

Audit and Review Plan for
Plant Aging Management Reviews
and Programs

Donald C. Cook Nuclear Plant, Units 1 and 2

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Revision 1

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Audit and Review Plan for Plant Aging Management Reviews and Programs

Donald C. Cook Nuclear Plant, Units 1 and 2

1. Introduction

By letter dated October 31, 2003, Indiana Michigan Power Company (I&M), submitted to the U.S. Nuclear Regulatory Commission (NRC) its application for renewal of Operating Licenses DPR-58 and DPR-74 for Donald C. Cook Nuclear Plant, Units 1 and 2 (ML033070179). The applicant requested renewal of the operating licenses for an additional 20 years.

This document describes the project team's audit and review plan. The team will perform its work at NRC Headquarters, Rockville, Maryland; at ISL offices in Rockville, Maryland; and at the applicant's offices at the D.C. Cook plant site near Benton Harbor, Michigan. The project team site visits are planned for the weeks of December 15, 2003, March 1, 2004 and April 12, 2004. The team plans to conduct a public exit meeting at the applicant's Bridgman, Michigan, offices on April 15, 2004. Appendix A provides an overview of the License Renewal and Environmental Impacts Program, Section B (RLEP-B) of the NRC's Office of Nuclear Reactor Regulation (NRR) schedule for the D.C. Cook LRA Safety Review.

In support of the staff's safety review of the Donald C. Cook Nuclear Plant, Units 1 and 2, license renewal application (LRA), between December 2003 and April 2004, RLEP-B will lead a project team that will audit and review selected aging management reviews (AMRs) and associated aging management programs (AMPs) developed by the applicant to support the D.C. Cook LRA. The project team will include both NRC staff and contractor engineers provided by Information Systems Laboratories, Inc. (ISL), RLEP-B's technical assistance contractor. A list of the project team members and other NRC staff and ISL personnel who will support the project team's review is provided in Appendix B.

The project team's work will be performed in accordance with the requirements of Title 10 of the Code of Federal Regulations, Part 54 (10 CFR 54), "Requirements for Renewal of Operating Licenses for Nuclear Power Plants"; the guidance provided in NUREG-1800, "Standard Review Plan for Review of License Renewal Application for Nuclear Power Plants" (SRP-LR), dated July 2001; the guidance provided in NUREG-1801, "Generic Aging Lessons Learned (GALL) Report," dated July 2001; and this audit and review plan.

For its assigned scope of work, the project team will verify that the applicant's aging management activities and programs will adequately manage the effects of aging on structures and components (SCs), so that their intended functions will be maintained consistent with the D.C. Cook current licensing basis (CLB) for the period of extended operation. The project team will perform audits and reviews of selected AMRs and AMPs to verify consistency with the license renewal requirements and guidance documents mentioned above. The project team will also verify whether other AMPs and AMRs that the applicant has indicated are consistent with programs and reviews previously approved by the NRC staff, are acceptable.

2. Background

In 10 CFR 54.4 the scope of license renewal is defined as those systems, structures, and components (SSCs) (1) that are safety-related; (2) whose failure could affect safety-related functions; or (3) that are relied on to demonstrate compliance with the NRC's regulations for fire protection, environmental qualification (EQ), pressurized thermal shock (PTS), anticipated transients without scram (ATWS), and station blackout (SBO). An applicant for a renewed license must review all SSCs within the scope of license renewal to identify those SCs subject to an AMR. The SCs subject to an AMR are those that perform an intended function without moving parts or without a change in configuration or properties, and that are not subject to replacement based on qualified life or specified time period. Pursuant to 10 CFR 54.21(a)(3), an applicant for a renewed license must demonstrate that the effects of aging will be managed in such a way that the intended function or functions of those SCs will be maintained, consistent with the CLB, for the period of extended operation. 10 CFR 54.21(d) requires that the applicant submit a supplement to the updated final safety analysis report (UFSAR) that contains a summary description of the programs and activities for managing the effects of aging.

The SRP-LR provides staff guidance for reviewing applications for license renewal. The GALL Report is a technical basis document. It summarizes staff-approved AMPs for the aging of a large number of SCs that are subject to an AMR. It summarizes the aging management evaluations, programs, and activities credited for managing aging for most of the SCs used by commercial nuclear power plants, and serves as a reference for both the applicant and staff reviewers to quickly identify those AMPs and activities that the staff has determined will provide adequate aging management during the period of extended operation. If an applicant commits to implementing these staff-approved AMPs, the time, effort, and resources used to review an applicant's LRA will be greatly reduced, thereby improving the efficiency and effectiveness of the license renewal review process. The GALL Report identifies (1) SSCs, (2) component materials, (3) the environments to which the components are exposed, (4) the aging effects associated with the materials and environments, (5) the AMPs that are credited with managing the aging effects, and (6) recommendations for further applicant evaluations of aging effects and their management for certain component types.

The GALL Report is treated in the same manner as an approved topical report that is generically applicable. An applicant may reference the GALL Report in its LRA to demonstrate that its programs correspond to those that the staff reviewed and approved in the GALL Report. If the material presented in the LRA is consistent with the GALL Report and is applicable to the applicant's facility, the staff will accept the applicant's reference to the GALL Report. In making this determination, the staff considers whether the applicant has identified specific programs described and evaluated in the GALL Report but does not conduct a review of the substance of the matters described in the GALL Report. Rather, the staff confirms that the applicant verified that the approvals set forth in the GALL Report apply to its programs.

If an applicant takes credit for a GALL program, it is incumbent on the applicant to ensure that the plant program contains all the program elements (also called attributes) of the referenced GALL program. These elements are described in SRP-LR, Appendix A.1, "Aging Management Review - Generic (Branch Technical Position RLSB-1)." In addition, the conditions at the plant must be bounded by the conditions for which the GALL program was evaluated. The applicant must certify in its LRA that it completed the verifications and that they are documented and retained in an auditable form.

3. Scope

- 3.a The project team will perform audits and technical reviews of the license renewal applicant's AMPs and AMRs. The purpose of these reviews and audits is to verify that the effects of aging on structures and components, within the scope of the team's responsibilities, will be adequately managed so that their intended functions will be maintained consistent with the plant's current licensing basis (CLB) for the period of extended operation as required by 10 CFR 54. Specifically, the project team will:
- i. Review and audit assigned AMPs in accordance with this plan. The assigned AMPs are generally those that are:
 - (1) consistent with the GALL Report,
 - (2) consistent with the GALL Report with certain exceptions and/or enhancements identified by the applicant, or
 - (3) plant specific, where there is an NRC-approved precedent.
 - ii. Review and audit assigned AMRs in accordance with this plan. These AMRs generally consist of those line items that are:
 - (1) consistent with the GALL Report,
 - (2) consistent with the GALL Report with exceptions, or
 - (3) based on an NRC-approved precedent.
- 3.b An AMP consists of the ten elements (attributes) as defined in the SRP-LR. This document directs the audit or technical review of seven of the ten elements. Elements 7, 8, and 9 as noted in Table 1, are reviewed and reported by others, typically the NRC Division of Inspection Project Management (DIPM). These program elements are discussed further in Appendix A, "Aging Management Review," of Branch Technical Position RLSB-1 of the SRP-LR.

4. Objectives

- 4.a To verify that the AMPs reported by the applicant to be consistent with the GALL Report are consistent with the criteria of the GALL Report.
- 4.b To verify, for AMPs reported to be consistent with the GALL Report with exceptions, that the AMP is consistent and the exceptions are acceptable with an adequate technical basis or an NRC-approved precedent.
- 4.c To verify, for AMPs reported to be consistent with the GALL Report with enhancements, that the AMPs are consistent and the enhancements are:
- i. consistent with the GALL Report or are acceptable based on a technical review and may be used, and
 - ii. identified as regulatory commitments (e.g., UFSAR, in Appendix A of the LRA, or in a controlled commitment tracking system).

- 4.d To perform technical reviews of plant-specific AMPs where the applicant has stated that the AMP is equivalent to, or enveloped by, another AMP that has been previously approved by the NRC. The NRC-approved precedent establishes the limits of what the NRC staff has previously found acceptable, but is not in its own right sufficient to determine that the AMP will satisfy 10 CFR Part 54. A technical review and documented basis are required for this review.
- 4.e To verify that the applicant's AMRs reported to be consistent with the GALL Report are consistent with the criteria of the GALL Report or can be accepted based on an NRC-approved precedent.
- 4.f To evaluate, for the AMR review of Table 3.X.1 of the applicant's LRA, that the applicant's AMRs have addressed those line items where "further evaluation" is recommended in accordance with the SRP-LR.

5. Pre-Audit Planning and Activities

- 5.a Define the sequence of activities that shows key milestone dates and activities that are consistent with the overall completion schedule.
 - i. Key milestones include, as a minimum:
 - (1) receipt of the LRA
 - (2) assignment of and providing training to project team members (Appendix B)
 - (3) receipt of scope of work (AMPs and AMRs to be reviewed) for the project team from the NRC contract technical monitor (TM) or NRC team leader
 - (4) preparation and issuance of the audit and review plan
 - (5) scheduling of site visits to review AMPs and resolve audit and review questions and issues
 - (6) scheduling of in-office periods and site visits to review AMRs
 - (7) preparation of AMP and AMR questions and interim audit and review report inputs
 - (8) preparation of requests for additional information (RAIs)
 - (9) preparation and issuance of draft audit and review report and draft safety evaluation report (SER) input
 - (10) preparation, review, and issuance of the final audit and review report and SER input
 - ii. Establish site visit schedules based on discussions between the NRC project team leader and the NRC license renewal project manager to obtain agreement from the applicant.

Appendix A contains a schedule of key milestone dates that has been developed to support the milestone activities listed above.
- 5.b Make project team member work assignments for the AMPs and AMRs, in conjunction with the NRC team leader:

- i. Decide which AMPs and AMRs will be reviewed or audited by contractor personnel and which will be reviewed and audited by NRC staff.
 - ii. Develop assignment lists indicating which project team member will be reviewing which AMPs and AMRs. The assignments are shown in Appendix C and Appendix D, respectively.
- 5.c Provide training, as appropriate, and prepare project team members. The training and preparation will include:
 - i. a description of the audit and review process
 - ii. an overview of documentation that is audited and reviewed, and audit-related documentation. This includes:
 - (1) GALL Report
 - (2) SRP-LR
 - (3) LRA AMPs and tabular information
 - (4) LRA AMRs and tabular information
 - (5) GALL Report AMPs and tables
 - (6) Interim Staff Guidance (ISG)
 - (7) license renewal audit reports, SERs and RAIs from other plants, as appropriate
 - (8) the applicant's UFSAR
 - iii. the protocol for interfacing with the applicant
 - iv. administrative issues such as travel, control of documentation, work hours, etc.
 - v. input requirements for audit reports, questions to the applicant, RAIs, and SER inputs
 - vi. interface with NRC Division of Engineering (DE) technical reviewers
 - vii. the lessons learned and examples of report content and format from previous audits
- 5.d Review audit-related documentation to become familiar with the process and prepare for the on-site and in-office audits and reviews.
- 5.e Provide a methodology for identifying elements (attributes) to be audited for assigned AMPs and AMRs.

