittal of the license renewal application in 1998. Two of the entries were made after the renewal application was submitted, but prior to the granting of the renewed license in May of 2000.

discussion, that the “team verified that this previously existing program was implemented as described in the [license renewal application].” The license renewal safety evaluation report for Oconee quotes or paraphrases passages from the Oconee renewal application, including the licensee’s conclusion that the program is based on well-established industry standards and has been revised as necessary on the basis of plant experience. The staff acknowledged in the safety evaluation report that the licensee did not provide coatings program operating experience in its application, yet the staff did not offer any indication of having conducted an independent look at coatings operating experience.

OIG contends that a quickly-performed, independent search of the Oconee corrective action database would have revealed discrepancies with the information and assessment provided by the licensee in the renewal application. Such a search would have generated the corrective action reports that described continuing coatings problems and raised questions about the licensee’s contention that minor local containment coatings failures have been observed and repaired. Moreover, performing and documenting this type of search helps NRC prevent the appearance that license renewal reviewers trust information provided by the licensee in the renewal application without verification.

**RECOMMENDATION:**

OIG recommends that the Executive Director for Operations:

4. Establish requirements and management controls to standardize the conduct and depth of license renewal operating experience reviews.

## **D. More Attention Is Needed to Planning for Post-Renewal Inspections**

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NRC considers post-renewal inspections vital to ensure that licensees adhered to commitments made for license renewal.<sup>20</sup> However, post-renewal inspection planning is incomplete because the agency has only recently focused its attention on developing and overseeing details associated with these inspections. Inadequate planning increases the risk that: licensees could enter into the extended period of operation without being in full compliance with license renewal terms; inspections will be inconsistently implemented; and inspection and technical support resources will be unavailable when needed.

### **Timely Inspection Planning Is Essential**

Post-renewal inspections will play a vital role in ensuring that licensees followed through on their license renewal commitments and, therefore, thorough planning for these inspections is essential. Regional inspection guidance states that the best inspection plans are prepared well in advance, list clear expectations, and should be developed by working closely with the key customers – for license renewal that means NRC and licensee staffs. Thorough planning would help ensure appropriate inspection resource needs are met and bring consistency to the implementation of the post-renewal inspections.

### **Post-Renewal Inspection Details Are Not Fully Developed**

Despite the importance of planning for the required post-renewal inspections, details have not been fully developed. Inspection Manual Chapter 2516<sup>21</sup> states that a post-renewal inspection, in accordance with Inspection Procedure 71003, *Post-Approval Site Inspection for License Renewal*, will be conducted at sites receiving an NRC-approved license extension. Inspection Manual Chapter 2516 also identifies NRR as the organization responsible for

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<sup>20</sup> NRC established a two-phase license renewal inspection program: the phase one inspections occur during the safety review process and phase two consists of post-renewal inspections (i.e., after NRC has granted the license extension). Planning for the post-renewal inspections is the focus of this report section.

<sup>21</sup> Inspection Manual Chapter 2516, *Policy and Guidance for the License Renewal Inspection Programs*.

planning and overseeing license renewal inspections. NRC's four regions are then responsible for implementing the inspections. Although the agency has initiated a revision to Inspection Procedure 71003, details regarding the scope, timing, and resource determinations of these inspections have not been specified or fully developed. NRC anticipates that all relevant issues will be addressed in the revised procedure.

### Undefined Scope

Inspection Procedure 71003 states that the purpose of post-renewal inspections is to verify that licensees implemented renewal aging management programs and activities in accordance with: the requirements of 10 CFR Part 54; renewal-specific license commitments; and NRC's safety evaluation report. However, the inspection procedure as written does not give the specifics of the breadth and scope expected of these inspections, such as:

- the sample size of the aging management programs or licensee commitments to be inspected;
- whether there are licensee commitments and aging management programs established after the application was approved that must be included in the sample;
- whether inspectors must have headquarters' concurrence on potentially unresolved commitments, who in NRR should be contacted and how, and when that interaction should occur; and
- who determines, and on what basis, whether the licensee continues to meet the commitments required for operating into the extended period.

### Timing of Post-Renewal Inspections is Not Clearly Understood

Timing of the post-renewal inspections is critical because NRC will use the results to determine whether a licensee can safely continue to operate into an extended period. However, Inspection Procedure 71003 gives a broad range for, and NRC's written and verbal expectations vary on, the timing required for conducting the post-renewal inspections. As a result, region staff and licensees do not have sufficient detailed information needed to plan for the upcoming post-renewal inspections even though the first of these

inspections are due in calendar year 2009. It is important that the revision to Inspection Procedure 71003 provide the necessary details.

### **Regional Impact**

Inspection Procedure 71003 states that post-renewal inspections should be implemented *either before or shortly after the commencement of the extended period of operation*. Yet, another agency document says that the post-renewal inspections will be performed *'in the vicinity of' the period of extended operation – within a year prior to or following the extended license taking effect*. Neither document defines the basis for the time periods established for conducting these inspections. [emphasis added]

NRC expects the number of new license renewal applications requiring NRC inspections to peak in FY 2009. The peak in new license renewal activity coincides with the timeframe for conducting the first post-renewal inspections. Because region-based inspectors are not dedicated solely to license renewal matters, the post-renewal inspection activities must be factored into their overall inspection schedules. The regions' inspection planning horizon is 18 months. NRC's FY 2009 proposed budget includes a request for the regions to conduct the needed post-renewal inspections.

### **Licensee Impact**

For planning and budgeting purposes, industry representatives from the Nuclear Energy Institute (NEI) and licensee organizations have repeatedly requested that NRC provide more specific details on the post-renewal inspections. At a January 2007 NRC/NEI interface meeting, industry again requested detailed information regarding NRC's expectations for implementing these inspections. An NRC senior manager responded that the details, including the timeline, for the post-renewal inspections are "being worked on but as yet there is no schedule defined."

In addition, industry and NRC managers, as well as inspection staff, have expressed different positions with regard to the timing of the post-renewal inspections, including when license renewal commitments must be ready for NRC's post-renewal inspection.

