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## INSPECTION MANUAL CHAPTER 2516

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### POLICY AND GUIDANCE FOR THE LICENSE RENEWAL INSPECTION PROGRAM

#### 2516-01 PURPOSE

The purpose of Inspection Manual Chapter (IMC) 2516 is to document policy and guidance for review and inspection activities associated with the license renewal inspection program (LRIP). The LRIP is the process used by the U.S. Nuclear Regulatory Commission (NRC) staff to **verify the applicant's readiness for operation in the period of extended operation (PEO) or subsequent PEO and to verify the adequacy (i.e., effectiveness) of the applicant's aging management programs (AMPs) and other activities after entering the PEO or subsequent PEO.**

#### 2516-02 POLICY AND OBJECTIVES

##### 02.01 Policy

The basic policies, excerpted from the statements of consideration for the 1995 revision to the 10 CFR Part 54 License Renewal Rule, and objectives used in the development and implementation of the LRIP are:

- a. The NRC exists to assure that the public health and safety, the common defense and security, and the environment are protected.
- b. With respect to license renewal of a commercial nuclear power plant, the NRC has established the following two basic principles:
  1. The first principle of license renewal is that with the exception of age-related degradation and possibly a few other issues related to safety only during extended operation of nuclear power plants, the existing regulatory process is adequate to ensure that the licensing bases of all currently operating plants provide and maintain an acceptable level of safety so that operation will not be inimical to public health and safety or common defense and security.
  2. The second and equally important principle of license renewal holds that the plant-specific licensing basis must be maintained during the renewal term in the same manner and to the same extent as during the original licensing term. This would be accomplished, in part, through a program of age-related degradation management.
- c. An applicant for license renewal should rely on the plant's current licensing basis (CLB), actual plant-specific experience, industry-wide operating experience, as appropriate, and existing engineering evaluations to determine those systems, structures, and components (SSCs) that are the initial focus of the license renewal review.

- d. The detrimental effects of aging affecting passive structures and components are less apparent than the detrimental effects of aging affecting structures and components that perform their intended functions with moving parts or a change in configuration or properties (active structures and components). Therefore, the aging management review of passive structures and components is needed to provide reasonable assurance that their intended functions are maintained consistent with the CLB during the **PEO or subsequent PEO**.
- e. For the purpose of license renewal, an applicant can generically exclude from its integrated plant assessment the aging management review of the following: (1) active structures and components (**i.e., those that perform their intended functions with moving parts or with a change in configuration or properties**), and (2) structures and components that are replaced, based on qualified life or specified time period. Components that **perform their intended function(s) in a passive manner**, or both active and passive **manner**, must be included within the scope of components requiring an aging management review based on the intended function(s) that is performed without moving parts or change in configuration or properties.
- f. Postulated failures that could result from system interdependencies that are not part of the CLB and that have not been previously experienced need not be considered as part of a license renewal application (LRA) **or subsequent LRA (SLRA)**. However, for some license renewal applicants, postulated failures that are part of the CLB may require consideration of more than the first level support systems.

## 02.02 Objectives

The objectives of the LRIP are to:

- a. Provide guidance for the inspection of license renewal programs, documentation, and other activities necessary for the staff to assess whether an applicant's LRA **or SLRA**, AMPs, implementation activities, and on-site documentation provide reasonable assurance that the effects of aging will be adequately managed consistent with the CLB during the **PEO or subsequent PEO**.
- b. Assess the implementation and/or completion of license conditions, commitments for license renewal, AMPs that manage the effects of aging and time-limited aging analyses (TLAAs) consistent with the licensee's CLB, after the renewed operating license is issued.
- c. **Ensure that plant-specific and industry operating experience (OE) has been adequately evaluated, and appropriately implemented -into the AMPs.**
- d. **Verify age-related degradation is adequately (i.e., effectively) managed.**
- e. Assess the implementation and/or completion of proposed license conditions, commitments for license renewal, AMPs and TLAAs for applicants that meet the criteria in 10 CFR 2.109, "Effect of Timely Renewal Application," in which the NRC's final decision regarding the renewal of the operating license is still under review, and the applicant plans to operate beyond the expiration date of the original operating license.