6. Conducting Audits and Reviews

- 6.a Assignment of AMPs to be Audited and Reviewed
 - i. Two types of AMPs exist; those that the applicant claims are consistent with the GALL Report and those that are plant specific. Audits and reviews of both types of AMPs are discussed in the following sections of this plan.
 - ii. The NRC project team leader will approve all work assignments assigned to the individual project team members. After the audit plan is issued, the team leader may reassign AMPs if a reassignment is determined to be necessary.

6.b Scope of AMP Elements to be Audited and Reviewed

- i. Appendix A of the SRP-LR and Chapter XI of the GALL Report define ten elements that are to be reviewed for consistency. These elements are summarized in Table 1. The project team will review seven of these ten elements (Elements 1 through 6 and Element 10). The project team will **not** audit the following elements:
 - (1) Element 7, Corrective Actions,
 - (2) Element 8, Confirmation Process, and
 - (3) Element 9, Administrative Controls
- ii. The scope of elements audited or reviewed is the same for AMPs consistent with the GALL Report and for plant-specific AMPs.

6.c AMP Audits

- i. Audits of AMPs Consistent with the GALL Report
 - (1) The AMP audit process flowchart (Figure 1) shows the activities and decisions used to review and audit each AMP that the applicant claims is consistent with the GALL Report.
 - (2) Pre-audit preparation is an important step and includes the following activities:
 - (a) For the LRA AMP being reviewed that is cited as consistent with the GALL Report, identify the corresponding AMPs in the GALL Report.
 - (b) Review the associated GALL Report AMPs and identify those elements (attributes) that will be audited.
 - (c) Identify which or what type of documents will be necessary to perform the audit. These may include, but are not limited to, the following
 - (i) LRA
 - (ii) SERs for similar LRAs
 - (iii) SRP-LR
 - (iv) GALL Report
 - (v) implementation procedures
 - (vi) operating experience (plant-specific and industry)
 - (3) AMP Audit Worksheets
 - (a) A worksheet for documenting the reviews of AMPs consistent with GALL Report AMPs is provided in Appendix E.
 - (4) Audit
 - (a) The audit requires confirmation that the seven audit LRA AMP elements are consistent with the corresponding seven elements of the GALL Report AMP. This is achieved by answering the following questions and then following the assessment process shown in Figure 1.
 - (i) Did the applicant identify any exceptions to the GALL Report AMPs?
 - (ii) Is the attribute consistent with the GALL Report AMP?

- (b) If either of the above questions results in the identification of an exception or a difference, the reviewer can accept the exception or difference as long as a technical basis exists that justifies its acceptance.
 - (c) If an acceptable basis exists for an exception or difference to the GALL Report AMP, the reviewer will document the basis in the audit and review report and the SER.
 - (d) If it is necessary to ask the applicant a question to clarify the basis for accepting the element, an exception or a difference to the GALL Report AMP, the logic process shown in Figure 1 should be used.
 - (e) If it is necessary for the applicant's response to be docketed as a basis for accepting the exception or difference, the applicant may voluntarily docket the response as an amendment to the LRA or the NRC may issue an RAI.
- ii. Reviews of Plant-Specific AMPs
- (1) The review process flowchart (Figure 2) shows the activities and decisions used to audit each plant-specific AMP.
 - (2) Pre-review preparation is an important step and includes the following activities:
 - (a) Review Section A.1.2.3 of the SRP-LR and identify those element criteria that will be reviewed in conjunction with each of the seven elements.
 - (b) Identify which or what type of documents will be necessary to perform the audit. These may include, but are not limited to the following:
 - (i) LRA
 - (ii) SER for similar LRAs
 - (iii) applicant implementation documents
 - (iv) operating experience (plant-specific and industry)
 - (3) AMP Review Worksheets
 - (a) A worksheet for documenting the reviews of plant-specific AMPs is provided in Appendix F.
 - (4) Review
 - (a) The review requires confirmation that the seven LRA AMP elements are consistent with the corresponding seven elements of Section A.1.2.3 of the SRP-LR. If this review results in the identification of an exception or a difference, the reviewer can accept the exception or difference as long as a technical basis is provided to justify its acceptability.
 - (b) If an acceptable basis exists for the difference from Section A.1.2.3 of the SRP-LR, document it in the audit and review report and SER input.
 - (c) If it is necessary to ask the applicant a question to clarify the basis for accepting the AMP element or a difference from Section A.1.2.3 of the SRP-LR, the logic process shown in Figure 2 should be used.

- (d) If it is necessary for the applicant's response to be docketed as a basis for accepting the AMP or a difference, the applicant may voluntarily docket the response as an amendment to the LRA or the NRC may issue an RAI.

6.d Audits and Reviews of AMRs

- i. Assignment of AMRs to be Audited or Reviewed
 - (1) Two types of AMRs exist; those that the applicant claims are consistent with the GALL Report and those that are plant specific. Audit and review of both types of AMRs are discussed below. In general, the project team will only review AMRs that are consistent with the GALL Report or that are based on a precedent identified by the applicant.
 - (2) Appendix D identifies those AMRs that are assigned to this project team and identifies the responsible team members. The work split tables that identify the specific AMR line items assigned to the project team for audit or review are shown in Appendix I. After issuance of this audit and review plan, the project team leader may reassign the AMR to another reviewer or have the AMR reassigned to another NRC section, if appropriate.
- ii. Review of AMRs Consistent with the GALL Report
 - (1) The review process in Figure 3 shows the activities and decisions used to review each AMR that the applicant claims is consistent with the GALL Report.
 - (2) Pre-audit preparation is an important step and includes, as a minimum, the following activities:
 - (a) For the LRA AMRs being reviewed that are cited as consistent with the GALL Report, identify the corresponding AMRs in Volume 2 of the GALL Report.
 - (b) Review the associated GALL Report Volume 2 AMRs and identify those rows that will be audited in conjunction with each of the LRA AMRs.
 - (c) Identify which or what type of documents will be necessary to perform the audit. These may include, but are not limited to the following:
 - (i) LRA
 - (ii) SER for similar LRAs
 - (iii) SRP-LR
 - (iv) GALL Report
 - (v) applicant implementation documents
 - (vi) operating experience (plant-specific and industry)
 - (3) AMR Audit Worksheets
 - (a) A worksheet for documenting the reviews of AMRs is provided in Appendix G.
 - (4) Reviews of AMRs Consistent with the GALL Report
 - (a) Those AMRs that are identified by the applicant as consistent with the GALL Report.
 - (i) Each AMR line item is coded with a letter which represents a standard note designation (Appendix

- H) based on a letter from A. Nelson, NEI, to P. T. Kuo, NRC, "U.S. Nuclear Industry's Proposed Standard License Renewal Application Format Package, Request NRC Concurrence," dated January 24, 2003 (ML030290201). (Note that the staff concurred in the format of the standardized format for LRAs by letter dated April 7, 2003, from P.T. Kuo, NRC, to A. Nelson, NEI (ML030990052).) Notes that use numeric designators are specific to Donald C. Cook Nuclear Plant, Units 1 and 2. The note codes A through E are classified as "consistent with the GALL Report," and are to be reviewed in accordance with the guidance contained in Section 6.d.ii(4) of this plan.
- (ii) The review process flowchart (Figure 3) shows the activities and decisions used to review the AMRs classified as consistent with the GALL Report.
 - (iii) The AMR review requires confirmation that the regulatory criteria of 10 CFR 54.21(a)(3) are satisfied. This criterion states that, "For each structure and component identified in paragraph (a)(1) of this section, demonstrate that the effects of aging will be adequately managed so that the intended function(s) will be maintained consistent with the CLB for the period of extended operation."
- (b) AMR Audit
- (i) For each assigned AMR line item, perform the review associated with the note code letter (A through E) assigned to the specific AMR line item being reviewed.
 - 1) Assess if the AMR is consistent with the GALL Report for the elements associated with its note code letter.
 - a) If not, perform the action described in Step 6.d.ii(4)(b)(vi).
 - (ii) If Note A applies, and the applicant uses a plant-specific AMP¹, assess if the component is within the scope of the LRA AMP cited.
 - 1) If component is in the scope of the LRA AMP cited, the AMR line item review is satisfactory.
 - 2) If not, proceed with the action described in Step 6.d.ii(4)(b)(vi).
 - (iii) If Note C or D applies, determine if component type is acceptable for the material, environment and aging effect.

¹ Some GALL AMRs reference the use of a plant-specific AMP. In such cases the AMR audit requires the project team reviewer to confirm that the plant-specific AMP is appropriate to manage the aging effects during the period of extended operation.

