July 14, 2000

MEMORANDUM TO: Docket Files

FROM: Sam Lee, Sr. Materials Enginee
Engineering Section
License Renewal and Standardization Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

SUBJECT: NUCLEAR ENERGY INSTITUTE (NEI) COMMENTS ON DRAFT STANDARD REVIEW PLAN FOR LICENSE RENEWAL (SRP-LR)-CHAPTERS 1 AND 3

On July 13, 2000, I received an electronic mail from Mr. Douglas Walters of NEI transmitting industry comments on Chapter 3 of the April 21, 2000, draft SRP-LR. (See Enclosure 1) I also received a fax from Mr. Walters transmitting industry comments on Chapter 1 of the draft SRP-LR. (See Enclosure 2) As Mr. Walters indicated in his electronic mail, these comments have not received any review by the NEI License Renewal task force and are not "official" NEI comments. Nonetheless, the staff plans on considering these comments in developing the draft SRP-LR for public comment in August.

Project No. 690

Enclosures: As stated

cc: PUBLIC

# Enclosure 1

**From:** "WALTERS, Doug" <djw@nei.org>
**To:** "'Sam Lee'" <SSL1@nrc.gov>
**Date:** Thu, Jul 13, 2000 10:05 AM
**Subject:** SRP Chapter 3 Comments

<<SRPChap3Comments.doc>>

Sam:

Comments on SRP Chapter 3 are attached. Please note that the comments have not received any review by the NEI License Renewal task force and are provided for your information and use. I would ask that you memo to file that transmits these comments to the PDR or ADAMs reflect the fact that these are not"offical" NEI comments.

I am faxing you a mark-up of SRP Chapter 1. For some reason I do not have that chapter in electronic form and the comments are relatively minor. Like the Chapter 3 comments, the Chapter 1 comments have not been reviewed by the task force.

Thanks.

Doug Walters
202 739-8093 (office)
202 533-0221 (fax)

## Generic Comments on SRP Chapter 3

**General –**

- Problems can occur in the review when the GALL/SRP set of topics is larger than that in the plant specific application. In these cases, the SRP needs to guide the reviewer to an efficient and effective process to resolve the differences.

**Areas of Review –**

- The list of systems in this section should be simplified and clarified to assist the reviewer. Provide separate lists for BWRs and PWRs, as appropriate. A draft write-up is enclosed.

- Reviewers need to clearly understand what is in the scope of review for the specific SRP and what is NOT.

- Specific guidance needs to be provided concerning evaluation boundaries of systems, interfacing systems, and component and equipment supports.

**Acceptance Criteria –**

- Provide separate lists for BWRs and PWRs, as appropriate.

- Revise list of Aging Management Program and Activities (AMP/A) to conform with the changes to the GALL that have been provided separately.

**Review Procedures –**

- Revise review procedure for those AMP/A identified in the application as bounded by GALL. Is there a role for regional inspections in this instance?

- Tables can be revised to more clearly present results. Provide separate lists for BWRs and PWRs, as appropriate. An example is enclosed.

- If the GALL/SRP suggests that there should be an AMP/A at the plant and the application does not indicate that the component exists at the plant.

- Guidance for the reviewer needs to be provided for situations where the GALL/SRP suggests that there should be an AMP/A at the plant and the application does not indicate that the aging effect exists, then the reviewer should first review Appendix C of the application which describes the process and provides results of the plant specific review to identify aging effects that require management for the particular plant.

**UFSAR Supplement –**

- The FSAR supplement examples should be revised. The implementation schedule should not be included in the FSAR. Licensees will make commitments for an implementation schedule elsewhere in the application. These commitments will be tracked internally by the licensee using their existing Commitment Tracking System.

- The content and level of detail of the FSAR supplement needs to be discussed further with the NRC. The FSAR supplement should be revised to indicate the type of statements that need to appear somewhere in the FSAR. The license may choose to discuss these commitments in a separate table of the FSAR. Direction to the reviewer should be aimed at assuring the FSAR statements are consistent with both of the license conditions imposed on Oconee and likely on future applicants as well. One deals with changes being made pursuant to 50.59. The other deals with future inspections prior to the renewal period.