## 2516-03 DEFINITIONS

### 03.01 Current Licensing Basis

The current licensing basis is the set of NRC requirements applicable to a specific plant and a licensee's written regulatory commitments for ensuring compliance with and operation within applicable NRC requirements and the plant-specific design basis (including all modifications and additions to such commitments over the life of the license) that are docketed and in effect. The CLB includes the NRC regulations contained in 10 CFR Parts 2, 19, 20, 21, 26, 30, 40, 50, 51, 54, 55, 70, 72, 73, 100 and appendices thereto; orders; license conditions; exemptions; and technical specifications. It also includes the plant-specific design-basis information defined in 10 CFR 50.2 as documented in the most recent final safety analysis report (FSAR) as required by 10 CFR 50.71 and updated FSAR (UFSAR) supplement(s) from any prior license renewal for the plant; and the licensee's commitments remaining in effect that were made in docketed licensing correspondence, such as licensee responses to NRC bulletins, generic letters, and enforcement actions, as well as licensee commitments documented in NRC safety evaluations or licensee event reports.

### 03.02 Integrated Plant Assessment

An integrated plant assessment (IPA) is a licensee assessment demonstrating a nuclear power plant facility's structures and components requiring aging management review in accordance with 10 CFR 54.21(a) for license renewal have been identified and that the effects of aging will be managed so that the intended function(s) of in-scope structures and components will be maintained consistent with the CLB during the PEO or subsequent PEO.

### 03.03 Mandated Licensing Basis Documents

Mandated licensing basis documents are documents, such as the UFSAR, the quality assurance program, the security plan, and the emergency plan, for which the NRC has established requirements for content, change control, and reporting. The information that should be included in these documents is specified in applicable regulations and regulatory guides. The change control mechanisms and reporting requirements are defined by regulations such as 10 CFR 50.59, 50.54, 50.71, and 50.90.

### 03.04 Nuclear Power Plant

Nuclear power plant means a nuclear power facility of a type described in 10 CFR 50.21(b) or 50.22.

### 03.05 Obligation

Obligations are conditions or actions that are legally binding requirements imposed on licensees through applicable rules, regulations, orders, and licenses (including technical specifications and license conditions). The imposition of obligations (sometimes referred to as regulatory requirements) during routine interactions with licensees should be reserved for matters that satisfy the criteria of 10 CFR 50.36 or are otherwise found to be of high safety or regulatory significance. The major distinction between obligations and other parts of the licensing bases is that changes generally cannot be made to obligations without prior NRC approval.

### 03.06 Periods of Extended Operation

For plants that have received a renewed license, the period of extended operation (PEO) is the licensed operating period commencing after the expiration of the initial 40-year license. For plants that are approved for a subsequent renewed operating license, the subsequent PEO commences after the expiration of the renewed license (i.e., after 60 years of operation).

Plants in a period of timely renewal (in accordance with 10 CFR 2.109(b)) that have not received a renewed license, enter the PEO or subsequent PEO when the existing license originally would have expired.

### 03.07 Regulatory Commitment

A regulatory commitment is an explicit statement to take a specific action agreed to, or volunteered by, a licensee and submitted in writing on the docket to the NRC. A regulatory commitment is appropriate for matters in which the staff has a significant interest, but which do not warrant a legally binding requirement, inclusion in the UFSAR, or a program subject to a formal regulatory change control mechanism. Control of such commitments by licensee programs is acceptable provided those programs include controls for evaluating changes and, when appropriate, reporting them to the NRC.

## 2516-04 ROLES AND RESPONSIBILITIES

### 04.01 Regional Offices

The Regional Administrators (RAs) are responsible for managing and supervising the implementation of license renewal inspection programs and activities at their respective Regions, including:

1. Making recommendations for the approval or disapproval of a request for an initial renewed license by an applicant from their Region, based on the verification of the adequacy of the plant's scoping and screen methodology and an assessment of existing site programs and the site's readiness to enhance those programs, as appropriate, to ensure the effects of aging will be adequately managed.
2. Verifying the license conditions, regulatory commitments, selected AMPs, TLAAs, and license renewal activities associated with the renewed, or subsequent renewed, operating license (including operating experience reviews), are implemented and/or completed, and to verify age-related degradation is adequately (i.e., effectively) managed.

The Regional Division Director or designee is responsible for the approval of license renewal inspection plans within its Region.

### 04.02 Division of New and Renewed Licenses

The Division of New and Renewed Licenses (DNRL), Office of Nuclear Reactor Regulation (NRR) is responsible for the following:

- a. Overall development and implementation of staff programs and activities associated with 10 CFR Part 54.