- 1) If Note D applies, review LRA exceptions and discuss in the audit and review report
 - 2) If not, perform the action described in Step 6.d.ii(4)(b)(vi).
 - (iv) If Note E applies, review the AMP audit report findings to determine if the scope of an alternate AMP envelopes the AMR line item being reviewed and satisfies 10 CFR 54.21(a)(3).
 - 1) If not, perform the action described in Step 6.d.ii(4)(b)(vi).
 - (v) Review the corresponding LRA Table 3.X.1 and referenced LRA Section 3.X.2-Y.
 - 1) Determine if the "Further Evaluation Recommended" comparison in LRA Section 3.X.2.2.Y is enveloped by Section 3.X.2.2.Y of the SRP-LR. If not, proceed with the action cited in Step 6.d.ii(4)(b)(vi).
 - 2) If the LRA section does not meet the acceptance criteria of Appendix A of the SRP-LR, proceed with the action cited in Step 6.d.ii(4)(b)(vi).
 - (vi) If during the review a difference is identified, prepare a question for the applicant to obtain clarification. If it is necessary to ask the applicant a question to clarify the basis for accepting the AMR, the logic process shown in Figure 4 should be used.
 - 1) Review the applicant's response. If it appears acceptable, reinstate the audit at Step 6.d.ii(4)(b).
 - 2) If an unacceptable response is received, prepare an additional question to obtain the necessary information. If the auditor/reviewer does not believe that an acceptable response is forthcoming notify the team leader of the situation and prepare a draft RAI.
 - 3) If it is necessary for the applicant's response to be docketed as a basis for accepting the exception or difference, the applicant may voluntarily docket the response or the NRC may issue an RAI.
- iii. Performance of AMR Audits Using NRC-Approved Precedent
- (1) The audit process flowchart (Figure 4) shows the activities and decisions used to review each assigned AMR that the applicant has identified an NRC-approved precedent. (Note: Applicant identified NRC-approved precedents are only to be used as an aid for performing AMR audits. The audit conclusions will be based on the technical basis of the AMR and its applicability to the plant

- being reviewed. It is not acceptable to simply cite the NRC-approved precedent as its basis).
- (2) Prior to the audit and review, identify which or what type of documents will be necessary to perform the audit. These may include, but are not limited to the following:
 - (a) LRA
 - (b) SERs for similar LRAs
 - (c) GALL Report
 - (d) applicant implementation documents
 - (e) operating experience (plant specific and industry)
 - (3) AMR Audit Performance
 - (a) The AMR audit requires confirmation that the regulatory requirements of 10 CFR 54.21(a)(3) are satisfied. This criterion states that, “For each structure and component identified in paragraph (a)(1) of this section, demonstrate that the effects of aging will be adequately managed so that the intended function(s) will be maintained consistent with the CLB for the period of extended operation.”
 - (b) For AMRs with an NRC-approved precedent, this may be achieved by answering the following questions while following the assessment process shown in Figure 4:
 - (i) Is the precedent appropriate for the LRA AMR being reviewed?
 - (ii) Is the NRC-approved precedent sufficiently documented or understood to technically support the adequacy of the LRA AMR being reviewed?
 - (iii) Is the LRA AMR within the bounds of the chosen NRC-approved precedent?
 - (iv) If any of these questions results in a ‘No’ answer, then additional information is required to make a determination that the AMR is acceptable.
 - (v) If it is necessary to ask the applicant a question to obtain clarification on the basis for accepting the AMR, the logic process shown in Figure 4 should be used.
 - (vi) If it is necessary for the applicant’s response to be docketed as a basis for accepting the exception or difference, the applicant may voluntarily docket the response or the NRC may issue an RAI.
 - (4) AMR Audit Worksheets
 - (a) Worksheets for documenting the auditor’s reviews of AMRs is provided in Appendix G.

7. Audit and Safety Review Documentation

7.a Scope of Documentation

- i. Based on the results of the AMP and AMR audits and safety reviews performed in accordance with Section 6 of this plan, the project team will prepare:

- (1) an audit and review report, and
- (2) SER input
- ii. Both the audit and review report and the SER input will be delivered to the NRC PM.

7.b Documentation Overview

- i. All activities performed by the project team will be documented in the audit and review report. As necessary, the report information will be repeated or summarized in the SER input.
- ii. The project team will prepare the report as discussed in Section 7.c. of this plan.
- iii. The project team will prepare the SER input, as discussed in Section 7.d. of this plan.

7.c Audit and Review Report

- i. The report is used to document the audits and reviews of the AMPs and the AMRs assigned to the project team.
- ii. The audit report should include the following sections:
 - (1) cover page
 - (2) table of contents
 - (3) abbreviations
 - (4) introduction
 - (5) background
 - (6) summary of Information in the license renewal application
 - (7) audit and review scope
 - (8) audit and review process
 - (9) audit and review results
 - (a) AMPs
 - (i) AMPs reviewed (Table of Contents)
 - (ii) Audit and review results
 - 1) consistent with GALL
 - 2) plant specific
 - (b) AMRs
 - (i) State that the project team reviewed the AMRs assigned to it in the audit and review plan.
 - (ii) Audit and review results.
 - (10) Attachments
 - (a) List of project team and applicant personnel (and other reviewers, if appropriate)
 - (b) List of elements of an aging management program for license renewal
 - (c) List of audit and review open items
 - (d) List of documentation reviewed
 - (e) List of commitments included in Appendix A of the SER
- iii. The following paragraphs define the type of information and level of detail necessary for each of the report sections.

- (1) A cover page that identifies the following:
 - (a) name of the plant and units for which the audits and reviews were performed
 - (b) docket numbers of the plant(s) addressed in the LRA
 - (c) organization preparing the report
 - (d) contract number under which the work was performed
 - (e) statement that the report was prepared for the License Renewal and Environmental Impacts Program in the Division of Regulatory Improvement Programs of the NRC's Office of Nuclear Reactor Regulation
 - (f) issue date
- (2) Introduction. This section shall describe the overview of the audit and review conducted by the project team. This section shall also list key audit and review activities, including site visits. In addition, identify the organizations supporting the audits and reviews.
- (3) Background. This section shall describe the regulatory basis, the role, the SRP-LR, and the GALL Report.
- (4) Summary of Information in the License Renewal Application. This section shall describe the information contained in the LRA tables that identifies the AMR results for SCs.
- (5) Audit and Review Scope. This section shall include statements that:
 - (a) The audit and review was performed to fulfill the criteria of 10 CFR 54.21(a)(3).
 - (b) The audit and review was performed in accordance with the guidance contained in the:
 - (i) SRP-LR
 - (ii) GALL Report
 - (c) This section also identifies the breadth of the audit performed, stating that the audits and reviews were limited to those AMPs and AMRs assigned to the project team.
 - (i) Include in this section a description of the nominal rules used to make the work assignments.
 - (ii) This section shall note that only seven of the ten AMP elements were audited by the project team and that the other three elements were reviewed by other sections of the NRC staff.
- (6) Audit and Review Process. This section shall state that the audit and review was performed in accordance with the processes defined in accordance with this plan and will summarize the audit and review process for AMPs, AMRs, and the UFSAR supplement.
- (7) Audit and Review Results. This section shall include:
 - (a) AMPs and AMRs reviewed. The table of contents lists those AMPs reviewed. The audit and review plan documents which AMRs were reviewed by the project team.
 - (b) AMPs consistent with the GALL Report. Each AMP reviewed by the project team that the applicant identified as consistent with the GALL Report shall be documented.

Each AMP shall have an individual section in the audit and review report that documents the following:

- (i) A subsection identifying the LRA AMP name, LRA section number, title and a statement as to the consistency with the GALL AMP(s) to which the LRA AMP is being compared. A listing of the GALL AMP(s).
 - (ii) A subsection describing the LRA AMP scope.
 - (iii) A subsection describing the LRA AMP consistency with respect to the GALL Report AMP, the documents reviewed, and the applicant staff interviewed.
 - (iv) A subsection listing the exceptions and/or enhancements and associated program elements to the GALL Report AMP, a restatement of the GALL Report AMP program element criterion (criteria) that applies to the exception and/or enhancement, and a technical basis explaining why any exceptions (identified by the applicant or the project team) or enhancements to the applicant's AMPs are acceptable.
 - (v) A review of operating experience used to justify the acceptance of the AMP.
 - (vi) A discussion concerning the adequacy of the LRA Appendix A commitment to revise the UFSAR. Any enhancements are to be cited or referenced in the Appendix A commitment.
 - (vii) A subsection that provides the basis for concluding that the LRA AMP is consistent with the GALL Report AMPs.
 - (viii) If the applicant needed to make a docketed response to amend or supplement the LRA so that an acceptable finding can be provided, document the submittal (include the ADAMS accession number) and explain the issue that the submittal resolved and discuss the basis for the resolution.
 - (ix) If an RAI was issued concerning the AMP, identify the RAI number and briefly discuss the RAI. State if the RAI remains open or if an applicant response has been accepted. If the response was acceptable, document the basis for its acceptance.
- (c) AMPs that are plant specific. Each AMP reviewed by the project team that the applicant identified as plant specific is to be documented in the audit and review report. This documentation shall include:
- (i) a subsection identifying the LRA AMP name, LRA section number, title and a description of the LRA AMP scope.
 - (ii) a subsection that identifies the review of the LRA AMP program elements against the program

- element criteria in the SRP-LR, Appendix A, Section A.1.2.3 and SRP-LR Table A.1-1.
- (iii) the basis for concluding that each of the seven AMP program elements reviewed by the team (see Table 1 of this plan) is acceptable.
 - 1) Document the basis for accepting any exceptions or enhancements to the SRP-LR Appendix A Section A.1.2.3 program element criteria.
 - 2) If the applicant needed to make a docketed response to amend or supplement the LRA so that an acceptable finding can be provided, document the submittal (include the ADAMS accession number) and explain the issue that the submittal resolved and discuss the basis for the resolution.
 - 3) If an RAI was issued concerning the AMP, identify the RAI number and briefly discuss the RAI. State if the RAI remains open or if the applicant response has been accepted. If the response was acceptable, document the basis for its acceptance.
 - 4) Operating experience is one of the seven AMP program elements reviewed, and the review of operating experience used to justify acceptance of the AMP is included herein.
 - (iv) a discussion concerning the adequacy of the LRA Appendix A commitment to revise the UFSAR. Any enhancements are to be cited or referenced in the Appendix A commitment.
 - (v) a subsection that provides the basis for concluding that the LRA AMP adequately manages the effects of aging so that the intended functions will be maintained consistent with the CLB during the period of extended operation.
 - (d) Aging Management Reviews². This introductory section should include the following:
 - (i) A brief summary of what the project team reviewed to perform the audit and review, i.e., the LRA, the SRP-LR, applicant's basis documents, and other implementation documents.
 - (ii) A summary review of the AMR Notes A through J used to classify the AMR line items used in the LRA Tables 3.X.2-Y.

²AMR results evaluations are documented in the audit and review report sequentially by LRA Section 3.X. The project team documents the audit and review results section for the AMRs as defined in 7.c.iii.(7)(e) through (g) of this plan for LRA Sections 3.1, 3.2, 3.3, 3.4, 3.5, and 3.6.