| Comments on Draft SRP Section 3.2, 3.3, 3.4, and 3.5 | | |
|---|---|---|
| **SRP Section** | **SRP Page** | **Comment/Change** |
| 3.3, 3.4, and 3.5 | All | Suggest separating BWR and PWR information for clarity |
| 3.3, 3.4, and 3.5 | All | Based on pending revisions to the GALL Report, the SRP needs to be revised accordingly. Such changes will include adding and deleting systems, aging effects, and programs. |
| 3.3, 3.4, and 3.5 | All | Very difficult to determine if the aging discussed in these sections is internal or external. Recommend clarifying the location of the aging to aid the reviewer. |
| 3.2.1.4<br>3.3.1.4<br>3.4.1.4<br>3.5.1.4 | 3.2-2<br>3.3-2<br>3.4-2<br>3.5-2 | If the applicant has not identified particular aging effects for a component, that are addressed in the GALL report, then the staff should review Appendix C of the application that contains the aging effects review. |
| 3.3.2.2.5,<br>3.3.3.2.5 | 3.3-4,<br>3.3-7 | Micribiologically" should be spelled "Microbiologically." |
| 3.3.2.2.8 | 3.3-4 | Seals are identified for aging management review when they perform a license renewal intended function. The seal as described in this section will not fail the intended function of the refueling water storage tank if lost. Aging management of the seal is not required |
| 3.3.2.2.8 | 3.3-4 | The charcoal absorber is a filter medium that is tested and replaced on condition. The housing of the charcoal absorber requires an aging management review, not the medium. |
| 3.3 | 3.3-11 | Table 3.3-1 notes materials selection and processing to reduce susceptibility to sensitization as an aging management program. These are design and construction guidelines that have no actions for aging management. |
| 3.3 | 3.3-14 | As noted in industry comments, a one-time inspection to verify chemistry program effectiveness is not needed. Industry operating experience demonstrates the effectiveness of the chemistry program. |
| 3.4.2.2.1 | 3.4-3 | In the third paragraph, the aging management program is preventive maintenance to check the air quality. If an air system is designed for normal operation that precludes aging from occurring, there are no aging effects requiring management and no program required. For example, the residual heat removal system is normally in standby and can have operating temperatures up to 350 degrees F. Some valves are constructed of cast austenitic stainless steel that can embrittlement when consistently above 482 degrees F. Embrittlement is precluded by normal system operation as designed and is not a license renewal aging effect. You would not credit a program to verify normal |

| Comments on Draft SRP Section 3.2, 3.3, 3.4, and 3.5 | | |
|---|---|---|
| **SRP Section** | **SRP Page** | **Comment/Change** |
| | | system temperatures are maintained within acceptable limits. In summary, aging effects precluded by system design and operation do not require aging management programs. |
| 3.4.2.2.5 | 3.4-5 | SCC due to adhesive in heat tracing tape should have already been addressed and is not a concern for license renewal. |
| 3.4.2.2.6 | 3.4-5 | What is loss of material due to attrition? Attrition is not an industry accepted aging mechanism nor is it found in technical literature. Some mechanism such as corrosion leads to attrition of a bolting set. |
| 3.4.2.2.7 | 3.4-5 | Wall thinning due to particle erosion of the diesel engine exhaust muffler is insignificant due to the very limited amount of operation of the diesel. The corrosiveness of the exhaust gases bound particle erosion. |
| 3.5.2.2.1 | 3.5-2 | Reactor Coolant chemistry has no effect on the secondary side of the plant for PWRs. This section needs to be revised to include secondary side chemistry. |
| 3.5 | 3.5-8 | As noted in industry comments, a one-time inspection to verify chemistry program effectiveness is not needed. Industry operating experience demonstrates the effectiveness of the chemistry program. |

| Comments on Draft SRP Section 3.6 | | |
|---|---|---|
| SRP Section | Page | Comment/Change |
| 3.6.1 | 3.6-1 | The discussion on Class I structures includes concrete and steel tanks. Tanks are normally handled with mechanical components. This information should be moved from structural sections in both the GALL and SRP to mechanical. |
| 3.6.1 | 3.6-1 | Prior to the discussion on GALL, discussion of aging effects evaluation needs to be included. A reference to Branch Technical Position RLSB-1, Appendix A.1 should be provided. Otherwise, that whole step in the AMR process is not discussed. |
| 3.6.1.1 | 3.6-2 | It should be noted that not all programs listed in the GALL are applicable to every plant. For example, a settlement monitoring program is not necessary if structures are located on bedrock. The staff should first determine the aging effect requiring management and then if a program in GALL is identified for managing the effect, the staff would then use this guidance. |
| 3.6.1.4 | 3.6-2 | The first sentence states that the GALL provides a generic staff evaluation of certain components and aging effects. GALL only provides evaluation of the program for certain components and aging effects. Therefore we recommend revising the sentence to read:<br>The GALL report provides a generic staff evaluation of programs for certain components and aging effects. |
| 3.6.2.2.1.1 | 3.6-3 | The industry has taken exception to the staff's opinion that aging management of inaccessible areas should go beyond what is currently required by §50.55a. |
| 3.6.2.2.1.2 | 3.6-3 | Industry comments to GALL recommend IWE as program for managing aging of cracking due to settlement. This section needs to be changed to match final GALL. |
| 3.6.2.2.1.4 | 3.6-4 | The industry has taken exception to the staff's opinion that aging management of inaccessible areas should go beyond what is currently required by the Code and §50.55a. This section needs to match the final version of GALL. |
| 3.6.2.2.1.5 | 3.6-4 | The industry has taken exception to the staff's opinion that loss of material results from degradation of protective coating. Degradation of protective coating does not in and of itself result in loss of material. If the degradation of coatings results in loss of the function of the post-accident safety systems, then this issue should be addressed with that system. This section needs to match the final version of GALL. |
| 3.6.2.2.1.6 | 3.6-4 | Loss of material of tendon and tendon anchorage is managed by 50.55a and Subsection IWL. Tendon anchorage located in the tendon gallery are evaluated by IWL and therefore, the discussion on the |