The following paraphrased exchange between a licensee and NRC license renewal senior managers at the January 2007 NRC/NEI meeting demonstrates NRC's inconsistent expectations:

*A renewal licensee expressed confusion over the timing of the 71003 inspections. According to the licensee, an NRC regional lead inspector announced that post-renewal inspections in one region will occur in 2008 even though the original license in question does not expire until sometime in 2009. A senior DLR manager responded that licensees technically have until the end of the full 40-year license to meet the conditions of the license extension. However, another key license renewal manager countered that renewal commitments should be completed 2 years before license expiration so that NRC can verify the commitments are effective before licensees enter the extended period of operation.*

#### Inspection Resource Needs Are Not Fully Developed

Agency managers acknowledge that resource planning for the post-renewal inspections is important. However, agency managers acknowledge that post-renewal inspection staffing and budget needs have not been fully developed. Furthermore, management questions whether information needed to prepare accurate post-renewal inspection budget requests will be available in a timely manner.

License renewal program management told OIG that planning for the post-renewal inspections is not only important, but particularly timely given the recent request for the NRR's FY 2009 budget needs. However, as stated above, the regions have not yet factored these inspections into the overall inspection schedule and planning is hindered because there is not consensus on what resources will be needed. For example, Inspection Procedure 71003 estimates that the post-renewal inspection teams will consist of five members — four inspectors and a team leader. The inspection procedure also estimates that each inspection will take 5 to 6 weeks, including 2 weeks on-site, and require about .52 full-time equivalents. Although acknowledging that none of these inspections have occurred as yet, a senior region manager

responsible for inspection program scheduling and oversight estimates that it will take half the time on-site and twice the resources to perform the post-renewal inspections given the narrowly defined scope in Inspection Procedure 71003.

There is also no indication that the resource estimates established in Inspection Procedure 71003 factor in the potential need for multiple rounds of inspections and/or the time needed should the inspectors require headquarters technical support for issue resolution. Because NRR has not finalized the details about the scope, timing, and responsibilities for the post-renewal inspections, it is questionable whether an accurate and meaningful budget request can be prepared. It is necessary that the revision to Inspection Procedure 71003 address these issues.

### **Improved Organizational Focus Is Needed**

Post-renewal inspection planning is incomplete because management has not focused its attention on developing and overseeing plans for this future activity. Until recently, there had been little discussion between NRR senior managers and those ultimately responsible for implementing and preparing for the post-renewal inspections, namely region-based inspectors and licensees.

NRR is responsible for the development and implementation of license renewal programs and activities, and is responsible for technical and inspection support. According to agency managers and staff, the reason why NRR managers have not focused attention on planning the details of Inspection Procedure 71003 is because the post-renewal inspections are viewed as activities outside of license renewal space and because these inspections would not occur for several more years. NRR notes that it started an effort to revise Inspection Procedure 71003 in the summer of 2006.

### **Challenges Associated with Incomplete Planning**

Using under-developed Inspection Procedure 71003 for planning the post-renewal inspections would result in some risks and management challenges that could hamper the efficiency and effectiveness of the license renewal program. The most significant

concern is that licensees could potentially begin operating into the extended period without being in full compliance with the terms or intent of their renewed license.

Planning for the specific timing of the post-renewal inspections is important because inspectors are expected to verify license renewal commitments that must be in place and accepted before the end of the original operating period. Otherwise NRC may be at risk of allowing a plant to enter into an extended period of operation in noncompliance with the terms or intent of the renewed license. This risk would be particularly acute for licensees with outstanding commitments to develop and implement new aging management programs years after their license renewal applications were reviewed and approved. There is no consideration in the license renewal process for subjecting new aging management programs to the same type of technical sufficiency reviews as existing aging management programs. Therefore, scheduling the post-renewal inspections needed to confirm the existence or implementation of the new aging management programs *after* the period of extended operation has begun exacerbates these risks.

The lack of a detailed and standardized inspection methodology could also lead to inconsistent post-renewal inspections. Without this planning, there exists the potential that individual inspectors—or, at a minimum, each region—will devise their own inspection methodology and may not receive the information needed to develop site-specific, comprehensive inspection plans, such as which version of the *GALL Report* and other agency requirements applies for each inspection.

Finally, without the information needed to adequately make the budget and staffing determinations, the license renewal program could be left vulnerable to unanticipated budget and staffing shifts. This major challenge, voiced by NRC and industry alike, concerns whether necessary inspection resources will be available when the time comes to implement the post-renewal inspections.



**RECOMMENDATIONS:**

OIG recommends that the Executive Director for Operations:

5. Expedite completion of the details for a revised Inspection Procedure 71003.
6. Communicate the details of revised Inspection Procedure 71003 to all applicable staff and stakeholders.

## **E. License Renewal Issues Need Evaluation for Backfit Application**

When NRC imposes new staff positions resulting in new license renewal review standards, a documented justification is required pursuant to the backfit rule. However, new license renewal review standards have not followed NRC's backfit policy. This condition exists because NRC does not have a mechanism or methodology to trigger a backfit review. Additionally, NRR has not designated any organizational accountability for performing license renewal-related backfit justifications. Consequently, the use of different review standards without a backfit justification may result in several management challenges.

### **Backfit Requirements**

The *Code of Federal Regulations*, under 10 CFR 50.109, defines backfitting to include new or different staff positions that require changes to things such as designs, plant equipment, and procedures. As shown below, the regulation also requires that staff document its justification for imposing a backfit regardless of which justification is cited:

- a “documented evaluation” is required when backfitting is justified (1) for compliance, (2) as necessary for adequate protection, or (3) as needed to redefine adequate protection. The documented evaluation must include a statement of the objectives and reasons for the change and a basis for invoking either a compliance exception or adequate protection exception, whereas
- a “systematic and documented analysis,” which includes a cost-benefit analysis, is required when the NRC claims a substantial increase in public health and safety justifies the cost of a backfit.