- (iii) The basis for accepting any exceptions to GALL AMRs that were identified by the applicant or the project team reviewer.
 - 1) If the applicant needed to make a docketed response to amend or supplement the LRA so that an acceptable finding could be provided, document the submittal (include the ADAMS accession number) and explain the issue that the submittal resolved and discuss the basis for the resolution.
- (iv) An introductory section for each LRA Section 3.X is included and contains the following:
 - 1) the LRA section reviewed, and
 - 2) a summary of the type of information provided in the section of the LRA reviewed, including a listing of the AMPs reviewed for this LRA section.
- (e) AMRs consistent with the GALL Report³. This section shall include the following:
 - (i) The project team documents information on AMRs consistent with the GALL Report for which no further evaluation is required only if they had an audit finding resulting in an open item requiring a docketed response from the applicant or an RAI.
 - (ii) If an RAI was issued concerning the AMR, identify the RAI number and briefly discuss the RAI. State if the RAI remains open or if the applicant response has been accepted. If the response was acceptable, document the basis for its acceptance and identify the applicant submittal that provided the response.
 - (iii) Provide an audit finding that determines if:
 - 1) the applicable aging effects were identified,
 - 2) the appropriate combination of materials and environments were defined, and
 - 3) acceptable AMPs were specified.
 - (iv) Provide a conclusion stating, if appropriate, that:
 - 1) the applicant has demonstrated that the effects of aging will be adequately managed so that the intended functions will be maintained consistent with the CLB for the period of extended operation, and
 - 2) 10 CFR 54.21(a)(3) has been satisfied.
- (f) AMRs consistent with the GALL Report, for which further evaluation is required. This section shall include the following:

³The audit results documented in this section address the AMRs consistent with the GALL Report for which no further evaluation is recommended.

- (i) A subsection for each of the LRA sections (3.X.2.2.Y) containing the applicant's further evaluations of AMRs for which further evaluation is required.
- (ii) For each LRA Section 3.X.2.2.Y containing the applicant's further evaluations, include the following:
 - 1) A statement that the project team audited the applicant's further evaluations against the criteria contained in Section 3.X.2.2.Y of the SRP-LR.
 - 2) Identify the SRP-LR Section 3.X.2.2.Y criteria.
 - 3) Review the applicant's evaluation of the aging effect and provide a summary of the basis for concluding that it satisfies the criteria contained in Section 3.X.2.2.Y of the SRP-LR.
 - 4) If the applicant needed to make a docketed response to amend or supplement the LRA so that an acceptable finding can be provided, document the submittal (include the ADAMS accession number) and explain the issue that the submittal resolved and discuss the basis for the resolution.
 - 5) A concluding paragraph summarizing the project team evaluation of the particular aging effect.
- (g) AMR results that are not consistent with the GALL Report. This section documents reviews of AMRs assigned to the project team that are not consistent with the GALL Report. The audit and review report shall document the following:
 - (i) A summary of the type of information provided in the section of the LRA reviewed. Identify the LRA Tables 3.X.2-Y listed in this section.
 - (ii) The project team will document, for each LRA Table 3.X.2-Y in LRA Section 3.X, the results and findings of NRC-approved precedents that were reviewed.
 - (iii) Provide an audit finding (evaluation) that determines if:
 - 1) the applicable aging effects were identified,
 - 2) the appropriate combination of materials and environments were listed, and
 - 3) acceptable AMPs were specified.
 - 4) If the applicant needed to make a docketed response to amend or supplement the LRA so that an acceptable finding can be provided, document the submittal (include the ADAMS accession number) and explain

- the issue that the submittal resolved and discuss the basis for the resolution.
- (iv) If an RAI was issued concerning the AMP, identify the RAI number and briefly discuss the RAI. State if the RAI remains open or if the applicant response has been accepted. If the response was acceptable, document the basis for its acceptance and identify the applicant submittal that provided the response.
 - (v) Provide a conclusion stating, if appropriate, that:
 - 1) the applicant has demonstrated that the effects of aging will be adequately managed so that the intended functions will be maintained consistent with the CLB for the period of extended operation, and
 - 2) 10 CFR 54.21(a)(3) has been satisfied.
- (8) Audit and Review Open Items (RAIs issued). This attachment shall provide a list of RAIs issued and a summary of the staff disposition of the applicant's responses, if any.
- (a) Identify to which AMP or AMR each RAI applies.
 - (b) The RAI disposition will be further expounded upon in conjunction with the audit and review results in the applicable AMP or AMR discussion.
 - (c) In general, questions that were discussed with the applicant and resolved during performance of the audit and review should not be listed in the attachment or discussed in the audit and review report.
- (9) List of Documentation Reviewed. This attachment shall provide the documents reviewed in support of the AMP and AMR audits and reviews.
- (a) Indicate which documents were reviewed for each AMP or AMR section.
 - (b) The attachment may include both docketed and non-docketed documents.
 - (c) The attachment may include both licensee-controlled documents (e.g., calculations and procedures) and other documents (e.g., codes and standards).
 - (d) Note that with the exception of documents relied on to make regulatory decisions, the non-docketed documents may only be available at the applicant's offices or plant site.

7.d SER Input

- i. The project team will prepare input to the SER that incorporates the project team's audit and safety evaluations.
- ii. The SER input is to have the following sections.
 - 3. Aging Management Review Results

- 3.0 Applicant's Use of the Generic Aging Lessons Learned Report
 - 3.0.1 Format of the LRA
 - 3.0.2 Staff's Review Process
 - 3.0.2.1 AMRs in the GALL Report
 - 3.0.2.2 NRC-Approved Precedents
 - 3.0.2.3 UFSAR Supplement
 - 3.0.2.4 Documentation and Documents Reviewed
 - 3.0.3 Aging Management Programs
 - 3.0.3.1 AMPs that are Consistent with the GALL Report
 - 3.0.3.2 AMPs that are Consistent with GALL Report with Exceptions or Enhancements
 - 3.0.3.3 AMPs that are Plant-Specific
 - 3.0.4 Quality Assurance Program Attributes Integral to Aging Management Programs
- 3.X⁴ Aging Management of _____
 - 3.X.1 Summary of Technical Information in the Application
 - 3.X.2 Staff Evaluation
 - 3.X.2.1 Aging Management Evaluations that are Consistent with the GALL Report, for Which Further Evaluation is Not Required
 - 3.X.2.2 Aging Management Evaluations that are Consistent with the GALL Report, for Which Further Evaluation is Recommended
 - 3.X.2.3 AMR Results that are Not Consistent with or Not Addressed in the GALL Report
 - 3.X.3 Conclusion

iii. The following guidance is provided to assist in the preparation of the SER input.

- (1) SER inputs are to be prepared for
 - (a) each AMP that was determined to be consistent with the GALL Report, which has no exceptions or enhancements.
 - (b) each AMP that was determined to be consistent with the GALL Report, which has exceptions (identified by either the applicant or the audit team) or enhancements.
 - (c) each plant-specific AMP
 - (e) AMRs that are consistent with the GALL Report
 - (f) staff AMR review results⁵
- (2) The following guidance is provided to assist in preparing SER input.

⁴ The LRA AMR results are broken down into six sections and address the following system/structure groups: (1) Section 3.1, reactor vessel, internals and reactor coolant system, (2) Section 3.2, engineering safety features systems, (3) Section 3.3, auxiliary systems, (4) Section 3.4, steam power and conversion systems, (5) Section 3.5, structures and component supports, (6) Section 3.6, electrical and instrumentation and controls.

⁵ AMRs that are not consistent with the GALL Report.

- (a) AMPs determined to be consistent with the GALL Report, with no exceptions. The SER input for these AMPs will include the AMP title, LRA AMP paragraph number and a discussion of the basis for concluding that the LRA Appendix A, UFSAR update is acceptable. This SER input documents that the AMP is consistent with the GALL Report.
 - (i) If the applicant needed to make a docketed response to amend or supplement the LRA so that an acceptable finding can be provided, document the submittal (include the ADAMS accession number) and explain the issue that the submittal resolved and discuss the basis for the resolution.
 - (ii) If an RAI was issued concerning the AMP, identify the RAI number and briefly discuss the RAI. State if the RAI remains open or if the applicant response has been accepted. If the response was acceptable, document the basis for its acceptance and identify the applicant submittal that provided the response.
- (b) AMPs determined to be consistent with the GALL Report, with exceptions or enhancement. The SER input for these AMPs will include a statement that the audit found the AMP consistent with the GALL Report and that any applicant-identified exceptions to the GALL Report were found technically acceptable to manage the aging effect during the period of extended operation. The SER input will identify the exceptions and provide the basis for acceptance. The SER input will also assess the LRA Appendix A, UFSAR Supplement, and document the basis for concluding that the UFSAR supplement is sufficient.
 - (i) If the applicant needed to make a docketed response to amend or supplement the LRA so that an acceptable finding can be provided, document the submittal (include the ADAMS accession number) and explain the issue that the submittal resolved and discuss the basis for the resolution.
 - (ii) If an RAI was issued concerning the AMP, identify the RAI number and briefly discuss the RAI. State if the RAI remains open or if the applicant response has been accepted. If the response was acceptable, document the basis for its acceptance and identify the applicant submittal that provided the response.
- (c) AMPs that are plant specific. The SER input is to document the basis for accepting each of the seven elements reviewed by the project team.
 - (i) The SER input is to include a discussion concerning the adequacy of the LRA Appendix A commitment to revise the plant's UFSAR. This

discussion is to be based on the review performed in Section 6 of this plan.

- 1) If the applicant needed to make a docketed response to amend or supplement the LRA so that an acceptable finding can be provided, document the submittal (include the ADAMS accession number) and explain the issue that the submittal resolved and discuss the basis for the resolution.
- (ii) The SER shall include a discussion of operating experience.
- (iii) If an RAI was issued concerning the AMP, identify the RAI number and briefly discuss the RAI. State if the RAI remains open or if the applicant response has been accepted. If the response was acceptable, document the basis for its acceptance and identify the applicant submittal that provided the response.
- (d) Aging management evaluations that are consistent with the GALL Report⁶. The report should include the following:
 - (i) Identify the LRA section reviewed
 - (ii) A summary of the type of information provided in the section of the LRA reviewed, including a listing of the AMPs reviewed for this LRA section.
 - (iii) Identify the LRA Tables 3.X.2-Y documented by this audit writeup.
 - (iv) A summary review of the AMR Notes A through E used to classify the AMR line items used in these tables.
 - (v) A brief summary of what the staff (project team) reviewed to perform the audit, i.e., LRA and applicant basis documents and other implementation documents. Reference the Appendix that lists the details of the documents reviewed.
 - (vi) Basis for accepting any exceptions to GALL AMRs that were identified by the applicant or the project team reviewer.
 - 1) If the applicant needed to make a docketed response to amend or supplement the LRA so that an acceptable finding can be provided, document the submittal (include the ADAMS accession number) and explain the issue that the submittal resolved and discuss the basis for the resolution.
 - (vii) If an RAI was issued concerning the AMP, identify the RAI number and briefly discuss the RAI. State

⁶ The audit results documented in this section address the AMRs consistent with the GALL Report for which no further evaluation is recommended.