| Comments on Draft SRP Section 3.6 | | |
|---|---|---|
| SRP Section | Page | Comment/Change |
| | | tendon gallery is not relevant. This section needs to match the final version of GALL. |
| 3.6.2.2.1.8 | 3.6-5 | Fatigue may not be a TLAA for all plants. The second sentence should be changed to read: Fatigue of containment liner plate and penetrations may be a TLAA.... |
| 3.6.2.2.1.9 | 3.6-5 | The industry has recommended that no further evaluation be required for this program in GALL. This section needs to match the final version of GALL. |
| 3.6.2.2.1.10 | 3.6-5 | The industry has recommended that this section be deleted from GALL since a generic program does not exist. This section needs to match the final version of GALL. |
| 3.6.2.2.2.1 | 3.6-6 | A note needs to be added that a program is needed if the applicant has determined that these aging effects require management. It appears that a reviewer is to assume that these aging effects require management at every plant. Not all of these aging effects are necessarily applicable at every plant. |
| 3.6.2.2.2.2 | 3.6-6 | The industry has taken exception to the staff's opinion that aging management of inaccessible areas of Class I structures should go beyond what is currently required by the Code and §50.55a for Containment. This section needs to match the final version of GALL. |
| 3.6.2.2.3.1 | 3.6-7 | A note needs to be added that a program is needed if the applicant has determined that these aging effects require management. Not all of these aging effects are necessarily applicable at every plant. It appears that a reviewer is to assume that these aging effects require management at every plant. |
| 3.6.3.1 | 3.6-8 | The first paragraph discusses the verification that the information is bounded by GALL. It is acceptable to do this for the programs, but the GALL was never intended to provide a bounding list of aging effects. Its purpose was only to provide acceptable programs if the applicant determined that the aging effect required management for its plant. Not all aging effects listed in GALL are applicable to every plant. |
| 3.6.3.2.1.1 | 3.6-9 | Not all of the aging effects listed are necessarily applicable to every plant. It appears that a reviewer is to assume that these aging effects require management at every plant. A note needs to be added that a program is needed if the applicant has determined that these aging effects require management. |
| 3.6.3.2.1.1 | 3.6-9 | The industry has taken exception to the staff's opinion that aging management of inaccessible areas should go beyond what is currently required by §50.55a. This section needs to match the final version of GALL. |
| 3.6.3.2.1.4 | 3.6-9 | The industry has taken exception to the staff's opinion that aging management of inaccessible areas should go beyond what is currently required by §50.55a. This section needs to match the final version |

| Comments on Draft SRP Section 3.6 | | |
|---|---|---|
| SRP Section | Page | Comment/Change |
| | | of GALL. |
| 3.6.3.2.1.5 | 3.6-10 | The industry has taken exception to the staff's opinion that loss of material results from degradation of protective coating. Degradation of protective coating does not in and of itself result in loss of material. If the degradation of coatings results in loss of the function of the post-accident safety systems, then this issue should be addressed with that system. This section needs to match the final version of GALL. |
| 3.6.3.2.1.6 | 3.6-10 | Loss of material of tendon and tendon anchorage is managed by 50.55a and Subsection IWL. No unique environments exist in the tendon gallery. Tendon anchorage located in the tendon gallery are evaluated by IWL and therefore, the discussion on the tendon gallery is not relevant. This section needs to match the final version of GALL. |
| 3.6.3.2.1.10 | 3.6-11 | The industry has recommended that this item be deleted from GALL since no generic program exists. This is a site specific issue and should be handled as such. |
| 3.6.3.2.2.1 | 3.6-11 | Not all of these aging effects require management at every site. It appears that a reviewer is to assume that these aging effects require management at every plant. A note needs to be added that a program is needed if the applicant has determined that these aging effects require management. |
| 3.6.3.2.2.2 | 3.6-12 | The industry has taken exception to the staff's opinion that aging management of inaccessible areas for Class I structures should go beyond what is currently required by §50.55a for Containment structures. This section needs to match the final version of GALL. |
| 3.6.3.2.3.1 | 3.6-12 | Not all of these aging effects require management at every site. It appears that a reviewer is to assume that these aging effects require management at every plant. A note needs to be added that a program is needed if the applicant has determined that these aging effects require management. |