### **New Staff Positions Are Not Reviewed for Backfit Consideration**

NRC captures new insights or emerging issues during license renewal reviews and from operating reactor performance. These new insights or issues may lead to a new staff position that results in a new review standard. However, the staff's position is that the

backfit rule does not apply to license renewal applicants based on exceptions in 10 CFR 54.37(b) and a 1995 Commission Statement of Considerations (SOC) published with promulgation of the License Renewal Rule. Therefore, new license renewal standards are not reviewed and documented for backfit considerations because there is no identified procedure to do so.

New staff positions are documented in Interim Staff Guidance (ISG) documents. ISGs are used to communicate new NRC review standards to renewal applicants and other interested stakeholders until the emerging issues can be incorporated into the next revision of the license renewal guidance documents, particularly the *GALL Report* – the primary license renewal guidance document. There are two types of ISG documents: clarification and compliance.

According to the agency, clarification ISGs provide additional guidance to renewal applicants to improve the efficiency and effectiveness of the license renewal process, and thereby do not create new staff positions and do not apply to licensees holding renewal licenses. On the other hand, compliance ISGs involve meeting the requirements of 10 CFR 54.37(b) and, therefore, do apply to both applicants and licensees holding renewed licenses. The agency further states that the only ISGs applicable to holders of renewed licenses are those compliance ISGs involving “newly identified” SSCs that should be in the scope of license renewal in accordance with 10 CFR 54.37(b). Finally, the agency concludes that requiring licensees to consider aging management for newly identified SSCs after a license is renewed is not a backfit issue.

In November 2006, NRC issued LR-ISG-2006-01<sup>22</sup> as a “clarification” ISG. The ISG requires current and future license renewal applicants to add a new aging management program in their applications to address inaccessible areas of the Mark I steel containment drywell shell. By requiring a new aging management program, this ISG went beyond providing “additional guidance” as intended with a clarification ISG. Additionally, the steel containment drywell shell is not a newly-identified area but is an SSC already within the scope of license renewal reviews. Furthermore, there was no documented evaluation or analysis

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<sup>22</sup> LR-ISG-2006-01, *Plant-Specific Aging Management Program for Inaccessible Areas of BWR Mark I Steel Containment Drywell Shell*, dated November 2006.

justifying whether NRC's new position should be backfit to already renewed licenses. Consequently, plants renewed prior to November 2006 may manage aging effects of drywell shells to a different standard. Finally, OIG concludes that using LR-ISG-2006-01 to change the review standard of drywell shell aging management represents a miscategorization of this ISG as a "clarification" rather than a "compliance" issue.

### **Renewal Review Process Does Not Trigger Backfit Evaluations**

Although NRC senior managers confirmed that new staff positions should be properly justified and they expect that they are, the staff has not justified ISGs as required by NRC's backfit rule. OIG found that there is no mechanism in the license renewal review process to trigger documented backfit justifications of ISGs, nor is there a methodology for conducting such evaluations or analysis of ISGs and the new standards they impose.

OIG's examination of license renewal guidance documents also determined that the organizational accountability for these documented justifications has not been clearly established. NRC managers and staff gave OIG inconsistent information about where the backfit reviews should be assigned. In fact, senior managers identified different NRR organizations as currently accountable for backfit justifications, none of which conduct backfit reviews.

### **Challenges Associated With Unjustified, Nonuniform Review Standards**

NRC's use of different review standards without justification from a backfit evaluation or analysis may result in the following management challenges:

- the appearance that previous approval standards may have been inadequate,
- stakeholders questioning continually changing review standards, and
- licensees managing aging effects differently from plant-to-plant.

### Appearance that Previous Approval Standards May Have Been Inadequate

Because ISGs do not receive backfit reviews, there may be an appearance that inadequate standards were applied to previously approved license renewal applications. As a result, NRC may be vulnerable to questions about the adequacy of its approval process and the adequacy of those aging management programs already approved.

### Stakeholders Question Continually Changing Review Standards

Licensees have questioned the basis for NRC's application of different review standards in the absence of justification through backfit reviews. The agency portrays the license renewal program as a living process to be updated for improvement as experience is gained. Industry representatives acknowledge the value of process improvements, but question the basis for NRC's continually changing requirements as reflected in the following statement from an industry license renewal vice president:

*If submissions were good enough before but not now [given NRC's issuance of new standards], does that mean that the previously approved applications did not really have enough substance to be granted a renewed license?*

Using the backfit process as an integral part of ISG reviews would explain and justify NRC's changing positions and hopefully eliminate licensee questions about NRC's different review standards.

### Licensees May Manage Aging Effects Differently from Plant-to-Plant

The lack of a systematic application of the backfit process also raises potential safety questions when plants manage the same aging effects differently without a specific justification. This is particularly true when NRC identifies a system or component that needs a new aging management program, then requires current and future license renewal applicants to address the newly-identified issue, but does not require already approved licensees to do the same.

**RECOMMENDATIONS:**

OIG recommends that the Executive Director for Operations:

7. Establish a review process to determine whether or not Interim Staff Guidance meets the provisions of 10 CFR 54.37(b), and document accordingly.

OIG recommends that the Commission:

8. Affirm or modify the 1995 Commission's Statement of Considerations position regarding the applicability of the backfit rule to license renewal applicants.

## **IV. CONSOLIDATED LIST OF RECOMMENDATIONS**

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OIG recommends that the Executive Director for Operations:

1. Establish report-writing standards in the *Project Team Guidance* for describing the license renewal review methodology and providing support for conclusions in the license renewal reports.
2. Revise the report quality assurance process for license renewal report review to include:
  - establishing management controls for NRR and DLR management to gauge the effectiveness of team leader and peer group report reviews, and
  - implementing procedures that would specify additional report quality assurance steps to be taken in the event that the team leader and peer group report reviews fail to ensure report quality to management's expectations.
3. Clarify guidance and adjust procedures for auditors' and inspectors' removal of licensee-provided documents from license renewal sites.
4. Establish requirements and management controls to standardize the conduct and depth of license renewal operating experience reviews.
5. Expedite completion of the details for a revised Inspection Procedure 71003.
6. Communicate the details of revised Inspection Procedure 71003 to all applicable staff and stakeholders.
7. Establish a review process to determine whether or not Interim Staff Guidance meets the provisions of 10 CFR 54.37(b), and document accordingly.