- if the RAI remains open or if the applicant response has been accepted. If the response was acceptable, document the basis for its acceptance and identify the applicant submittal that provided the response.
- (viii) Provide an audit finding that determines if:
 - 1) the applicable aging effects were identified,
 - 2) the appropriate combination of materials and environments were defined, and
 - 3) acceptable AMPs were specified.
 - (ix) Provide a conclusion stating, if applicable, that:
 - 1) the applicant has demonstrated that the effects of aging will be adequately managed so that the intended functions will be maintained consistent with the CLB for the period of extended operation, and
 - 2) 10 CFR 54.21(a)(3) has been satisfied.
 - (e) Aging management evaluations that are consistent with the GALL Report, for which further evaluation is recommended. The report shall include the following:
 - (i) The LRA section containing the applicant's further evaluations of AMRs for which further evaluation is required.
 - (ii) A list of the aging effects for which the further evaluation apply.
 - (iii) For the applicant's further evaluations, provide a summary of the basis for concluding that it satisfied the criteria contained in Section 3.1.3.2 of the SRP-LR.
 - 1) If the applicant needed to make a docketed response to amend or supplement the LRA so that an acceptable finding could be provided, document the submittal, include the ADAMS accession number, and explain the issue that the submittal resolved and discuss the basis for the resolution.
 - (iv) A statement that the staff audited the applicant's further evaluations against the criteria contained in Section 3.1.3.2 of the SRP-LR.
 - (v) If an RAI was issued concerning the AMP, identify the RAI number and briefly discuss the RAI. State if the RAI remains open or if the applicant response has been accepted. If the response was acceptable, document the basis for its acceptance and identify the applicant submittal that provided the response.
 - (vi) A statement that the audit and review report contains additional details. Also identify the issue date and the ADAMS accession number.

- (f) Staff AMR Review Results⁷. This section documents reviews of AMRs assigned to the project team that are not consistent with the GALL Report. The audit report shall document the following, based on a precedent identified by the applicant:
- (i) The LRA section reviewed
 - (ii) A summary of the type of information provided in the section of the LRA, reviewed, including a listing of the AMPs reviewed for this LRA section.
 - (iii) Identify the LRA Tables 3.X.2-Y documented by this audit writeup.
 - (iv) A brief summary of what the staff (project team) reviewed, i.e., LRA and applicant basis documents and other implementation documents. Reference the Appendix that lists the details of the documents reviewed.
 - (v) Provide an audit finding that determines if:
 - 1) the applicable aging effects were identified.
 - 2) the appropriate combination of materials and environments were listed, and
 - 3) acceptable AMPs were specified
 - 4) If the applicant needed to make a docketed response to amend or supplement the LRA so that an acceptable finding can be provided, document the submittal (include the ADAMS accession number) and explain the issue that the submittal resolved and discuss the basis for the resolution.
 - 5) If an RAI was issued concerning the AMP, identify the RAI number and briefly discuss the RAI. State if the RAI remains open or if the applicant response has been accepted. If the response was acceptable, document the basis for its acceptance and identify the applicant submittal that provided the response.
 - (vi) Provide a conclusion stating, if applicable, that:
 - 1) the applicant has demonstrated that the effects of aging will be adequately managed so that the intended functions will be maintained consistent with the CLB for the period of extended operation, and
 - 2) 10 CFR 54.21(a)(3) has been satisfied.

⁷ This section documents reviews of AMRs assigned to the project team that are not consistent with the GALL Report.

8. Documents Reviewed and Document Retention

- 8.a Any documents reviewed that were used to formulate the basis for resolution of an issue, such as the basis for a technical resolution, the basis for the acceptance of an exception or an enhancement, etc., should be documented as a reference in the audit and review report.
- 8.b Upon issuance of the audit and review report, all worksheets that were completed by contractor and NRC personnel shall be given to the NRC project team leader.
- 8.c After the NRC has made its licensing decision, all copies of documents collected and all documents generated to complete the audit and review report, such as copies of documentation obtained during the audit, audit worksheets, question and answer tracking documentation, etc., are to be discarded.

Table 1 Elements of an Aging Management Program for License Renewal Element Description

1	Scope of program	Scope of program should include the specific structures and components subject to an AMR for license renewal.
2	Preventive actions	Preventive actions should prevent or mitigate aging degradation.
3	Parameters monitored or inspected	Parameters monitored or inspected should be linked to the degradation of the particular structure or component intended functions.
4	Detection of aging effects	Detection of aging effects should occur before there is loss of structure or component intended functions. This includes aspects such as method or technique (i.e., visual, volumetric, surface inspection), frequency, sample size, data collection and timing of new/one-time inspections to ensure timely detection of aging effects.
5	Monitoring and trending	Monitoring and trending should provide predictability of the extent of degradation and timely corrective or mitigative actions.
6	Acceptance criteria	Acceptance criteria, against which the need for corrective action will be evaluated, should ensure that the structure or component intended functions are maintained under all CLB design conditions during the period of extended operation.
7	Corrective actions (Audited by DIPM*)	Corrective actions, including root cause determination and prevention of recurrence, should be timely.
8	Confirmation process (Audited by DIPM)	Confirmation process should ensure that preventive actions are adequate and that appropriate corrective actions have been completed and are effective.
9	Administrative controls (Audited by DIPM)	Administrative controls should provide a formal review and approval process.
10	Operating experience	Operating experience of the aging management program, including past corrective actions resulting in program enhancements or additional programs, should provide objective evidence to support the conclusion that the effects of aging will be managed adequately so that the structure and component intended functions will be maintained during the period of extended operation.