| Comments on Draft SRP Section 3.7 | |
|---|---|
| **SRP Section** | **Comment** |
| Sections 3.7.2.2.1 & 3.7.2.2.2 | The NEI rework of the GALL electrical chapter determines that no further evaluation of these programs is recommended. This section needs to match the final version of GALL. |
| Section 3.7.3.1 | The word "system" appears three times in the two paragraphs and should be deleted since the programs manage components and are not system related. |
| | 1st paragraph, 7th line & 10th line: The word "evaluation" should be added after "bounded by the GALL report". |
| | 1st paragraph, 8th line: The term "applicable aging effects" should be replaced with "aging effects needing management". |
| Sections 3.7.3.2.1 & 3.7.3.2.2 | The NEI rework of the GALL electrical chapter determines that no further evaluation of these programs is recommended. This section needs to match the final version of GALL. |
| Table 3.7-1 | Delete the row discussing EQ equipment since this is covered in the TLAA section of the SRP. |
| | Delete the last row of the table for electrical buses, etc. as there are no programs in the GALL report dealing with these components. |
| | Expand the text in the remaining row for non-EQ electrical cables as follows to match the GALL rewrite as presented below. |
| Table 3.7-2 | Delete the last row of the table for electrical buses, etc. as there are no programs in the GALL report dealing with these components. |
| | Update the title to match Table 3.7-1 as presented below. |
| | Expand the text in the remaining row for non-EQ electrical cables as follows to match the GALL rewrite as presented below. |

**Below are examples for revising sections 3.2.1, 3.3.1, 3.4.1, 3.5.1, and 3.6.1 of the SRP. In addition, an example of a revision to Table 3.3-1 is also provided. Finally, revisions for Tables 3.7-1 and 3.7-2 are provided.**

## SRP SECTION 3.2

## REVISED "AREAS OF REVIEW"

This review plan section addresses the aging management review of the **Reactor Coolant System and Connected Systems** for license renewal. For a recent vintage plant, the information related to the Reactor Coolant System and Connected Systems is contained in Chapter 5 of the plant's Final Safety Analysis Report (FSAR) consistent with the Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (NUREG-0800) (Ref. 1).

For BWRs, the Reactor Coolant System consists of:

| System | Applicable GALL Section |
|---|---|
| Reactor Vessel and Internals | IV.A1 |
| Reactor Coolant Circulation System | IV.C1 |
| **Are the connected systems reviewed in SRP 3.2 or elsewhere? See SRP 3.3 and 3.5** | |
| Connected Systems:<br>Residual Heat Removal<br>Low-pressure core spray<br>High pressure core spray<br>Low-pressure coolant injection<br>High-pressure coolant injection<br>Reactor core isolation cooling<br>Isolation condenser<br>Reactor coolant cleanup<br>Feedwater<br>Main steam | |

For PWRs, the Reactor Coolant System consists of:

| System | Applicable GALL Section |
|---|---|
| Reactor Vessel and Internals | IV.A2; IV.B2, B3, B4 |
| Primary coolant loop, pressurizer, pressurizer relief tank, steam generators (and other Class 1 components) | IV.C2; D1, D2 |
| **Are the connected systems reviewed in SRP 3.2 or elsewhere? See SRP 3.3** | |
| Connected systems include:<br>Residual heat removal or low pressure injection<br>Core flood spray or safety injection tank<br>Chemical and volume control system or high pressure injection system | |

| | |
|---|---|
| Sampling system | |

**SRP Section 3.3**

## REVISED "AREAS OF REVIEW"

This review plan section addresses the aging management review of **the Engineered Safety Features** for license renewal. For a recent vintage plant, the information related to the Engineered Safety Features is contained in Chapter 6, "Engineered Safety Features," of the plant's Final Safety Analysis Report (FSAR) consistent with the Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (NUREG-0800) (Ref. 1).

For BWRs, the Engineered Safety Features consist of:

| System | Applicable GALL Section |
|---|---|
| Standby gas treatment | V.B |
| Containment isolation components (Structural aspects should be reviewed under SRP 3.6) | V.C |
| High-pressure coolant injection | V.D.2 |
| Reactor core isolation cooling | V.D.2 |
| Automatic depressurization | V.D.2 |
| Low-pressure core spray | V.D.2 |
| Low-pressure coolant injection or residual heat removal | V.D.2 |

For PWRs, the Engineered Safety Features consist of:

| System | Applicable GALL Section |
|---|---|
| Containment spray | V.A |
| Containment isolation components (Structural aspects should be reviewed under SRP 3.6) | V.C |
| Fan cooler | V.E |
| Core flood | V.D.1 |
| Residual heat removal or shutdown cooling | V.D.1 |
| High-pressure safety injection | V.D.1 |
| Low-pressure safety injection | V.D.1 |
| Lines to chemical and volume control system | V.D.1 |
| Spent fuel pool (SFP) cooling (Not normally considered as ESF; See SRP 3.5) | VII.A.3 |
| Emergency sump (structural See SRP 3.9), HPSI and LPSI pumps, pump seal coolers, RHR heat exchanger, and refueling water tank (these are not systems in and of themselves but rather components that are part of systems already listed) | V.D.1 |
| What about Containment $H_2$ Control and Control Room Habitability? | |

## SRP Section 3.4

## REVISED "AREAS OF REVIEW"

This review plan section addresses the aging management review of the **Auxiliary Systems** for license renewal. For a recent vintage plant, the information related to the Auxiliary Systems is contained in Chapter 9 of the plant's Final Safety Analysis Report (FSAR) consistent with the Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (NUREG-0800) (Ref. 1).