OIG recommends that the Commission:

8. Affirm or modify the 1995 Commission's Statement of Considerations position regarding the applicability of the backfit rule to license renewal applicants.



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## V. AGENCY COMMENTS

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On May 8, 2007, OIG issued its draft report to the Executive Director for Operations. OIG subsequently met with managers from DLR and OGC to address specific issues and concerns needing further clarification and/or explanation. On July 6, 2007, the Deputy Executive Director for Reactor Programs provided a formal response to this report in which the agency disagreed with OIG's finding regarding applicability of the backfit rule to license renewal applicants. The agency's transmittal letter and specific comments on this report are included in their entirety as Appendix E.

The staff's position is that 10 CFR 50.109, "Backfitting," does not apply to license renewal (for holders of renewed licenses) with respect to new structures, systems or components (SSC) brought within the scope of the license renewal rule as required by 10 CFR 54.37(b). Conversely, the agency acknowledges that the backfit rule does generally apply for SSCs that *were or should have been reviewed during the scope of license renewal review*. [emphasis added] OIG generally concurs with these two positions, although OIG determined that the agency does not have a process to identify whether ISGs meet the provisions in 10 CFR 54.37(b) thereby making them exempt from backfitting.

However, OIG disagrees with the staff's position that the backfitting rule does not apply to license renewal applicants based on exceptions in 10 CFR 54.37(b) and the 1995 SOC published with promulgation of the License Renewal Rule. OIG believes that the plain language of the backfit regulation states that the backfit rule is applicable to holders of an operating license, which by default includes applicants seeking a renewed license.<sup>23</sup> OIG found no exception or provision in either the backfit rule or the License Renewal Rule that suspends applicability of the rule to license renewal "applicants" or the information in their renewal applications. Consequently, the sole regulatory basis for the staff's position that backfitting does not apply to applicants is the 1995 SOC.

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<sup>23</sup> 10 CFR 50.109(a)(1)(iii).

OIG notes that the 1995 Commission's SOC position is 12 years old and was written prior to any license renewal applications being processed. NRC has now processed 48 license extensions. Based on this experience, the SOC needs to be reevaluated.

This final report incorporates revisions made, where appropriate, as a result of the subsequent meetings and the agency's written comments. In addition, based on the agency's response, OIG revised and redirected Recommendation 8 to request that the Commission affirm or modify the 1995 Commission's Statement of Considerations position regarding the applicability of the backfit rule to license renewal applicants. Appendix F contains OIG's complete analysis of the agency's formal response.

## SCOPE AND METHODOLOGY

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NRC's license renewal review process follows two paths: safety and environmental. The focus of this audit was to determine the effectiveness of NRC's license renewal safety reviews. To address the audit objective, OIG reviewed relevant management controls, related documentation from internal and external sources, and Federal statutes, including reviews of:

- The Atomic Energy Act of 1954
- NEI 95-10, *Industry Guideline for Implementing the Requirements of 10 CFR Part 54 – The License Renewal Rule*
- Licensee Corrective Action Program databases
- *Code of Federal Regulations*, Title 10, Parts 50, 51 and 54
- NRR/Division of License Renewal *Project Team Guidance*
- NRR's *Self Assessment of License Renewal Application Improved Safety Review Process*
- Inspection Manual Chapters (IMC)
  - IMC 0620, *Inspection Documents and Records*
  - IMC 2516, *Policy and Guidance for the License Renewal Inspection Programs*
  - Inspection Procedures 71002 and 71003
- Regulatory Guides 1.147 and 1.188
- Management Directive 8.4, *Management of Facility-specific Backfitting and Information Collection*
- NUREGs, including:
  - NUREG-1800, *Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants, and*

- NUREG-1801, *Generic Aging Lessons Learned (GALL) Report*

Auditors conducted interviews with more than 50 agency and industry individuals, including:

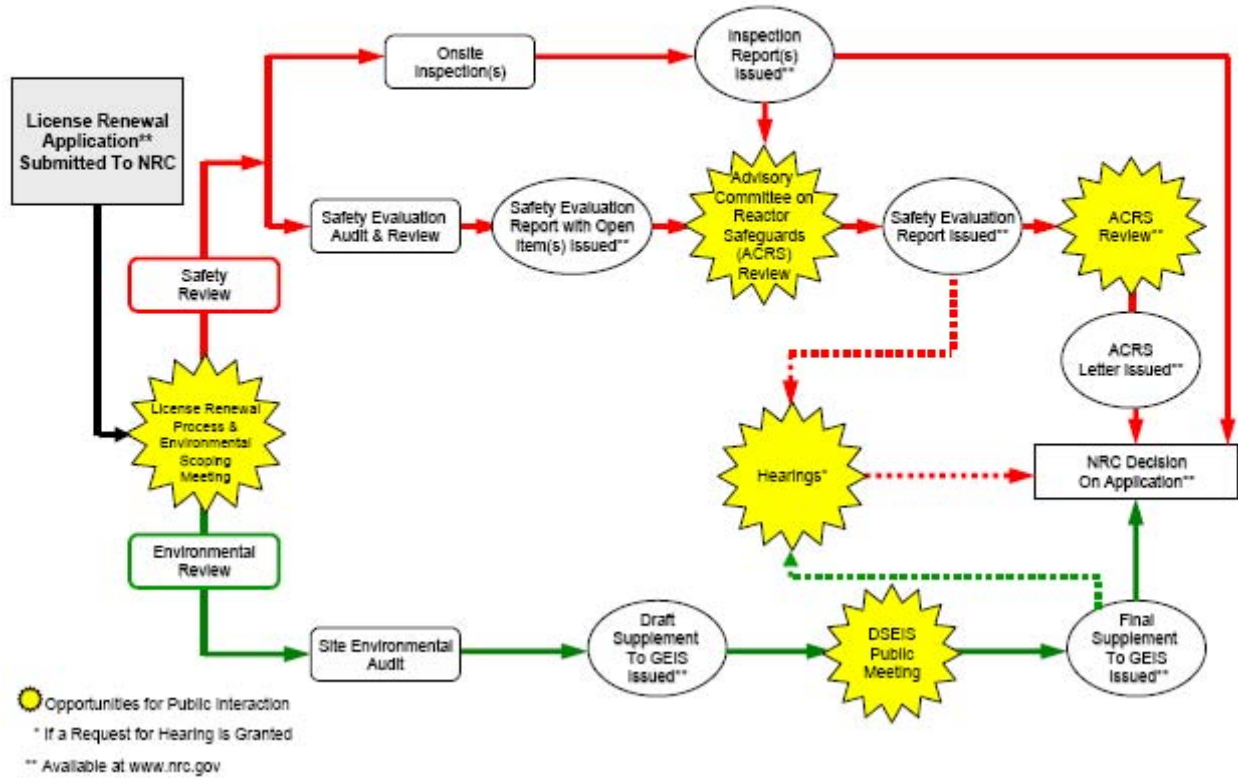
- NRC senior managers and staff from:
  - Headquarters, Rockville, Maryland
  - Region I, King of Prussia, Pennsylvania
  - Region II, Atlanta, Georgia
  - Region III, Lisle, Illinois
  - Region IV, Arlington, Texas
- OGC and ACRS members at NRC Headquarters
- Industry representatives and plant personnel from:
  - The Nuclear Energy Institute
  - Exelon Nuclear
  - Entergy Nuclear