* NRR Division of Inspection Program Management

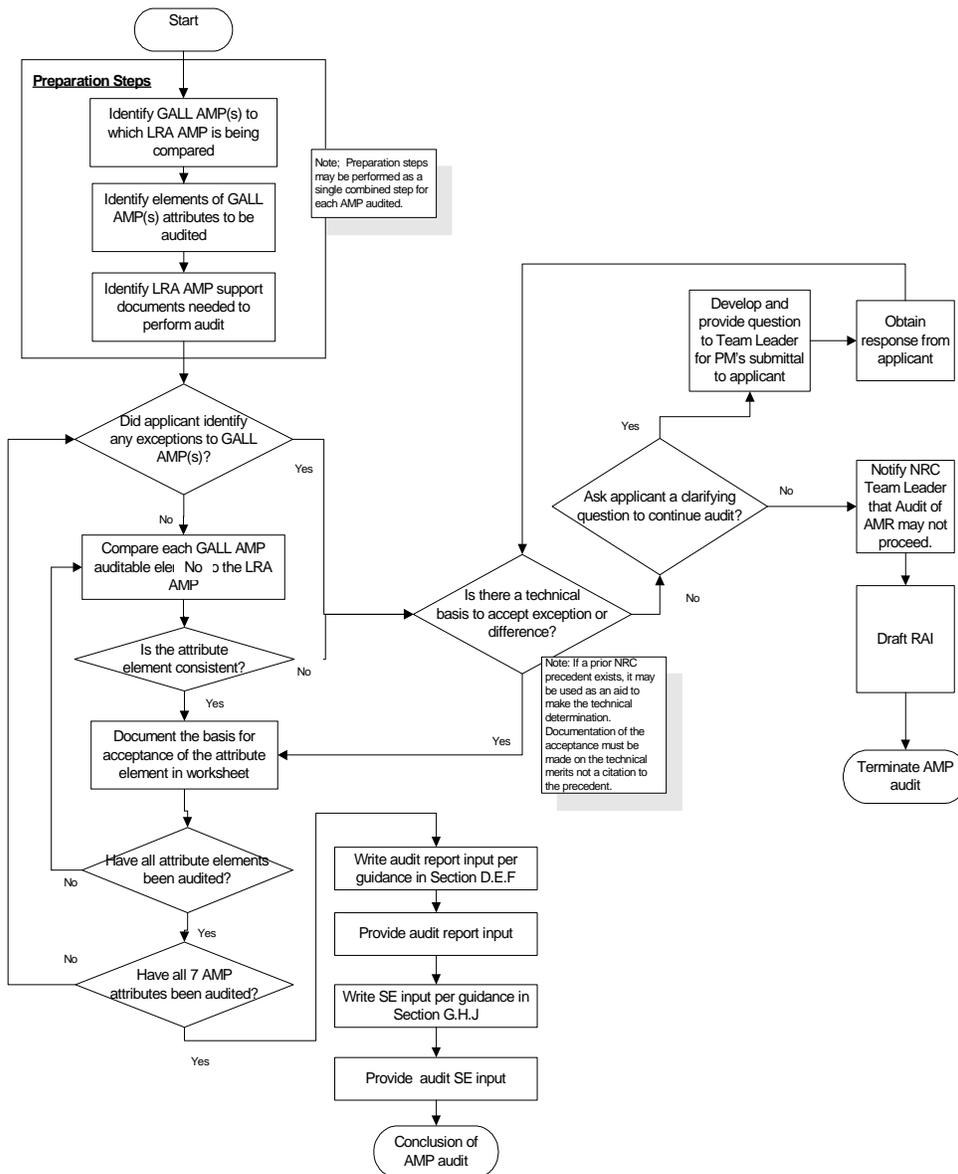


Figure 1 Audit of AMPs Consistent with the GALL Report

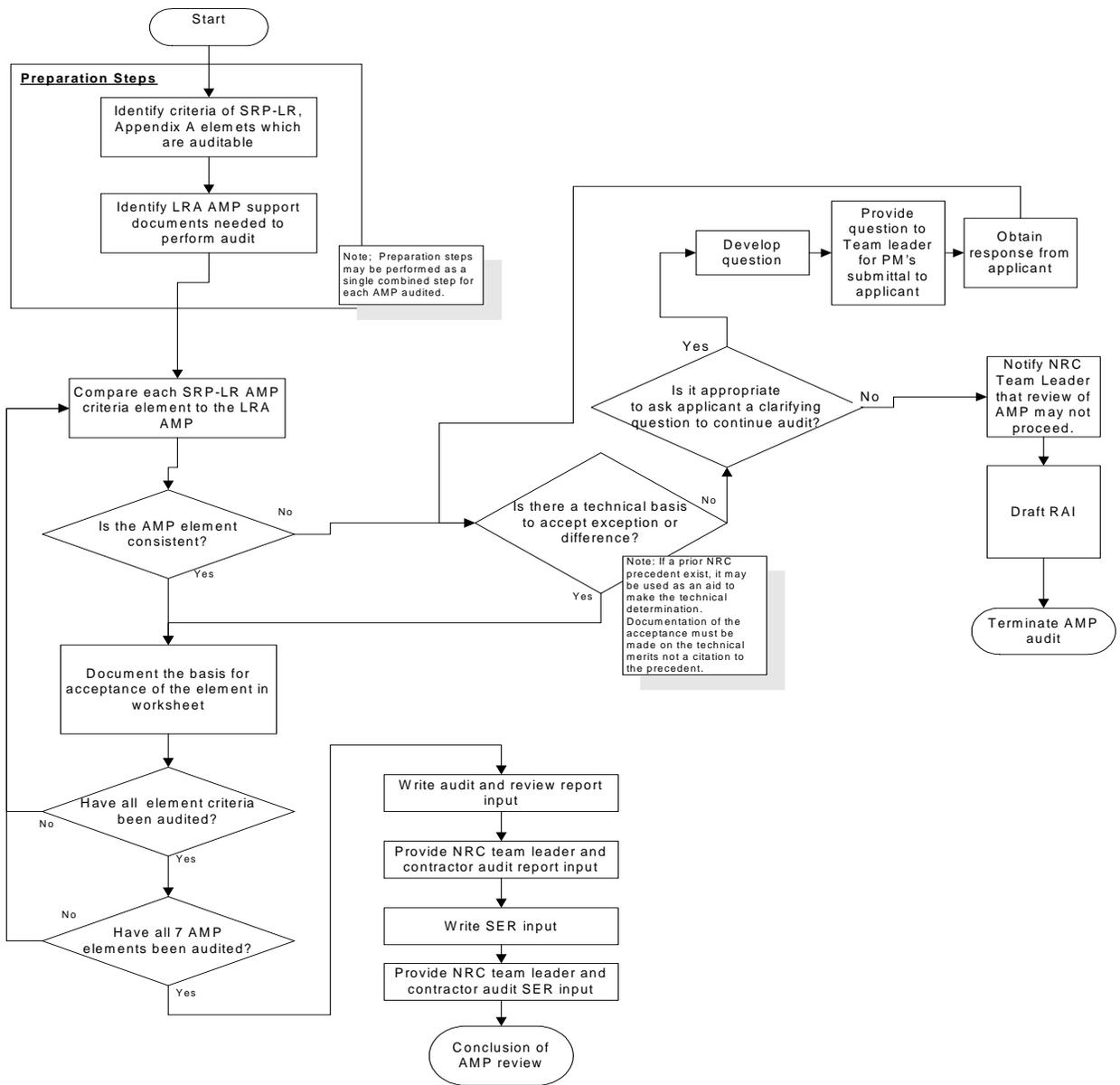


Figure 2 Audit of Plant-Specific AMPs

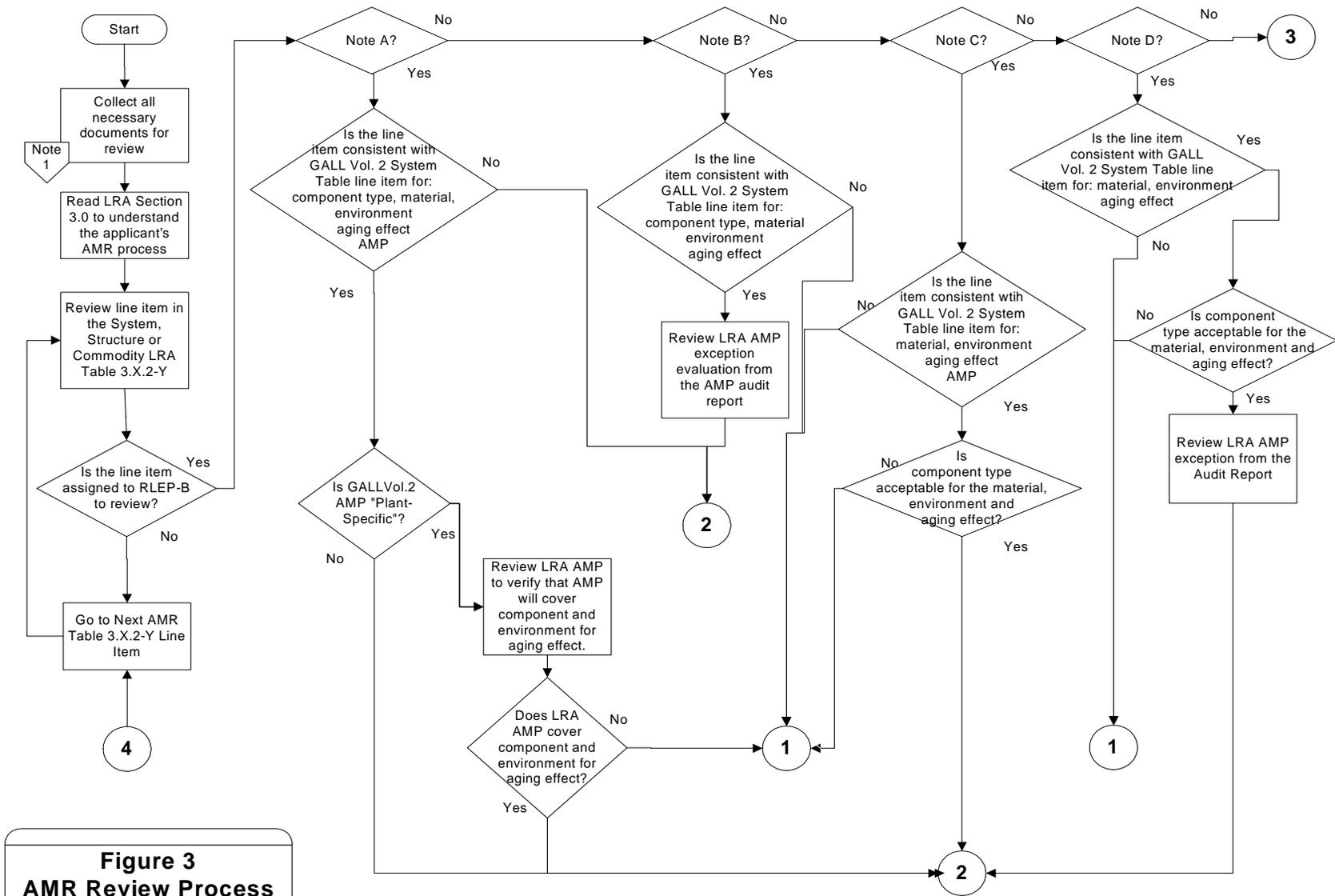
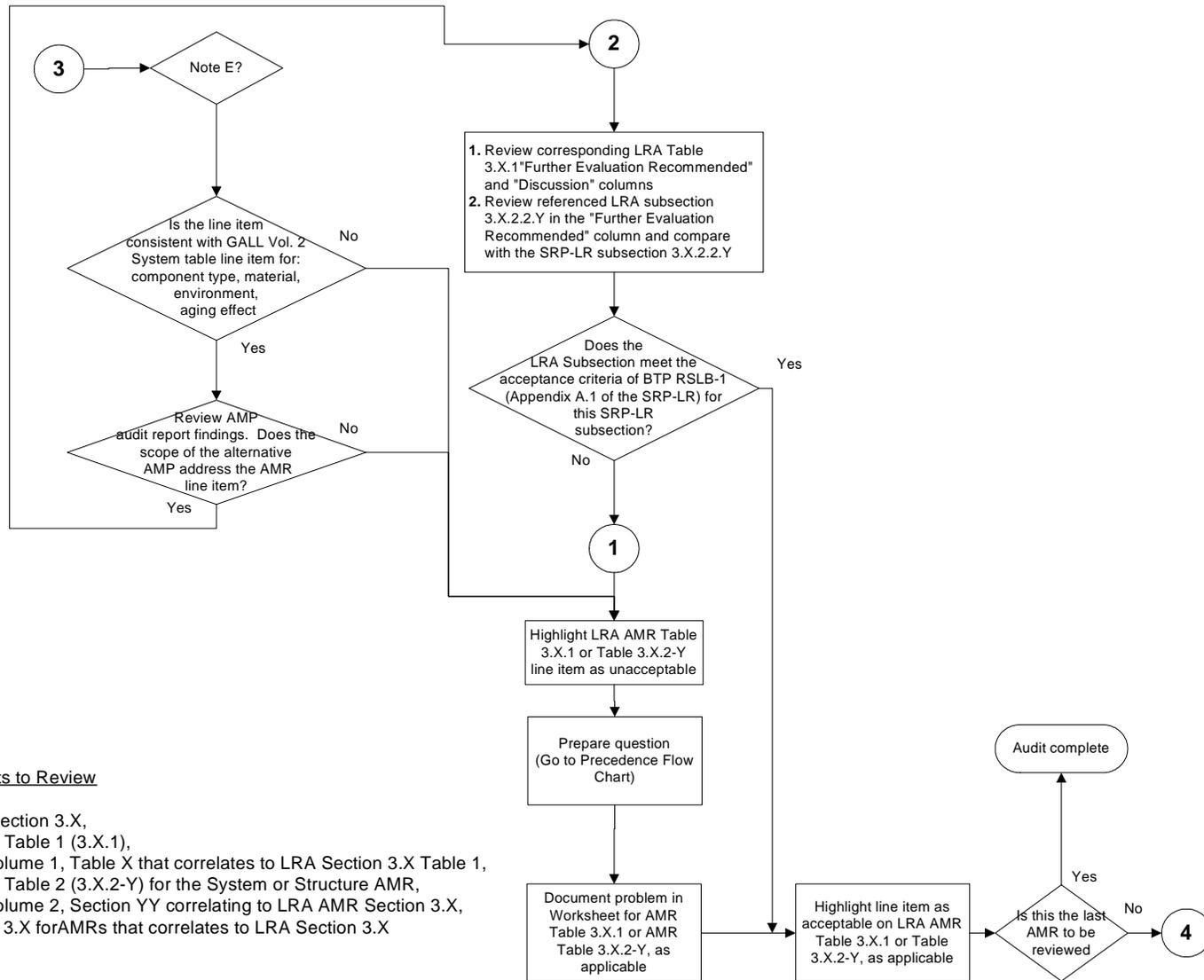


Figure 3
AMR Review Process
for AMRs Consistent
with GALL Report

Figure 3 (Continued)



Note 1

Note 1: Documents to Review

- The LRA AMR Section 3.X,
- LRA Section 3.X Table 1 (3.X.1),
- GALL Report, Volume 1, Table X that correlates to LRA Section 3.X Table 1,
- LRA Section 3.X Table 2 (3.X.2-Y) for the System or Structure AMR,
- GALL Report, Volume 2, Section YY correlating to LRA AMR Section 3.X,
- SRP-LR Section 3.X for AMRs that correlates to LRA Section 3.X