Auxiliary Systems consist of:

| System | Applicable GALL Section |
|---|---|
| Spent fuel pool cooling and cleanup (also listed in under ESF) | PWR – VII.A3<br>BWR – VII.A4 |
| What about the spent fuel transfer tubes – mechanical or structural? | |
| Cooling water | VII.C1, C2, C3 |
| Compressed air | VII.D |
| Heating and ventilation (Control Room ventilation may be considered to be ESF) | VII.F1, F2, F3, F4 |
| Fire protection (should fire protection include structural as well as mechanical fire protection features?) | VII.G |
| Diesel fuel oil (What about the other DG systems?) | VII.H1 (also H2) |
| Liquid waste disposal | VII.I |
| Any other plant mechanical systems not specifically listed in SRP 3.2, 3.3, and 3.5 should be listed here | |

For BWRs, Auxiliary Systems also consist of:

| System | Applicable GALL Section |
|---|---|
| Suppression pool cleanup | VII.A5 |
| Standby liquid control | VII.E2 |
| Reactor Water Cleanup System | VII.E3 |
| Shutdown cooling (old plants) | VII.E5 |

For PWRs, Auxiliary Systems also consist of:

| System | Applicable GALL Section |
|---|---|
| Chemical and volume control | VII.E1 |
| Coolant storage/refueling water | VII.E4 |
| How about non-Class 1 RCS? | |

Structures listed in GALL Section VII (structural – should all be considered under SRP 3.6):

| Structure | Applicable GALL Section |
|---|---|
| New and spent fuel storage | VII.A1, A2 |
| Light load handling systems | VII.B1 |
| Overhead Heavy Load Handling Systems | VII.B2 |

NUREG 0800 lists the following systems that may <u>not</u> be included within GALL or the SRP list of auxiliary systems:

| Structure | Applicable GALL Section |
|---|---|
| Station Service Water | |
| Reactor Auxiliary Cooling Water | |
| Demineralized Water Makeup | |
| Potable and Sanitary Water | |
| Ultimate Heat Sink | |
| Process and Post-Accident Sampling | |
| Equipment and Floor Drainage | |

## SRP Section 3.5

## REVISED "AREAS OF REVIEW"

This review plan section addresses the aging management review of the **Steam and Power Conversion Systems** for license renewal. For a recent vintage plant, the information related to the Engineered Safety Features is contained in Chapter 10 of the plant's Final Safety Analysis Report (FSAR) consistent with the Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (NUREG-0800) (Ref. 1).

For BWRs, the Steam and Power Conversion Systems consist of:

| System | Applicable GALL Section |
|---|---|
| Steam Turbine System | VIII.A |
| Main Steam | VIII.B2 |
| Extraction Steam | VIII.C |
| Feedwater | VIII.D2 |
| Other Plant Specific Steam and Power systems not listed above | |

For PWRs, the Steam and Power Conversion Systems consist of:

| System | Applicable GALL Section |
|---|---|
| Steam Turbine System | VIII.A |
| Main Steam | VIII.B1 |
| Extraction Steam | VIII.C |
| Feedwater | VIII.D1 |
| Condensate (includes main condensers?) | VIII.E |
| Steam Generator Blowdown | VIII.F |
| Auxiliary Feedwater | VIII.G |
| Other Plant Specific Steam and Power systems not listed above | |

The following system is listed in NUREG-0800 Chapter 10, but not in SRP Section 3.5:

| System | Applicable GALL Section |
|---|---|
| Circulating Water System (it may be included within the cooling water systems of SRP 3.4) | |

## SRP Section 3.6

## REVISED "AREAS OF REVIEW"

This review plan section addresses the aging management review of the **Structures and Structural Support** for license renewal. For a recent vintage plant, the information related to Structures and Structural Support is contained in Chapter 3 of the plant's Final Safety Analysis Report (FSAR) consistent with the Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (NUREG-0800) (Ref. 1).

Common Class I Structures and Structural Support consists of:

| Structure | Applicable GALL Section |
|---|---|
| Group 3: Auxiliary building, diesel generator building, Radwaste building, turbine building, switchgear room, auxiliary feedwater pump house, utility/piping tunnels | III.A3 |
| Group 4: Containment interior, excluding refueling canal (is the emergency sump included here as it is a strcuture?) | III.A4 |
| Group 5: Fuel storage facility, refueling canal | III.A5 |
| Group 6: Water control structures (intake structure, cooling tower, and spray pond) | III.A6 |
| Group 7: Concrete tanks | III.A7 |
| Group 8: Steel tanks | III.A8 |
| What about piping and component supports? | |