- b. Coordination of safety and environmental reviews for both LRAs and SLRAs.
- c. Coordination of the staff's final recommendation for the approval or disapproval of a renewed operating license.
- d. Ensuring adequate training is developed and made available to NRR staff and Regions.
- e. Development and control of the license renewal guidance documents (i.e., Standard Review Plan (SRP-LR) (NUREG-1800) and the Generic Aging Lessons Learned (GALL) Report (NUREG-1801) for license renewal from 40 to 60 years and the SRP-SLR (NUREG-2191) and GALL-SLR Report (NUREG-2192) for subsequent license renewal from 60 to 80 years), interim staff guidance, regulatory guides and generic communications related to license renewal, and LRIP procedures.
- f. Technical and inspection support for the review and inspection of license renewal applicant's programs and activities.

## 2516-05 GENERAL POLICIES

### 05.01 Authority

NRR is assigned the responsibility to establish the foundation on which the reactor inspection program is structured, and to confer on the Regions the authority to inspect activities over which the NRC has jurisdiction. DNRL is responsible for the development and oversight of the LRIP, while the Regions are responsible for the implementation of the LRIP. Any follow-up and future inspection needs relating to license renewal after the renewed operating license is granted will be integrated into the Reactor Oversight Program under IMC 2515. The responsibility for these inspections will be maintained by the Regions.

### 05.02 Applicant Responsibility

It is emphasized that it is the applicant's responsibility to maintain and operate the facility safely and in compliance with the CLB and regulatory requirements. NRC inspections are not designed to duplicate or substitute for an applicant's management controls established as a part of its quality verification system.

### 05.03 Communications

In implementing the inspection program set forth by this IMC, frequent communication between DNRL, the Regions, and other offices within the NRC is encouraged. An inspection plan will be developed by the inspection team leader for each inspection with assistance from DNRL, if needed. The Regions will implement the inspection plan with assistance from DNRL and other supporting organizations, if needed.

## 2516-06 LICENSE RENEWAL INSPECTIONS

The LRIP implements IP 71002, "License Renewal Inspection," and IP 71003, "Post-Approval Site Inspections for License Renewal."

#### 06.01 Purpose

The fundamental purpose of license renewal inspections is to ensure that there is reasonable assurance that the effects of aging will be managed consistent with the CLB during the **PEO or subsequent PEO**.

#### 06.02 Policy

It is not possible to anticipate all the unique circumstances that might be encountered during a particular inspection. Therefore, individual inspectors are expected to exercise initiative in conducting inspections based on their expertise and experience to ensure that all the inspection objectives are met.

If, in the course of conducting an inspection, potential safety concerns or compliance issues outside the scope of the procedure are identified, the concerns should be: (1) pursued to the extent necessary to understand the issue, and (2) communicated to the resident inspectors on-site as well as the appropriate Regional staff for further follow-up inspections. The license renewal inspection team should contact the license renewal program office if assistance is needed.

#### 06.03 Objectives

The license renewal inspection objectives are to:

- a. Provide a basis for recommending issuance or denial of a renewed operating license.
- b. Identify weaknesses within an applicant's overall license renewal program or an individual AMP that fail to provide reasonable assurance that the applicable aging effects will be adequately managed during the **PEO or subsequent PEO**.
- c. Determine the status of compliance with 10 CFR Part 54 and other areas relating to maintaining and operating the plant such that the continued operation beyond the current licensing term will not be inimical to the public health and safety.
- d. **Verify that the licensee adequately evaluated plant-specific and industry OE and has conducted inspections and tests consistent with the revised licensing basis, as implemented upon entry into the PEO or subsequent PEO.**

#### 06.04 Audits

The **license renewal** review consists of **certain activities implemented by technical staff at headquarters, including:** an acceptance review, a scoping and screening audit, **an AMP and TLAA audit, and on-site audit(s), as deemed necessary.** The **LR and SLR applications** are reviewed by NRR to verify that the content of the application meets the technical and regulatory requirements of the license renewal rule. The audits gather information for the purpose of making conclusions relative to future inspections or regulatory decisions.