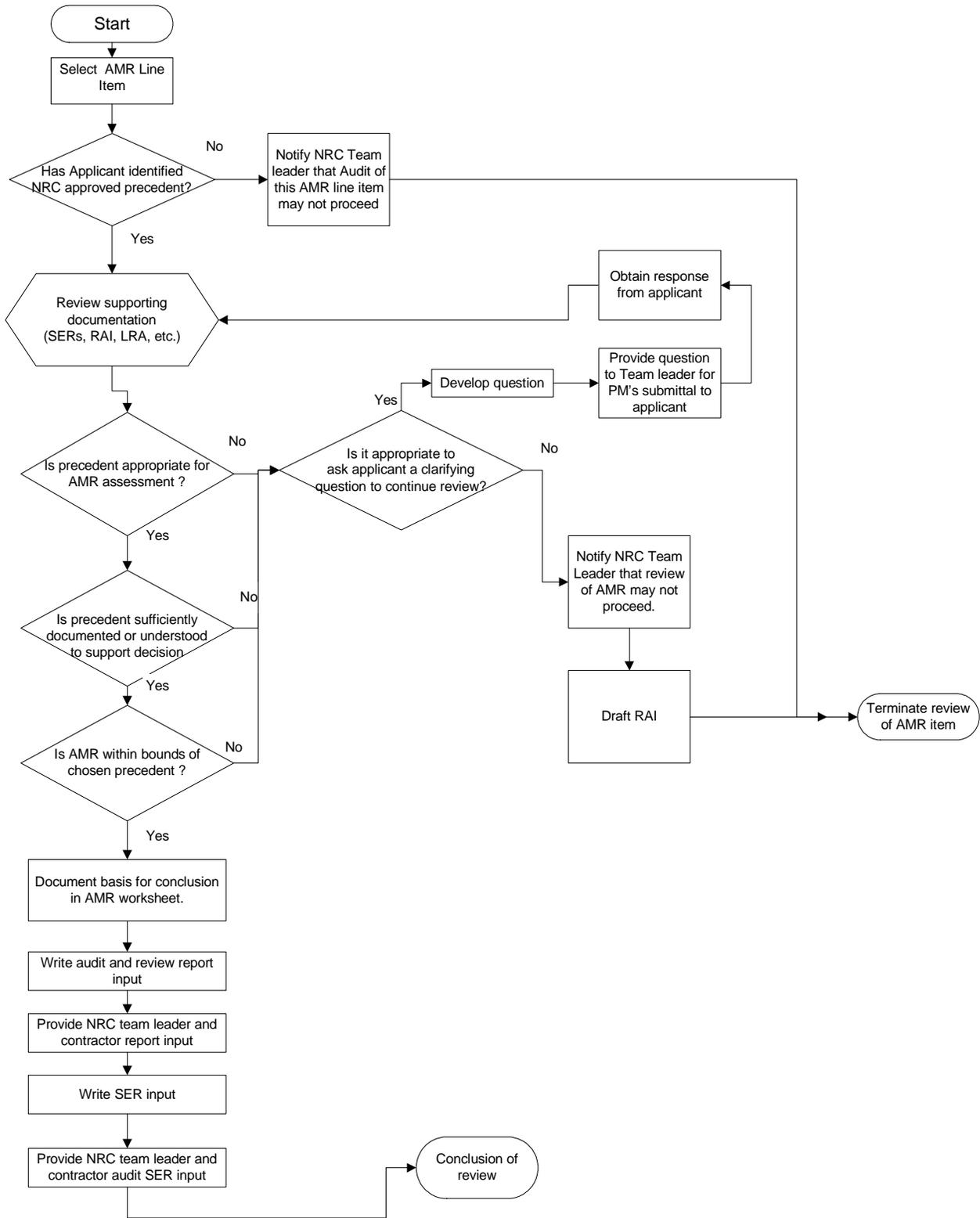


Figure 4 AMR Review Using NRC-Approved Precedent

Appendix A
RLEP-B Schedule for LRA Safety Review
As of 04/12/2004

Plant: D.C. Cook, 1 and 2

TACs: MC1204, MC1205

Team Leader: Greg Cranston

Backup Team Leader: Kurt Cozens

Project Manager: Johnny Eads

Contractor: ISL

Activity/Milestone		Schedule
1	Receive LRA	10/31/2003
2	Review assignments made	11/04/2003
3	Issue audit plan to PM	12/01/2003
4	Team planning meeting	12/10/2003
5	Site visit 1 (AMP reviews)	12/15-19/2003
6	Draft audit report input (AMP reviews)	01/06/2004
7	Draft SER input (AMP reviews)	01/06/2004
8	In office AMR reviews	01/26-30/2004
9	Site visit 2 (resolve AMR and AMP questions)	03/01-05/2004
10	Draft audit report input (AMR section)	03/07/2004
11	Draft SER input (AMR reviews)	03/07/2004
12	Draft audit report with SER input added	05/21/2004
13	Public exit meeting	04/15/2004
14	Cutoff for issuing RAIs to PM	04/16/2004
15	Final audit report (AMP, AMR and SER sections)	05/28/04
16	Final input for draft SER with open items	05/28/04

Appendix B

Project Team Membership

Organization	Name	Function
NRC/NRR/DRIP/RLEP-B	Greg Cranston	Team Leader
NRC/NRR/DRIP/RLEP-B	Kurt Cozens	Backup Team Leader
NRC/NRR/DRIP/RLEP-B	Robert Hsu	Reviewer - AMRs Only
NRC/NRR/DE	Om Chopra	Reviewer
ISL	Steve Pope	Contractor lead, Reviewer
ISL	Omar Mazzoni	Reviewer
ISL	Rob Pond	Reviewer
ISL	Malcolm Patterson	Reviewer
ISL	Spyros Traiforos	Reviewer
ISL	Bill Arcieri	Reviewer - AMRs Only
ISL	Diane Mlynarczyk	Reviewer - AMRs Only
ISL	Erach Patel	Reviewer - AMRs Only

ISL - Information Systems Laboratories, Inc. (technical assistance contractor)

Appendix C

Aging Management Program Assignments

The following AMPs have been assigned to the Donald C. Cook project team for their review.

LRA AMP Number	GALL AMP Number	AMP Title	Consistent with GALL		Assigned Reviewer
			Yes	No	
B.1.14	X1.M1	Inservice Inspection - ASME Section XI, Subsections IWB, IWC, and IWD	x		NRC-KC
B.1.40.1	XI.M2	Water Chemistry Control - Primary and Secondary Water Chemistry Control	x		ISL-SP
B.1.4	XI.M10	Boric Acid Corrosion Prevention		x	NRC-TR
B.1.9	X1.M11	Control Rod Drive Mechanism and Other Vessel Head Penetration Inspection		x	NRC-TR
B.1.7	XI.M12	Cast Austenitic Stainless Steel Evaluation	x		ISL-RP
B.1.28	XI.M13	Reactor Vessel Internals Cast Austenitic Stainless Steel	x		ISL-RP
B.1.27	XI.M16	Reactor Vessel Internals Plates, Forgings, Welds, and Bolting		x	NRC-TR
B.1.12	XI.M17	Flow-Accelerated Corrosion	x		NRC-RP
B.1.31	XI.M19	Steam Generator Integrity	x		NRC-TR
B.1.29	XI.M20	Service Water System Reliability	x		ISL-MP
B.1.40.2	XI.M21	Water Chemistry Control - Closed Cooling Water Chemistry Control	x		ISL-SP
B.1.33	XI.M23	Structures Monitoring - Crane Inspection	x		ISL-SP
B.1.11.1	XI.M26	Fire Protection	x		ISL-SP
B.1.11.2	XI.M27	Fire Water System	x		ISL-SP
B.1.10	XI.M30	Diesel Fuel Monitoring	x		ISL-ST
B.1.26	XI.M31	Reactor Vessel Integrity			ISL-RP
B.1.30	XI.M32	Small Bore Piping	x		NRC-KC
B.1.6	XI.M34	Buried Piping Inspection	x		ISL-OM

Appendix C

LRA AMP Number	GALL AMP Number	AMP Title	Consistent with GALL		Assigned Reviewer
			Yes	No	
B.1.22	XI.E1	Non-EQ Insulated Cables and Connections	x		ISL-OM
B.1.21	XI.E2	Non-EQ Instrumentation Circuits Test Review	x		ISL-OM
B.1.20	XI.E3	Non-EQ Inaccessible Medium-Voltage Cables	x		NRC-TR
B.1.15	XI.S1	Inservice Inspection - ASME Section XI, Subsection IWE	x		ISL-ST
B.1.17	XI.S2	Inservice Inspection - ASME Section XI, Subsection IWL	x		ISL-ST
B.1.16	XI.S3	Inservice Inspection - ASME Section XI, Subsection IWF	x		ISL-ST
B.1.8	XI.S4	Containment Leakage Rate Testing	x		ISL-ST
B.1.36	XI.S5	Structures Monitoring - Masonry Wall	x		NRC-JE
B.1.32	XI.S6	Structures Monitoring - Structures Monitoring	x		ISL-ST
B.2.2	X.M1	Fatigue Monitoring	x		ISL-RP
B.2.1	X.E1	Environmental Qualification of Electrical Components	x		ISL-OM

Appendix C

Plant-Specific LRA Aging Management Programs

LRA AMP Number	GALL AMP Number	AMP Title	Assigned Reviewer
B.1.1		Alloy 600 Aging Management	NRC-TR
B.1.2		Bolting and Torquing Activities	NRC-TR
B.1.3		Boral Surveillance	NRC-TR
B.1.5		Bottom-Mounted Instrumentation Thimble Tube Inspection Program	NRC-TR
B.1.13		Heat Exchanger Monitoring	ISL-MP
B.1.18		Inservice Inspection - ASME Section XI, Augmented Inspections	NRC-KC
B.1.19		Instrument Air Quality	ISL-MP
B.1.23		Oil Analysis	ISL-MP
B.1.24		Pressurizer Examinations	ISL-MP
B.1.25		Preventive Maintenance	ISL-MP
B.1.34		Structures Monitoring - Divider Barrier Seal Inspection	ISL-RP
B.1.35		Structures Monitoring - Ice Basket Inspection.	ISL-ST
B.1.37		System Testing	ISL-MP
B.1.38		System Walkdown	ISL-OM
B.1.39		Wall Thinning Monitoring	ISL-SP
B.1.40.3		Water Chemistry Control - Auxiliary Systems Water Chemistry Control	NRC-KC
B.1.41		Water Chemistry Control - Chemistry One-Time Inspection	NRC-TR