OIG conducted this audit between March 2006 and December 2006 in accordance with generally accepted Government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The major contributors to this report were Anthony Lipuma, Team Leader; Catherine Colleli, Audit Manager; Robert K. Wild, Senior Management Analyst; Michael Cash, Senior Technical Advisor; and Jaclyn Storch, Management Analyst.

## NRC'S DUAL-TRACK LICENSE RENEWAL REVIEW PROCESS

# License Renewal Process



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## OIG CONTENT ANALYSIS

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OIG performed a content analysis of audit reports, inspection reports, and safety evaluation reports for a judgmental sample of license renewal applications submitted between September 2000 and January 2006.<sup>24</sup> The judgmental sample of license renewal applications represents a cross-section of plant ages, technologies, year of renewal, NRC review method, and NRC region. For the review, OIG focused on narrative passages in the applications and reports that addressed the operating experience program element for a selection of aging management programs.<sup>25</sup> The OIG sample generated 458 data points reflecting how the license renewal auditor's methodology and support for conclusions was addressed in the audit, inspection, and safety evaluation reports, as shown in the following table:

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<sup>24</sup> OIG chose a judgmental sample in order to assure a mix of different plant types and renewal program experience. Consequently, this report presents findings related to the sample only and does not extrapolate results from the sample to the entire universe of renewal reviews.

<sup>25</sup> Not all aging management programs were reviewed in OIG's analysis. OIG selected 11 aging management programs for its content analysis and each of these 11 aging management programs were reviewed for each sampled plant for consistency. As a result, some aging management programs did not apply to a plant, and in such cases OIG did not create a data point for that plant. Moreover, OIG acknowledges the possibility that aging management programs not reviewed could have scored differently than the results indicated in OIG's report.



**Table 2**  
**Summary of OIG Analysis of Report Documentation for the GALL**  
**Operating Experience Program Element**

Application	LRA <sup>a</sup> Date	Total	Data Points		
			Green	Yellow	Red
Vermont Yankee	2006	12	0	12	0
Oyster Creek	2005	40	0	34	6
Palisades	2005	42	4	29	9
Monticello	2005	28	1	23	4
Millstone	2004	46	0	34	12
Browns Ferry	2004	40	1	22	17
Brunswick	2004	42	2	30	10
Point Beach	2004	38	2	30	6
D.C. Cook	2003	50	1	37	12
Dresden/Quad Cities	2003	42	0	11	31
GINNA	2002	42	0	8	34
St. Lucie	2001	20	0	10	10
Turkey Point	2000	16	0	8	8
<b>Total</b>		<b>458</b>	<b>11</b>	<b>288</b>	<b>159</b>
<b>Percent</b>		<b>100%</b>	<b>2.4%</b>	<b>62.9%</b>	<b>34.7%</b>

Source: OIG analysis of NRC license renewal audit, inspection, and safety evaluation reports; and of licensee renewal applications. <sup>b</sup>

Notes:

- a. License Renewal Application.
- b. The number of data points by application varies owing to applicability of individual aging management programs. Some of the older applications pre-date the DLR audit function, and there was no inspection report or safety evaluation report yet available for Vermont Yankee at the time of OIG's analysis.

Table 2 provides subjective “red,” “yellow,” and “green” ratings, which reflect the extent to which review methodology is disclosed and staff conclusions are supported in the reports.

- A red rating indicates, for an aging management program reviewed by NRC, that there was no mention of review methodology or no specific support for the staff's conclusions in the audit, inspection, or safety evaluation reports.
- A yellow rating indicates, for an aging management program reviewed by NRC, that the audit, inspection, or safety evaluation reports cited anecdotal information provided by the licensee or

restated language from the license renewal application to support staff conclusions. A yellow rating also indicates that the methodology reported was limited to reviewing the license renewal application and interviewing licensee personnel, or to reviewing anecdotal information provided by the licensee.

- A green rating indicates, for an NRC-reviewed aging management program, that the audit, inspection, or safety evaluation reports provided details regarding the staff's review methodology beyond a simple review of the license renewal application or anecdotal information provided by the licensee. The green rating also indicates that the staff provided detailed and independent support for their conclusions in the report.