#### 06.05 License Renewal Inspection (Application Stage)

The site inspections are assessments of an applicant's implementation of and compliance with 10 CFR Part 54 requirements. The LRA site inspection activities will be performed using IP 71002. The Regions are responsible for the team inspection. NRR

supporting staff may also be detailed to the Regions to prepare, perform, and document inspection activities. The site inspections will be performed by a team in the areas of the scoping and screening activities, observation of the condition of plant equipment, implementation of AMPs, and review of associated documentation. During walkdowns, inspectors may identify the effects of aging not previously recognized. Such observations allow the inspectors to evaluate the success of previously implemented plant programs that are being credited for license renewal AMPs. The Regional staff and inspection team members will become familiar with the LRA in preparation for inspections to provide operational and performance input in the application review; to assess the applicant's commitments against past performance and experience; and to prepare a Regional recommendation to grant or deny approval for the applicant's request for a renewed operating license. The IP 71002 inspection typically occurs after the audits and verifies the implementation of (or readiness to implement) license renewal activities. Note that IP 71002 is not implemented in conjunction with review of SLRAs.

#### Inspection Implementation Schedule

License Renewal				
Inspection	Inspection Stage	Schedule <sup>(a)</sup>	Applicability <sup>(b)</sup>	Completion
License Renewal Inspection - IP 71002	Initial	During the application review	Site	Required
	Follow-up	1-2 months after initial inspection	Site	As Needed
Post-Approval Site Inspection - IP 71003	Phase I	1-2 outages prior to PEO	Unit	Required
	Phase II	3-12 months prior to PEO	Site	Required
	Phase III	0-5 years into the PEO	Unit	As Needed
	Phase IV <sup>(c)</sup>	5-10 years into the PEO	Site	Required
Subsequent License Renewal				
Inspection	Inspection Stage	Schedule <sup>(a)</sup>	Applicability <sup>(b)</sup>	Completion
Post-Approval Site Inspection - IP 71003	Phase V	3-12 months or one outage prior to subsequent PEO,	Site	Required
	Phase VI <sup>(c)</sup>	5-10 years into the subsequent PEO	Site	Required

- (a) Regions may revise the inspection schedule based on insights from the licensee and feedback from prior inspections.
- (b) Regions maintain the flexibility to revise the inspection to unit and site-based inspections at multi-unit sites when deemed appropriate.
- (c) The inspection may be repeated if deemed necessary by Regional management based on the outcome of the inspection (for example, 3 years later to determine if the licensee had corrected any identified issues).



#### 06.06 Post-Approval Site Inspections

Post-approval site inspections for license renewal are conducted in accordance with IP 71003, which contains different inspection phases for LR and SLR. The post-approval site inspections are performed to verify the license conditions, regulatory commitments, selected AMPs, and TLAAAs from the renewed operating license are adequately implemented and/or completed. The inspection ensures that plant-specific and industry OE has been adequately evaluated and OE feedback is used to update aging management activities, as appropriate. Additionally, the inspection verifies age-related degradation is adequately managed. The inspection also verifies the UFSAR has been updated to include any “newly-identified” SSCs that should have been within the scope of the license renewal program and subject to an aging management review or TLAA evaluation, pursuant to 10 CFR 54.37(b). Furthermore, the inspection verifies the description of the AMPs and related activities that are, or will be, contained in the UFSAR and that the description of the programs is consistent with the programs implemented by the licensee. The inspection team will verify the licensee submitted a license amendment request to the NRC staff in accordance with 10 CFR 50.90 for changes to a license condition for license renewal, managed changes to the UFSAR supplement in accordance with 10 CFR 50.59, and managed changes to regulatory commitments associated with license renewal in accordance with Nuclear Energy Institute (NEI) 99-04, “Guidelines for Managing NRC Commitment Changes,” as endorsed by Regulatory Issue Summary (RIS) 2000-017. The Regions are responsible for the team inspection. NRR staff may also be detailed to the Region to help prepare, perform, and document inspection activities. The Regional staff and inspection team members will review the safety evaluation (SE) for license renewal of the plant, the UFSAR supplement as revised during the LRA review, and other documents per IP 71003, to assess the implementation of the license renewal program, verify the licensee’s readiness to enter the PEO or subsequent PEO, and verify the effectiveness of the licensee’s AMP and other activities after entering the PEO or subsequent PEO.

#### 06.07 Inspection Documentation of Results

Due to the significant interest and time between successive inspections (10 years or more), inspectors may include sufficient detail in the description of the aging management program review to ensure transparency for internal and external stakeholders. Inspectors may document observations associated with the licensee’s implementation of license renewal requirements that warrant continued focus over the period of extended operation. Observations should be documented in accordance with IMC 0611, “Power Reactor Inspection Reports.”