Appendix C

Assignment Codes for Audit Team:

NRC Personnel

GC	Greg Cranston, RLEP Technical Monitor and Project Team Leader
JE	Johnny Eads, RLEP LR Project Manager
KC	Kurt Cozens, RLEP Assistant Project Team Leader
SB	Stewart Bailey
OM	Om Chopra
TR	NRC Technical Reviewers in Division of Engineering

ISL (Information Systems Laboratory) Contractor Personnel

SP	Steve Pope, Contractor Team Leader
MP	Malcolm Patterson
OM	Omar Mazzoni
RP	Rob Pond
ST	Spyros Traiforos
WA	Bill Arcieri
DM	Diane Mlynarczyk

Appendix D

Aging Management Review Assignments

AMRs	Reviewer
<p>3.1 Aging Management of Reactor Vessel, Internals, and Reactor Coolant System</p> <ul style="list-style-type: none"> • Table 3.1.2-1 Reactor Vessel and CRDM Pressure Boundary • Table 3.1.2-2 Reactor Vessel Internals (Westinghouse) • Table 3.1.2-3 Class 1 Piping, Valves, and Reactor Coolant Pumps • Table 3.1.2-4 Pressurizer • Table 3.1.2-5 Steam Generators 	<p>RP RP KRH KRH KRH</p>
<p>3.2 Aging Management of Engineered Safety Features</p> <ul style="list-style-type: none"> • Table 3.2.2-1 Containment Spray System • Table 3.2.2-2 Containment Isolation System • Table 3.2.2-3 Emergency Core Cooling System • Table 3.2.2-4 Containment Equalization/Hydrogen Skimmer System 	<p>MP</p>
<p>3.3 Aging Management of Auxiliary Systems</p> <ul style="list-style-type: none"> • Table 3.3.2-1 Spent Fuel Pool System • Table 3.3.2-2 Essential Service Water System • Table 3.3.2-3 Component Cooling Water System • Table 3.3.2-4 Compressed Air Systems • Table 3.3.2-5 Chemical and Volume Control System • Table 3.3.2-6 Heating, Ventilation, and Air Conditioning Systems • Table 3.3.2-7 Fire Protection System • Table 3.3.2-8 Emergency Diesel Generator • Table 3.3.2-9 Security Diesel • Table 3.3.2-10 Post-Accident Containment Hydrogen Monitoring System • Table 3.3.2-11 Miscellaneous Systems in Scope for 10 CFR 54.4(a)(2) 	<p>SP DM DM DM WA WA WA OM OM OM OM</p>
<p>3.4 Aging Management of Steam and Power Conversion Systems</p> <ul style="list-style-type: none"> • Table 3.4.2-1 Main Feedwater System • Table 3.4.2-2 Main Steam System • Table 3.4.2-3 Auxiliary Feedwater System • Table 3.4.2-4 Blowdown System 	<p>SP SP EP EP</p>
<p>3.5 Aging Management of Containments, Structures, and Component Supports</p> <ul style="list-style-type: none"> • Table 3.5.2-1 Containment • Table 3.5.2-2 Auxiliary Building • Table 3.5.2-3 Turbine Building and Screenhouse • Table 3.5.2-4 Yard Structures • Table 3.5.2-5 Structural Commodities 	<p>ST</p>
<p>3.6 Aging Management of Electrical and Instrumentation and Controls</p> <ul style="list-style-type: none"> • Table 3.6.2-1 Electrical Components 	<p>OM</p>

Appendix D

- Assignment Codes for Audit Team:

NRC Personnel

KRH K. Robert Hsu

ISL (Information Systems Laboratories) Contractor Personnel.

SP	Steve Pope, Contractor Team Leader
MP	Malcolm Patterson
OM	Omar Mazzoni
RP	Rob Pond
ST	Spyros Traiforos
WA	Bill Arcieri
DM	Diane Mlynarczyk
EP	Erach Patel

Appendix E

Consistent with GALL Report AMP Audits Worksheet for Recording Audit Information

The worksheet discussed in this appendix provides, as an aid for the reviewer, a process to document the basis for the assessment of the elements and sub-elements contained in the GALL Report AMPs (Chapter XI of NUREG-1801, Volume 2). The completed worksheets will not be treated as official NRC records; rather, they are intended to provide a systematic method to record the basis for assessments or to identify when the applicant needs to provide clarification or additional information. Input recorded in the worksheets will also be useful when preparing the audit and review report and safety evaluation report input.

This appendix provides the consistent with GALL Report AMP audits worksheet form.

Appendix E

Consistent with GALL Report AMP Audit Worksheet

LRA Appendix Subsection:	LRA AMP Title:
GALL Report Subsection:	GALL Report Title:

A. Attribute Review and Audit

1. Scope of Program:

Consistent with GALL Report Exception Enhancement Difference Identified
Discussion:

2. Preventive Action:

Consistent with GALL Report Exception Enhancement Difference Identified
Discussion:

3. Parameters Monitored/Inspected:

Consistent with GALL Report Exception Enhancement Difference Identified
Discussion:

4. Detection of Aging Effects:

Consistent with GALL Report Exception Enhancement Difference Identified
Discussion:

5. Monitoring and Trending:

Consistent with GALL Report Exception Enhancement Difference Identified
Discussion:

6. Acceptance Criteria:

Consistent with GALL Report Exception Enhancement Difference Identified
Discussion:

Appendix E

7. Corrective Action:

To be performed by DIPM

8. Confirmation Process:

To be performed by DIPM

9. Administrative Controls:

To be performed by DIPM

10. Operating Experience:

B. FSAR Supplement Review:

C. Audit Remarks (if any):

D. Applicant Contact:

E. References/Documents Used:

Project Team Member/Date: _____ / _____

Appendix F

Plant-Specific AMP Audits Worksheet for Informally Recording Audit Information

The worksheet discussed in this appendix provides, as an aid for the reviewer, an informal process to document the basis for the assessments concerning individual elements and sub-elements contained in Appendix A, Branch Technical Position, to the SRP-LR. The worksheet is not intended to be a formal NRC record, but to provide a systematic method to record the basis for assessments or identifying when the applicant needs to provide clarification or additional information.

Input recorded in this worksheet will be useful when preparing the audit and review report and safety evaluation report input. Attached is the Plant-Specific AMP Audits Worksheet Form.

Appendix F

Plant-Specific AMP Audit Worksheet

AMP Title: _____

Appendix Subsection: _____

A. Attribute Review and Audit

1. **Scope of Program:**
Discussion:

2. **Preventive Action:**
Discussion:

3. **Parameters Monitored/Inspected:**
Discussion:

4. **Detection of Aging Effects:**
Discussion:

5. **Monitoring and Trending:**
Discussion:

6. **Acceptance Criteria:**
Discussion:

7. **Corrective Action:** (To be performed by DIPM)

8. **Confirmation Process:** (To be performed by DIPM)

9. **Administrative Controls:** (To be performed by DIPM)

Appendix F

10. Operating Experience:
Discussion:

B. FSAR Supplement Review:

C. Audit Remarks (if any):

D. Applicant Contact:

E. References/Documents Used:

Project Team Member/Date: _____ / _____

Appendix G

Aging Management Review Comparison Worksheets

Table 3.X.1 AMR Comparison Worksheet - “Further Evaluation Recommended”

AMR System: _____

Project Team Member: _____

Date: _____

The project team verified that items in Table 3.X.1 (Table 1) correlate to items in the GALL Report Volume 1, Table X. All items in Table 1 were reviewed. Those items that have a “yes” for “further evaluation recommended” are addressed in the following table. All other items in Table 1 are determined to be consistent with the GALL Report, except those items listed below. The entireties below are questions that when responded to by the applicant may result in the reviewer concluding that the AMR is consistent with the GALL Report.

Item No.	Further Evaluation Recommended	Basis for Concluding that “Further Evaluation Required” is Consistent with the GALL Report or Question for Applicant

Appendix G

Aging Management Review Comparison Worksheets

Table 3.X.2-Y AMR Worksheet

AMR System: _____

AMR Section: _____

Project Team Member: _____

Date: _____

AMR line items assigned to the Project Team were reviewed for consistency with GALL Report, Volume 2, tables and for adequacy of the aging managing programs. All items in the Table 2 of the system listed below are acceptable with the exception of the following items:

System: _____

Note Type	Component Type	Question for Applicant and Response

Audit/Review Remarks:

Applicant Contact:

References/Documents Used:

Appendix H

Consistent with GALL Report Classifications

Consistent With GALL Report Classifications# (Notes for LRA Tables 3.x.2-y)	
Note	Description
A	Consistent with GALL Report item for component, material, environment, and aging effect. AMP is consistent with GALL Report AMP.
B	Consistent with GALL Report item for component, material, environment, and aging effect. AMP takes some exceptions to GALL Report AMP.
C	Component is different, but consistent with GALL Report item for material, environment, and aging effect. AMP is consistent with GALL Report AMP.
D	Component is different, but consistent with GALL Report item for material, environment, and aging effect. AMP takes some exceptions to GALL Report AMP.
E	Consistent with GALL Report for material, environment, and aging effect, but a different aging management program is credited.
F	Material not in GALL Report for this component.
G	Environment not in GALL Report for this component and material.
H	Aging effect not in GALL Report for this component, material and environment combination.
I	Aging effect in GALL Report for this component, material and environment combination is not applicable.
J	Neither the component nor the material and environment combination is evaluated in GALL Report.

Each AMR line item is coded with a letter which represents a standard note designations based on a letter from A. Nelson, NEI, to P. T. Kuo, NRC, "U.S. Nuclear Industry's Proposed Standard License Renewal Application Format Package, Request NRC Concurrence," dated January 24, 2003 (ML030290201). [Note that the staff concurred in the format of the standardized format for license renewal applications by letter dated April 7, 2003, from P.T. Kuo, NRC, to A. Nelson, NEI (ML030990052).] Notes that use numeric designators are specific to Donald C. Cook Nuclear Plant, Units 1 and 2.

Appendix I

Aging Management Review Work Split Tables

The following marked up tables show the work assignments for the AMRs. Any AMR line item that is NOT highlighted in the Notes column in the following Tables 3.x.2-y (Table 2s) is within scope for this audit and review. All highlighted letters or numbers in the Notes column will be reviewed by other NRC division personnel and will be reported in Section 3 of the SER.