OIG conducted additional analysis of the yellow data points to determine how closely the application information that was restated in the license renewal reports resembled the original information provided in the applicable license renewal application. OIG found that 191 of the 288 yellow data points, or 41.7 percent of the total 458 data points, were identical or nearly identical to the information provided in the license renewal application. Examples of original license renewal application text being repeated in an NRC document with no or few clues to indicate to the reader that it is repeated prose are provided in Appendix D.

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## EXAMPLES OF LICENSE RENEWAL APPLICATION TEXT REPEATED IN NRC DOCUMENTS

Original License Renewal Application Text	NRC License Renewal Report Text
<p>Operating experience of Flow-Accelerated Corrosion aging management program activities has shown that the program can determine susceptible locations for flow accelerated corrosion, predict the component degradation, and detect the wall thinning in piping, valves, and Feedwater Heater shells due to flow-accelerated corrosion. In addition, the program provides for reevaluation, repair or replacement for locations where calculations indicate an area will reach minimum allowable thickness before the next inspection. Periodic self-assessments of the program have been performed which have identified opportunities for program improvements. (Oyster Creek LRA <sup>a</sup>, p. B-41.)</p>	<p>Operating experience of the Flow-Accelerated Corrosion Program activities shows that the program can determine susceptible locations for Flow-Accelerated Corrosion, predict the component degradation, and detect the wall thinning in piping, valves, and feedwater heater shells due to Flow-Accelerated Corrosion. In addition, the program provides for reevaluation, repair, or replacement for locations where calculations indicate an area will reach minimum allowable thickness before the next inspection. Periodic self-assessments of the program have been performed which have identified opportunities for program improvements. (NRC's SER <sup>b</sup> with Open Items for Oyster Creek, p. 3-14.)</p>
<p>The OE review shows that the BSEP Bolting Integrity Program is continually upgraded based on industry experience, research, and routine program performance. The Program, through its continual improvement, assures the capability of mechanical bolting to support the safe operation of BSEP throughout the extended period of operation. (Brunswick LRA, p. B-24)</p>	<p>The applicant also states that the operating experience review shows that its bolting integrity program is continually upgraded based on industry experience, research, and routine program performance. The program, through its continual improvement, assures the capability of mechanical bolting to support the safe operation of BSEP throughout the extended period of operation. (NRC's Audit Report for Brunswick, p. 39)</p>
<p>The fire water system parameters are monitored, tested and piping and component evaluations are performed to ensure that the system maintains its intended function. Browns Ferry Fire Water System operating experience indicates a trend of piping degradation, such as leaks, general corrosion, biofouling, etc. Piping is being replaced, as required, per corrective actions of the inspection and testing activities. (Browns Ferry LRA, p. B-76)</p>	<p>In LRA Section B.2.1.24, the applicant stated that the fire water system parameters are monitored and tested, and that piping and component evaluations are performed to ensure that the system maintains its intended function. The BFN Fire Water System operating experience indicates a trend of piping degradation, such as leaks, general corrosion, and biofouling, etc. Piping is being replaced, as required, in accordance with corrective actions of the inspection and testing activities. (NRC's SER for Browns Ferry, p. 3-70)</p>
<p>A review of operating experience pertaining to the Oil Analysis Program determined that program enhancements have been made based on industry and plant-specific operating experience. For example, the potential for possible incompatibility between emergency diesel generator fuel oil and lube oil identified at Calvert Cliffs Nuclear Power Plant was evaluated and a program change was made to ensure the problem was addressed at CNP. The review of condition reports indicates that the program has detected conditions at levels below which aging degradation is expected to occur. (D.C. Cook LRA, p. B-77)</p>	<p>The applicant states in CNP AMP <sup>c</sup> B.1.23, for the operating experience program element, that a review of operating experience pertaining to this AMP determined that program enhancements have been made based on industry and plant-specific operating experience. For example, the potential for possible incompatibility between emergency diesel generator fuel oil and lube oil identified at another nuclear power plant was evaluated and a program change was made to ensure the problem was addressed. The review of condition reports indicates that the program has detected conditions at levels below which aging degradation is expected to occur. (NRC's Audit Report for D.C. Cook, p. 68)</p>

Source: OIG analysis of NRC license renewal audit, inspection, and safety evaluation reports; and of license renewal applications.

Notes:

- a. license renewal application
- b. safety evaluation report
- c. aging management program

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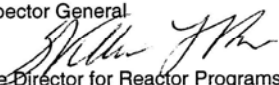
**FORMAL AGENCY COMMENTS**



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

July 6, 2007

MEMORANDUM TO: Stephen D. Dingbaum  
 Assistant Inspector General for Audits  
 Office of the Inspector General

FROM: William F. Kane   
 Deputy Executive Director for Reactor Programs

SUBJECT: COMMENTS ON DRAFT REPORT – "AUDIT OF NRC'S LICENSE RENEWAL PROGRAM"

We are responding to your June 22, 2007, memorandum transmitting the Office of the Inspector General's (OIG's) Draft Audit Report, "Audit of NRC's License Renewal Program." We appreciate the significant time spent by the OIG staff in observing and evaluating the operating reactor license renewal program and the OIG's recommendations for improving the program. As communicated to the OIG staff at the exit conference and in related discussions, the NRC staff disagrees with OIG's conclusions in Finding E that the Interim Staff Guidance (ISG) documents require backfit justifications in accordance with Title 10 of the Code of Federal Regulations (10 CFR) Section 50.109, "Backfitting," and OIG Recommendations 7 and 8 that the NRC needs to establish a process for performing backfit analyses for ISG documents. This memorandum provides the bases for the staff's position that backfit analyses are not required for ISG documents.

The purpose of the ISG process is to provide timely dissemination of the latest guidance resulting from lessons learned from ongoing license renewal application reviews until the information can be incorporated in the next update of the NRC's license renewal guidance documents (i.e., Regulatory Guide 1.188; Standard Review Plan, NUREG-1800; or Generic Aging Lessons Learned (GALL) Report, NUREG-1801) as applicable. The ISG process was developed with significant participation by the industry with opportunity for public involvement. A description of the ISG process was issued in final form on December 12, 2003, "The Interim Staff Guidance Process" (ML023520620). The Office of the General Counsel (OGC) participated in developing the ISG process and reviews every ISG document issued by the staff. All proposed ISG documents are published in the *Federal Register* for public comment and are sent by letter to the Nuclear Energy Institute (NEI) and public interest groups for comment. Potential ISG documents are discussed in the monthly public conference calls or meetings held with NEI prior to developing the proposed ISG document.