Inspections will be documented in inspection reports sent to the applicant and made publicly available in the Agencywide Documents Access and Management System (ADAMS). The results of the IP 71002 team inspections will provide input for the staff and Regional recommendations to grant or deny an applicant’s request for a renewed operating license. The results of the IP 71003 team inspections will provide an assessment of the licensee’s renewal program readiness upon entering the PEO or subsequent PEO, and effectiveness of the licensee’s AMP and other programs after entering the PEO or subsequent PEO.



## 2516-07 INSPECTIONS AT PLANTS WITH A TIMELY RENEWAL APPLICATION

In accordance with 10 CFR 2.109(b), if the licensee of a nuclear power plant files a sufficient application for renewal of an operating license at least 5 years before the expiration of the existing license, the existing license will not be deemed to have expired until the application has been finally determined. The NRC decision on a renewed operating license might not be completed before the licensee enters the PEO. In this case, IP 71003, "Post-Approval Site Inspection for License Renewal," would not be applicable.

### 07.01 Purpose

Inspection Procedure 71013 was developed to allow NRC inspections of license renewal programs for applicants that will likely be in timely renewal (e.g., reaching the end of their existing license without approval of their renewed license), in lieu of IP 71003.

### 07.02 Policy

Before commencing with the timely renewal inspection, the staff may choose to initiate communications with, and/or obtain documentation from the applicant to gain an understanding of the status of the license renewal activities in proposed license conditions, regulatory commitments, AMPs, TLAAs, and the UFSAR as revised during the LRA or SLRA review. The staff may also issue: a license condition pending the outcome of an adequate protection review of the commitments, AMPs, and TLAAs for license renewal; a confirmatory action letter; a demand for information; or an order. The staff may also choose to invoke paragraph (f) of 10 CFR 50.54 to request information that will verify the applicant's readiness to operate past the expiration date of the original operating license.

### 07.03 Objectives

The objectives of license renewal inspections at plants approaching timely renewal are:

- a. To determine whether commitments made by the licensee to implement actions, such as license conditions, other regulatory commitments proposed during the license renewal review, selected aging management programs (AMPs), and TLAAs, are implemented, scheduled, and completed.
- b. To verify the LRA is updated annually in accordance with the requirement to submit changes to the current licensing basis (CLB) during the U.S. Nuclear Regulatory Commission (NRC) review of the LRA as required by 10 CFR 54.21(b).
- c. To verify the "newly-identified" SSCs are or will be included in the annual update of the final safety analysis report (UFSAR), as required by 10 CFR 54.37(b).
- d. To verify the description of the AMPs and related activities covered in §01.01 that are contained in the UFSAR supplement are consistent with the programs the licensee proposed to implement.
- e. To verify changes to the regulatory commitments the licensee agreed to implement or complete for license renewal are evaluated in accordance with NEI 99-04, "Guidelines for Managing NRC Commitment Changes" as endorsed by RIS 2000-017, and changes

to the license renewal activities incorporated as part of the UFSAR are evaluated in accordance with the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.59.

#### 07.04 Inspection Documentation

Inspectors may include sufficient detail in the description of the aging management program review to ensure transparency for internal and external stakeholders. Inspectors may document observations associated with the licensee's implementation of license renewal requirements that warrant continued focus over the period of extended operation. Observations should be documented in accordance with IMC 0611, "Power Reactor Inspection Reports."

END

#### Attachments:

Attachment 1: AMP Effectiveness Review Background Information

Attachment 2: Revision History for IMC 2516

## Attachment 1: AMP Effectiveness Review Background Information

This attachment has been incorporated into IMC 2516 as guidance for conducting inspection activities associated with the licensee's managing aging effects during either PEO or subsequent PEO. It provides guidance for inspectors that have had limited experience with the changed requirements that go into effect during the periods of extended operation. This section provides background for inspectors conducting plant tours in accordance with IMC 2515, Appendix D, "Plant Status," as well as covering the background for the inspection procedures (IPs) listed below. This attachment can also be used by inspectors conducting samples for maintenance effectiveness and age-related degradation inspections.