For BWRs, the Structures and Structural Support consists of:

| Structure | Applicable GALL Section |
|---|---|
| Containment Structures – Mark I concrete and steel containments, Mark II concrete (reinforced or prestressed) and steel containments, and Mark III concrete and steel containments) | IIB1, B2, B3, B4 |
| Group 1: BWR Reactor Building | III.A1 |
| Group 2: BWR reactor building with steel superstructure | III.A2 |
| Group 9: BWR unit vent stack | III.A9 |

For PWRs, the Structures and Structural Support consists of:

| Structure | Applicable GALL Section |
|---|---|
| Containment Structures – concrete (reinforced or prestressed) and steel containments (ice condensers?) | IIA1, A2, A3 |
| Group 1: PWR shield building | III.A1 |

**Table 3.3-1 Aging management Programs for Engineered Safety Features Evaluated in Chapter V of the GALL Report**

| Component | Aging Effect/ Mechanism | Aging Management Programs | Further Evaluation Recommended |
|---|---|---|---|
| **BWR Plants** | | | |
| BWR emergency core cooling system and containment isolation components | Crack initiation and growth from SCC | Inservice inspection; materials selection and processing to reduce susceptibility to sensitization; water chemistry | No |
| BWR standby gas treatment system electric heater housing | Crack initiation and growth from SCC | Plant Technical Specifications | Yes; plant-specific AMP (see Subsection 3.3.3.2.2) |
| Containment isolation coated carbon steel components | Loss of material from general corrosion | Inservice inspection; coatings program | No |
| Containment isolation coated carbon steel components | Loss of material from attrition and wear | Inservice inspection; leakage tests; coatings program **(Duplicate?)** | No |
| BWR standby gas treatment system carbon steel components | Loss of material from general corrosion | Plant Technical Specifications; humidity control | Yes; plant-specific AMP (see Subsection 3.3.3.2.3) |
| BWR emergency core cooling system heat exchanger and isolation condenser components | Local loss of material from pitting and crevice corrosion | Inservice inspection; performance testing; water chemistry | No |
| BWR emergency core cooling system components; BWR containment isolation valves | Local loss of material from pitting and crevice corrosion | Inservice inspection; water chemistry | Yes; one-time inspection and appropriate follow-up actions recommended (see Subsection 3.3.3.2.4) |
| BWR containment isolation components; BWR emergency core cooling system components | Local loss of material from general, pitting and crevice corrosion | Plant Technical Specifications | Yes; plant-specific AMP (see Subsection 3.3.3.2.4) |
| BWR standby gas treatment system carbon steel components | Local loss of material from pitting and crevice corrosion | Plant Technical Specifications, humidity control | Yes; plant-specific AMP (see Subsection 3.3.3.2.4) |
| BWR emergency core cooling system heat exchanger components | Loss of material from general and microbiologically influenced corrosion | Service water program; water chemistry | No |

**Table 3.3-1 Aging management Programs for Engineered Safety Features Evaluated in Chapter V of the GALL Report**

| Component | Aging Effect/ Mechanism | Aging Management Programs | Further Evaluation Recommended |
|---|---|---|---|
| BWR emergency core cooling system heat exchanger components | Buildup of deposit from biofouling | Service water program; water chemistry | No |
| BWR standby gas treatment system filter seals; containment isolation penetration seals | Changes in properties from elastomer degradation | Plant Technical Specifications | Yes; plant-specific AMP (see Subsection 3.3.3.2.7) |
| BWR standby gas treatment system charcoal absorber filter | Loss of iodine retention capacity from absorption of moisture | Plant Technical Specifications | Yes; plant-specific AMP (see Subsection 3.3.3.2.9) |
| **PWR PLANTS** | | | |
| PWR containment spray and emergency core cooling system components in contact with primary coolant | Crack initiation and growth from SCC | Inservice inspection; materials selection and processing to reduce susceptibility to sensitization; water chemistry | No |
| PWR containment spray chemical addition storage tank; PWR emergency core cooling safety injection tank and refueling water tank penetrations and nozzles | Crack initiation and growth from SCC | Inservice inspection; materials selection and processing to reduce susceptibility to sensitization | Yes; one-time inspection and appropriate follow-up actions recommended (see Subsection 3.3.3.2.2) |
| Containment isolation coated carbon steel components | Loss of material from general corrosion | Inservice inspection; coatings program | No |
| Containment isolation coated carbon steel components | Loss of material from attrition and wear | Inservice inspection; leakage tests; coatings program **(Duplicate?)** | No |
| PWR fan cooler system cooling coils, fan components, and piping and fittings | Loss of material from general corrosion | Plant Technical Specifications | Yes; plant-specific AMP (see Subsection 3.3.3.2.3) |
| PWR containment spray heat exchanger components and PWR emergency core cooling system heat exchanger and isolation condenser components | Local loss of material from pitting and crevice corrosion | Inservice inspection; performance testing; water chemistry | No |