The NRC's Committee to Review Generic Requirements (CRGR) is chartered to ensure that proposed requirements for licensed power reactors are appropriately justified on the bases of NRC's regulations and the Commission's policy on backfit provisions. The CRGR was initially briefed on the license renewal ISG process on August 26, 2003, as documented in the September 23, 2003, meeting summary "Minutes of the Committee to Review Generic Requirements Meeting Number 389" (ML032670732). The CRGR had no objection to the ISG process, and improvements recommended by the CRGR were incorporated. The staff discussed the ISG process with the CRGR again on September 13, 2005, as documented

S. Dingbaum

-2-

in the September 26, 2005, meeting summary "Minutes of the Committee to Review Generic Requirements Meeting Nuclear 403" (ML052660027). In these meeting minutes, the CRGR explicitly stated the following:

The Committee endorses the staff's position in the ISG process for license renewal, that there is no backfit regarding implementation of the requirements of 10 CFR 54.37(b). The provisions of the backfit rule, 10 CFR 50.109, will continue to apply for imposition of changes on holders of renewed licenses for changes that are outside the scope of 10 CFR 54.37(b).

The staff has consistently stated that any changes required by holders of renewed licenses outside the scope of 10 CFR 54.37(b) require a backfit justification in accordance with 10 CFR 50.109. This position is clearly stated in Section 4.2.5 of the ISG process. As discussed further below, there have been no ISG documents issued that affect holders of renewed licenses other than three ISG documents falling within the scope of 10 CFR 54.37(b). If a change is required in the future by a holder of a renewed license that is outside the scope of 10 CFR 54.37(b), the Office of Nuclear Reactor Regulation (NRR) has existing procedures in place to ensure that backfit requirements are met.

There are two types of ISG documents: clarification and compliance. Clarification ISG documents provide additional guidance to applicants that the staff or stakeholders feel is necessary to improve the efficiency and effectiveness of the license renewal process or to help reduce the number of requests for additional information. Clarification ISG documents do not create new staff positions and do not apply to licensees holding renewed licenses. Clarification ISG documents, like regulatory guides and standard review plans, are not requirements but provide an approach that the staff has found acceptable for complying with the regulations. Applicants may propose and justify approaches other than those contained in the ISG document or the other guidance documents. For holders of renewed licenses, the information addressed by clarification ISG documents, if applicable to the plant, was either provided originally by the applicant in its license renewal application or obtained during the review, for example, by requests for additional information. Compliance ISG documents involve compliance with the requirements of 10 CFR 54.37(b) and, therefore, apply to both applicants and licensees holding renewed licenses. An example of a clarification ISG document is ISG-04, "Aging Management of Fire Protection Systems for License Renewal" (ML022260137), which clarified the aging management programs for fire protection systems described in the GALL Report. A compliance ISG document example involving a newly identified component within the scope of 10 CFR 54.37(b) is ISG-05 "On the Identification and Treatment of Electrical Fuse Holders for License Renewal" (ML030690492).

For license renewal applications currently under review, a backfit analysis is not required for either a clarification or a compliance ISG document. The Commission clearly stated that the backfit rule does not apply to license renewal reviews when it issued the amended license renewal rule, 10 CFR Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," in 1995 (Volume 60, *Federal Register*, at 22490-22491). The Commission determined that a special provision in 10 CFR Part 54 that would impose backfit-style requirements on the agency is not needed. Any additional requirements necessary to manage the effects of aging in order to maintain the plant's current licensing basis may be imposed as

S. Dingbaum

-3-

part of the license renewal process. The Commission stated that it does not intend to impose requirements on a licensee that go beyond what is necessary to adequately manage aging. This position is analogous to the compliance exception of 10 CFR 50.109(a)(4)(i).

Once a renewed license is issued, the only ISG documents that apply to a holder of a renewed license are compliance ISG documents that involve newly identified systems, structures, and components (SSCs) that should be in the scope of license renewal in accordance with 10 CFR 54.37(b). In 10 CFR 54.37(b), the Commission addressed SSCs newly identified after issuance of the renewed licenses that would have been subject to an aging management review if they had been identified at the time of the license renewal application. Requiring a licensee to consider aging management for newly identified SSCs after a renewed license is issued is required by 10 CFR 54.37(b) and is not a backfit. The implementation of the requirements of 10 CFR 54.37(b) and the applicability of the backfit rule have been the subject of significant interactions between the NRC staff and the industry. The staff's position, endorsed by OGC, and a discussion of these interactions are contained in an October 11, 2006, NRC letter to NEI, "Response to the Nuclear Energy Institute Regarding Implementation of the Requirements of 10 CFR 54.37(b)" (ML062700236). As previously discussed, the staff's position on implementing the requirements of 10 CFR 54.37(b) was endorsed by CRGR.

Once a renewed license is issued, the plant returns to the normal oversight of the operating reactor program and is no longer within the license renewal program. Responsibility for ensuring compliance with the backfit rule for any new requirements imposed on a licensee is an existing and ongoing requirement for the project manager assigned to each plant within the NRR's Division of Operating Reactor Licensing (DORL). Existing procedures, such as NRR Office Instruction LIC-202, "Procedures For Managing Plant-Specific Backfits and 50.54(f) Information Requests" (ML061720504), provide guidance to the staff on implementing the backfit rule. Any changes that need to be imposed on a holder of a renewed license other than those required by 10 CFR 54.37(b) would be processed by the DORL project manager in accordance with the requirements of 10 CFR 50.109 and existing backfit procedures. Notification of renewed license holders of applicable compliance ISG documents within the scope of 10 CFR 54.37(b) is coordinated with DORL before being issued. No ISG documents affecting holders of renewed licenses, other than those within the scope of 10 CFR 54.37(b), have been identified or issued to date.