### INTRODUCTION

On April 9, 2009, the first commercial nuclear power plant (Oyster Creek) entered the PEO. Virtually all the plants have received, applied for, or issued a letter of intent to apply for a renewed license. For more information on plants with renewed operating licenses, visit the NRC external website link: <http://www.nrc.gov/reactors/operating/licensing/renewal/applications.html>.

On December 31, 1991, with issuance of the first version of 10 CFR Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," the performance of passive, long-lived components took on a larger role in the regulatory framework. The basis for establishing the new requirements for passive, long-lived components is in the Statements of Consideration for the Part 54 rule change, and states, in part, "[t]he Commission concluded that passive, long-lived components should be subject to an aging management review because, in general, functional degradation of these components is not as readily revealable so that the regulatory process and existing licensee program may not adequately manage the detrimental effects of aging in the period of extended operation." [60 FN 88]

In broad terms, the Maintenance Rule (MR) monitors the condition and performance of structures and components, by measuring and trending out-of-service time against risk-informed goals and performance goals (e.g., pump starts, emergency diesel generator aligning to bus within time requirements). Performance monitoring of this nature works best on active components. However, aging effects on passive components (e.g., loss of material, cracking, flow blockage) might only be corrected after MR performance goals are missed (i.e., a failure has occurred). In addition, if passive component degradation is not the direct cause of the MR criteria being exceeded, the passive component degradation might not be corrected. As a result, it is imperative that plants use aging management programs (AMPs) to manage aging effects for passive systems, structures, and components (SSCs).

The AMPs (existing or new) that manage the aging effects of passive long-lived components, manage the aging effects at the precursor level by: (a) preventive or mitigative actions (e.g., coatings, water chemistry, cathodic protection), and/or (b) monitoring and trending of inspection and test results.

### STRUCTURE AND COMPONENT INCLUSION IN CONSIDERATION FOR MANAGING AGING EFFECTS

A two-step process determines whether an SSC is subject to aging management. The first step determines whether the SSC is within the scope of 10 CFR Part 54.4 (license renewal). The second step determines whether the item is both "passive" and "long-lived."

a. Scope

The SSCs in-scope for aging management during the PEO and subsequent PEO are defined in § 54.4(a).

b. SSCs that are Passive and Long-Lived

Having determined that an SSC is in-scope, an aging management review (i.e., “demonstrate that the effects of aging will be adequately managed so that the intended function(s) will be maintained consistent with the current licensing basis (CLB) for the period of extended operation”) is only applicable per 10 CFR 54.21(a)(1) if the SSC is passive and long-lived:

1. Passive – Performs an intended function (related to the basis for it being in-scope) without moving parts, or without a change in configuration or properties,  
  
and
2. Long-lived – Is not subject to replacement based on a qualified life or specified time period (i.e., when the replacement frequency is less than 40 years).

#### AGING MANAGEMENT PROGRAMS (AMPS)

a. During the LRA or SLRA process, the licensee identifies AMPS that describe how aging effects will be managed for SSCs that are in-scope, passive, and long-lived. These AMPS specify the following.

1. Preventive actions (e.g., maintaining water purity, purpose and maintenance of coatings, periodic cleaning of tank internals to remove accumulated sediment, cathodic protection of buried piping and tanks).
2. The types of tests, monitoring or inspections that will be used to manage the aging effects, including the number, periodicity, and location selection criteria.
3. Monitoring and trending; in particular, how the results of inspections or tests will be projected to the next inspection.
4. Acceptance criteria (qualitative or quantitative), against which the need for corrective actions are evaluated.
5. Corrective actions to be taken when the acceptance criteria are not met. Given that many of the in-scope SSCs are not safety-related, virtually all the licensees have committed to incorporate in-scope non-safety-related (NSR) SSCs into their Appendix B corrective action program in lieu of establishing a new program describing the associated controls for NSR SSCs. The NSR SSCs are incorporated to the extent of addressing conditions adverse to quality or significant conditions adverse to quality associated with passive aging effects.
6. Reviewing operating experience (OE), which might result in the need to enhance a program (such as increased inspection frequency) or develop new programs.

However, not all AMPs have activities for each of the topics. For example: flow accelerated corrosion programs do not typically have preventive actions; and monitoring and trending is not conducted for the one-time inspections conducted during the first PEO.

b. AMPs might be existing AMPs or new AMPs:

1. Existing AMPs are those that are already being performed by the licensee. These AMPs might require enhancement to make them consistent with the recommendations in the GALL or GALL-SLR Reports. The enhancements were described in either the LRA or SLRA. The incorporation of these enhancements is subject to review during the IP 71003 inspections.
2. New AMPs are those that need to be developed prior to entering either the PEO or subsequent PEO. These are also within the scope of IP 71003.