**Table 3.3-1 Aging management Programs for Engineered Safety Features Evaluated in Chapter V of the GALL Report**

| Component | Aging Effect/ Mechanism | Aging Management Programs | Further Evaluation Recommended |
|---|---|---|---|
| PWR containment spray system components, PWR emergency core cooling system components; PWR containment isolation valves | Local loss of material from pitting and crevice corrosion | Inservice inspection; water chemistry | Yes; one-time inspection and appropriate follow-up actions recommended (see Subsection 3.3.3.2.4) |
| PWR containment system components; PWR containment isolation components; | Local loss of material from general, pitting and crevice corrosion | Plant Technical Specifications | Yes; plant-specific AMP (see Subsection 3.3.3.2.4) |
| PWR containment spray, containment isolation, and emergency core cooling system bolting and other external surfaces | Loss of material from boric acid wastage | Inservice inspection; boric acid corrosion prevention | No |
| PWR containment spray | Loss of material from general and microbiologically influenced corrosion | Service water program; water chemistry | No |
| PWR emergency core cooling system line to emergency sump | Loss of material from micro-biologically influenced corrosion | Plant Technical Specifications | Yes; plant-specific AMP (see Subsection 3.3.3.2.5) |
| PWR containment spray | Buiildup of deposit from biofouling | Service water program; water chemistry | No |
| PWR emergency core cooling system lines and valve components | Wall thinning from erosion/ corrosion | Erosion/corrosion control program | Yes; guidance provided in NSAC-202L-R2 is too general to ensure that applicant's flow-accelerated corrosion program will be effective (see Subsection 3.3.3.2.6). |
| PWR emergency core cooling system refueling water tank perimeter seal | Loss of elasticity from weathering | Plant Technical Specifications | Yes; plant-specific AMP (see Subsection 3.3.3.2.8) |

**Table 3.7-1. Aging Management Programs for the Electrical Components Evaluated in Chapter VI of the GALL Report**

| Component | Aging Effect/ Mechanism | Aging Management Programs | Further Evaluation Recommended |
|---|---|---|---|
| Non-EQ Electrical Cables and Connections | Embrittlement, cracking, melting, discoloration, leading to reduced insulation resistance, electrical failure, caused by thermal/ thermoxidative degradation of organics, radiolysis and photolysis (UV sensitive materials only) of organics; radiation-induced oxidation | Aging Management Program for Non-EQ Electrical Cables and Connections Exposed to an Adverse Localized Environment caused by Heat or Radiation | No |
| Electrical cables used in instrumentation circuits that are sensitive to reduction in conductor insulation resistance (IR) | Embrittlement, cracking, melting, discoloration, leading to reduced insulation resistance, electrical failure, caused by thermal/ thermoxidative degradation of organics, radiation-induced oxidation | Aging Management Program for Non-EQ Electrical Cables Used in Instrumentation Circuits that are Sensitive to Reduction in Conductor Insulation Resistance (IR) Exposed to an Adverse Localized Environment Caused by Heat or Radiation | No |
| Inaccessible Medium-Voltage (2kV to 15kV) Cables (e.g., installed in conduit or direct buried) | Formation of water trees, localized damage, leading to electrical failure (breakdown of insulation), caused by moisture intrusion, water trees | Aging Management Program For Non-EQ Inaccessible Medium-Voltage Cables Exposed to an Adverse Localized Environment caused by Moisture and Voltage Exposure | No |
| Electrical Connectors Exposed to Borated Water Leakage | Corrosion of connector contact surfaces caused by intrusion of borated water | Borated Water Leakage Surveillance Program for Non-EQ Electrical Connectors | No |

**Table 3.7-2. FSAR Supplement for Aging Management of Electrical Components**

| Program | Description of Program | Implementation Schedule |
|---|---|---|
| Aging Management Program for Non-EQ Electrical Cables and Connections Exposed to an Adverse Localized Environment caused by Heat or Radiation | Accessible electrical cables and connections installed in adverse localized environments are visually inspected at least once every 10 years for cable and connection jacket surface anomalies such as embrittlement, discoloration, cracking or surface contamination, which are precursor indications of conductor insulation aging degradation from heat or radiation. An adverse localized environment is a condition in a limited plant area that is significantly more severe than the specified service condition for the electrical cable or connection. | The first inspection for license renewal should be scheduled during the first unit outage in the renewal period. |
| Aging Management Program for Non-EQ Electrical Cables Used in Instrumentation Circuits that are Sensitive to Reduction in Conductor Insulation Resistance (IR) Exposed to an Adverse Localized Environment Caused by Heat or Radiation | Electrical cables used in circuits with sensitive, low-level signals such as radiation monitoring and nuclear instrumentation are tested as part instrumentation loop calibration at the normal calibration frequency, which provides sufficient indication of the need for corrective actions based on acceptance criteria related to instrumentation loop performance. | The first tests for license renewal should be scheduled during the first unit outage in the renewal period. |
| Aging Management Program For Non-EQ Inaccessible Medium-Voltage Cables Exposed to an Adverse Localized Environment caused by Moisture and Voltage Exposure | In-scope, medium-voltage cables exposed to significant moisture and significant voltage are tested at least once every 10 years to provide an indication of the condition of the conductor insulation. The specific type of test performed will be determined prior to each test. Significant moisture is defined as periodic exposures to moisture that last more than a few days (e.g., cable in standing water). Periodic exposures to moisture that last less than a few days (i.e., normal rain and drain) are not significant. Significant voltage exposure is defined as being subjected to system voltage for more than twenty-five percent of the time. The moisture and voltage exposures described as significant in these definitions are not significant for medium-voltage cables that are designed for these conditions (e.g., continuous wetting and continuous energization is not significant for submarine cables). | The first tests for license renewal should be scheduled during the first unit outage in the renewal period. |
| Borated Water Leakage Surveillance Program for Non-EQ Electrical Connectors | Visual inspections are performed each refueling outage of electrical connector and enclosure external surfaces for evidence of borated water leakage such as discoloration or accumulated boric acid residue. Boric acid residue is removed and a determination is made as to the possible intrusion of borated water into the electrical connector or enclosure. | The first inspection for license renewal should be scheduled during the first unit outage in the renewal period. |