In conclusion, we disagree with OIG's Finding E and Recommendations 7 and 8 that the NRC needs to establish a mechanism or methodology for conducting backfit analyses for ISG documents, and to designate and communicate accountability for performing the backfit analyses to all stakeholders. The backfit rule does not apply to license renewal applications under review and to changes that fall within the scope of 10 CFR 54.37(b). The ISG process clearly states that ISG documents not within the scope of 10 CFR 54.37(b) are subject to the requirements of the backfit rule. Procedures already exist within NRR to identify and control the imposition of backfits if such a change were identified in the future.



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## OIG ANALYSIS OF AGENCY COMMENTS

On May 8, 2007, OIG issued its draft report to the Executive Director for Operations. OIG subsequently met with managers from the Division of License Renewal and the Office of the General Counsel to address specific issues and concerns needing further clarification and/or explanation. On May 24, 2007, OIG discussed its draft report with agency senior executives. Subsequent to that meeting, NRC provided informal comments on the draft report for OIG's consideration. On July 6, 2007, the Deputy Executive Director for Reactor Programs provided a formal response to this report in which the agency disagreed with OIG's finding regarding applicability of the backfit rule to license renewals applicants (see Appendix E). OIG's analysis of the agency's response is as follows:

The staff's position on backfit applicability to license renewal is addressed as it pertains to (1) holders of renewed licenses and (2) license renewal applicants. As discussed below, OIG agrees in part with the agency's position that under certain circumstances backfitting does not apply. However, as reflected in Figure 4, OIG disagrees with the agency's position regarding applicability of the backfit rule to license renewal applicants.

**Figure 4**  
**Application of Backfit to License Renewal**

<p><b><i>License Renewal Applicants</i></b></p> <p>OIG believes the Backfit Rule <u>Does Apply</u> to New or Different Staff Positions affecting interpretations of license renewal. <b>NRC staff disagrees.</b></p>	<p><b><i>Holders of Renewed Licenses</i></b></p> <p>NRC staff and OIG <b>agree</b> that the Backfit Rule <u>Does Not Apply</u>, per 10 CFR 54.37(b)*, to Newly Identified SSCs subject to aging management or time-limited aging analysis</p>
	<p><b><i>Holders of Renewed Licenses</i></b></p> <p>NRC staff and OIG <b>agree</b> that the Backfit Rule <u>Does Apply</u> to New or Different Staff Positions affecting SSCs previously within the scope of license renewal</p>

\*10 CFR 54.37(b) has provided a specific exception from backfitting requirements for holders of renewed licenses, but only regarding "newly" identified SSCs subject to aging or time-limited aging analysis.

Figure 4 demonstrates the applicability of the Backfit Rule only as the Rule applies to staff positions regarding license renewal interpretations.

### **Holders of Renewed Licenses**

OIG agrees with the staff's position that 10 CFR 50.109, "Backfitting," does not apply to license renewal (for holders of renewed licenses) with respect to new structures, systems or components (SSC) brought within the scope of the license renewal rule as required by 10 CFR 54.37(b). OIG also concurs with the staff's acknowledgement that the backfit rule does generally apply for SSCs that *were or should have been reviewed during the scope of license renewal review*. [emphasis added] However, the agency does not have a process to identify whether ISGs address new SSCs or those previously within the scope of license renewal reviews. As a result, there is no documented means to determine whether ISGs have met the provisions in 10 CFR 54.37(b) and thereby not subject to backfitting.

### **License Renewal Applicants**

Again citing 10 CFR 54.37(b), the staff maintains that the backfitting rule does not apply to license renewal applicants. In support of this interpretation, the staff references a 1995 Commission SOC published with promulgation of the License Renewal Rule. The staff repeatedly told OIG that the 1995 SOC is the statement of the Commission's intent which sustains the staff's current position on the continued non-applicability of the backfit rule to license renewal applicants.

In OIG's opinion, the plain language of the backfit regulation states that the backfit rule is applicable to holders of an operating license, which by default includes applicants seeking a renewed license.<sup>26</sup> There is no exception in the backfit rule suspending applicability of the rule to subject matter related to a license renewal application

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<sup>26</sup> 10 CFR 50.109(a)(1)(iii).

nor is there any provision in the License Renewal Rule indicating that backfitting does not apply to “applicants.” Consequently, the sole regulatory basis for the staff’s position that backfitting does not apply to applicants is the 1995 SOC.

OIG notes that the SOC does include some discussion of the Commission’s rationale regarding backfitting and the license renewal regulation. This discussion included the following:

“There are no licensees currently holding renewed nuclear power plant operating licenses who would be affected by this rule. No applications for license renewal have been docketed. It is also unlikely that any license renewal applications will be submitted before this rule becomes effective.”<sup>27</sup>

OIG’s assessment of the SOC is that the Commission based its 1995 position on backfitting, at least in part, on the practical reality that application of the backfit rule to new staff positions on license renewal made no sense at a time when there were no foreseeable license renewal applicants, much less current license renewal applicants or holders of renewed licenses. In OIG’s opinion, it would have served no valid regulatory purpose to require backfitting at that time as there were no affected applicants, potential applicants, or holders of renewed licenses. However, the Commission’s position in the SOC is 12 years old.

The Commission’s membership and the underlying circumstances supporting the 1995 position have significantly changed. Specifically, at the time of this report, there are 48 holders of renewed licenses, eight current license renewal applicants, and the NRC expects approximately 23 new applicants through 2013. Within the current environment, applicants, potential applicants, and holders of renewed licenses all may be affected by new staff positions regarding license renewal. Therefore, the staff’s continued reliance on the 1995 SOC regarding the application of

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<sup>27</sup> Volume 60, *Federal Register*, at 22491, Page 40, 2nd Paragraph.

backfitting to license applicants is questionable. As a result, OIG is recommending that the current Commission affirm or modify the 1995 Statement of Considerations position regarding the applicability of the backfit rule to license renewal applicants.