## AGING MANAGEMENT REVIEW ITEMS

Aging management review (AMR) items include a large listing (typically in the range of 5000 items) of the SSCs that are in-scope and subject to aging management review. They are organized first by the plant system (in a series of tables) that include each SSC and then by the material, environment, and aging effect combination associated with each type of SSC. Each of these items cites one or more AMPs used to manage the associated aging effect(s).

## AMPS AND AMR ITEMS DURING THE PEO OR SUBSEQUENT PEO

- a. These AMPs and AMR items are contained in the LRA or SLRA; however, upon receiving a renewed license, the LRA or SLRA becomes a historical record that is not updated once it has been submitted. Although a single clean copy of the LRA and SLRA are not kept up to date as the licensee responds to requests for additional information (RAI) and amends the application, the safety evaluation (SE) reflects the final disposition of the AMPs and AMR items. Prior to entering the PEO or subsequent PEO, the methodologies described in the LRA/SE or SLRA/SE are implemented at the site in changes to plant-specific procedures (e.g., inspection requirements for lighting), preventive maintenance (PM) activities, and development of new procedures as required. Examples:
  1. A licensee had not been conducting periodic cathodic protection (CP) surveys to determine the effectiveness of the CP system. Due to changes in the GALL Report regarding managing buried piping (AMP XI.M41, "Buried and Underground Piping and Tanks") fewer excavated direct visual examinations of buried piping are required if the CP meets performance goals. The licensee's proposed AMP stated that annual CP surveys would be conducted. This LRA statement was incorporated by 1) the development of a PM activity to conduct the CP surveys, and 2) implementation of a new procedure addressing how CP surveys will be conducted,
  2. During the staff's review of the results of internal tank inspections, it appeared that a significant change in the condition of the internal bottom coating had occurred over a 3-year interval between two inspections. The first inspection stated that the coatings were in good condition. The subsequent inspection revealed significant blisters in the

coating. The staff submitted an RAI requesting that the licensee explain the potential sudden degradation in the tank coatings. The licensee determined that during the first inspection the tank had not been completely drained, whereas for the second inspection, the tank was drained. The remaining water in the tank prevented the inspector from detecting the degraded coatings in the first inspection. Due to its response to the RAI, the licensee committed to have all inspections during the PEO conducted with the tank drained. This is an example of a change that would only be addressed in the SE since the RAI was submitted after the filing of the LRA. The SE contains a summary of the staff's evaluation of the applicant's responses, but also provides a reference to the actual RAI response. This LRA statement was implemented by a change to the tank inspection procedures.

3. A licensee had PM activities in place to inspect underground vaults in its tank farm. A review of plant-specific OE determined that the existing interval between inspections always resulted in identifying that the in-scope piping was submerged and loss of material had commenced on the surface of the piping. Based on the response to an RAI, the licensee committed to reduce the interval between inspections until repairs were shown to be effective at eliminating the source of the in-leakage to the vault. This licensee's commitment, as documented in the safety evaluation report (SER), was incorporated by a PM activity change.

#### UPDATED FINAL SAFETY ANALYSIS REPORT (UFSAR)

- a. The licensee supplements its UFSAR to address managing aging effects in the PEO or subsequent PEO. The supplement is required by 10 CFR Part 54.21(d) which states, "the FSAR supplement for the facility must contain a summary description of the programs and activities for managing the effects of aging and the evaluation of time-limited aging analyses for the period of extended operation..."
- b. This FSAR supplement defines the AMPs that the licensee is crediting to adequately manage aging throughout the PEO or subsequent PEO. It includes a summary of the critical aspects of each individual AMP that will become a part of the current licensing basis of the plant. This FSAR supplement will be the regulatory basis against which the NRC can now evaluate the licensee's implementation of these aging management activities.
- c. The FSAR supplement description of an AMP represents self-imposed standards. The standards are the changes to plant-specific procedures and PM activities as required by the renewed license.

#### USE OF OPERATING EXPERIENCE

- a. IMC 2523, "NRC Application of the Reactor Operating Experience Program in NRC Oversight Processes," provides guidance on the compilation, dissemination, use by inspectors, and inspector feedback to NRR/DRO in relation to industry OE. Operating experience smart samples include a detailed synopsis of selected OE that the agency considers as having generic safety significance and that can be applied to baseline inspections.



- b. Much of the OE associated with managing aging effects that would be considered significant for a licensee will become apparent at a precursor versus consequential level. In other words, it may not rise to the level of being screened by the IMC 2523 process because it would not be provided to the staff. However, the OE may point to specific changes a licensee should incorporate into its methods of managing aging effects. For example:
  - 1. A licensee conducts an internal inspection of a coated condensate storage tank (CST) and notes significant blistering and localized areas of missing coatings with loss of material in the base metal. This CST is one of two on site.
  - 2. The licensee's engineering staff conducts an analysis and concludes that tank minimum wall requirements will be met for another five years. As a result, the safety significance of the inspection result today is minimal.
  - 3. However, the inspection program as described in the UFSAR supplement is a sampling-based inspection program with inspections being conducted every ten years.
  - 4. This example of plant-specific OE should result in a change to the program to require more frequent inspections and the other CST should be inspected.
- c. Depending on the version of the GALL Report and interim staff guidance documents that were in effect when a licensee submitted their LRA, licensees have different self-imposed standards regarding trending and evaluating plant-specific OE in regard to implementing changes to their AMPs. Some licensees:
  - 1. have a specific UFSAR section describing how they will evaluate OE.
  - 2. have a license renewal commitment describing how they will evaluate OE.
  - 3. have no license renewal requirement to do so.
- d. Regardless of the absence or presence of a self-imposed standard related to integrating OE reviews as a part of managing aging effects, every licensee is required to meet the requirements of NUREG-0737, "Clarification of TMI Action Plan Requirements." Therefore, depending on the effect of the OE event, the licensee should consider changes to the manner in which it manages aging effects for in-scope SSCs.

Attachment 2: Revision History for IMC 2516

Commitment Tracking Number	Accession Number Issue Date Change Notice	Description of Change	Description of Training Required and Completion Date	Comment Resolution and Closed Feedback Form Accession Number (Pre-Decisional Non-Public Information)
N/A	06/22/98 CN 98-009	IMC 2516 is issued to provide guidance to NRC staff, Regions, and consultant personnel for review and inspection activities associated with an applicant's request for a renewed license for a commercial nuclear power plant beyond the initial licensing period under Title 10 of the <i>Code of Federal Regulations</i> , (10CFR) Part 54.	N/A	N/A
N/A	02/03/99 CN 99-002	IMC 2516 has been revised to update the license renewal inspection process on the basis of lessons learned during the development of the first two inspection plans. The major changes included removal of inspection activities associated with TLAA's and removal of inspection activities associated with the requirements under 10 CFR 54.19, "Content of Application - General Information." These revisions involve engineering evaluations performed during the safety evaluation performed by NRR.	N/A	N/A
N/A	01/08/01 CN 01-001	IMC 2516 has been updated for clarity	N/A	N/A
N/A	ML021150859 04/10/02 CN 02-016	IMC 2516 has been revised to: (1) change approval authority from the Director, Division of Inspection Program Management (DIPM), to the Branch Chief, Inspection Program Branch (IIPB), (2) update the reference material to reflect current standards, and (3) change Attachment 3 to reflect the approval authority as stated in item No. 1 above.	N/A	N/A

Commitment Tracking Number	Accession Number Issue Date Change Notice	Description of Change	Description of Training Required and Completion Date	Comment Resolution and Closed Feedback Form Accession Number (Pre-Decisional Non-Public Information)
N/A	ML050660153 02/18/05 CN 05-006	IMC 2516 has been revised to remove IIPB as approval authority for license renewal inspection plans, remove reference to the Associate Director for Inspection and Programs, update the general policies and program objectives, and provide an updated sample inspection letter.	N/A	N/A
	ML13092A015 08/13/13 CN 13-017	IMC 2516 has been revised to update the divisions and branches, include additional definitions, include guidance on timely renewal applications and remove the Region Notification of Plant Readiness for License Renewal and the Sample License Renewal Inspection Letter.		
	ML22245A070 06/26/23 CN 23-018	Five-year periodic review completed. No programmatic changes.  IMC 2516 has been updated to incorporate inspections of licensees who have received subsequent renewed licenses (for operation to 80 years). In addition, there is additional guidance on documentation of inspections.	N/A	ML22300A054