**NOTE:** These examples may be revised to reflect the generic comments on the FSAR Supplement provided earlier.

Enclosure 2

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Date: 7/13
Page(s) including Cover Sheet: 9

Comments:

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## 1.1 DOCKETING OF TIMELY AND SUFFICIENT RENEWAL APPLICATION

**Review Responsibilities**

**Primary** - Branch responsible for license renewal projects
**Secondary** - Branch responsible for environmental review, and
Branches responsible for technical review, as appropriate

### 1.1.1 Areas of Review

This review plan section addresses the review of the acceptability of a license renewal application for docketing in accordance with 10 CFR 2.101 and whether a license renewal application is timely and sufficient in order to allow the provisions of 10 CFR 2.109(b) to apply. 10 CFR 2.109(b) was written to comply with the Administrative Procedures Act. Allowing 10 CFR 2.109(b) to apply to the application means that the current license will not expire until the NRC makes a final determination on the license renewal application.

It is important to note that this review is not a detailed in-depth review of the technical aspects of the application. Docketing of a timely and sufficient renewal application does not preclude requesting additional information as the review proceeds; nor does it predict the NRC's final determination regarding the acceptance or rejection of the renewal application. It is also important to note that a plant's current license will not expire after the passing of the license's expiration date if a timely and sufficient renewal application has been docketed. During this time until the renewal application has been finally determined by the NRC, the licensee must continue to comply with its licensing basis, including all applicable license conditions, orders, and rules and regulations.

The following areas relating to the license renewal application are reviewed:

#### 1.1.1.1 Docketing/Sufficiency of Application

The license renewal application is reviewed for acceptability for docketing as a sufficient application in accordance with 10 CFR 2.101 and 10 CFR 2.109(b).

#### 1.1.1.2 Timeliness of Application

The timeliness of a license renewal application is reviewed for applicability of 10 CFR 2.109(b) and 54.17(c).

### 1.1.2 Acceptance Criteria

The acceptance criteria for the areas of review define methods for meeting the requirements of the Commission's regulations in 10 CFR 2.101 and 10 CFR 2.109(b).

A license renewal application is sufficient if it contains

#### 1.1.2.1 Docketing/Sufficiency of Application

~~It is enough that the licensee submits~~ the required reports, analysis, and other documents required in such application (56 FR 64923). The same acceptance criteria apply to the docketing acceptance review of 10 CFR 2.101(a)(2).

#### 1.1.2.2 Timeliness of Application

A sufficient license renewal application is timely if it is submitted at least 5 years, but not more than 20 years, before the expiration of the current operating license.

### 1.1.3 Review Procedures

A licensee may choose to submit plant-specific reports addressing portions of the license renewal rule requirements for NRC review and approval prior to submitting a renewal application. An applicant may incorporate by reference these reports or other information contained in previous applications for licenses or license amendments, statements, or correspondence filed with the Commission, provided that the references are clear and specific. However, the final determination of the docketing of a timely and sufficient renewal application is made only after a formal renewal application has been tendered to the NRC.

For each area of review, the following review procedures are to be followed:

#### 1.1.3.1 Docketing/Sufficiency of Application

Upon receipt of a tendered application for license renewal, the reviewer should determine whether the applicant has made a reasonable effort to provide the administrative, technical, and environmental information. Draft Regulatory Guide DG-1047, "Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses" (Ref. 1), was issued for public comment on August 26, 1996 (61 FR 43792). DG-1047 provides draft guidance on the format and content of a renewal application. The reviewer should use the review checklist in Table 1.1-1 of this review plan section to determine whether the application is reasonably complete and conforms to the requirements in 10 CFR Part 54.

Items I.1 through I.10 in the checklist address administrative information and, for the purpose of this docketing/sufficiency review, the reviewer should check the "Yes" column if the information is included in the application. Item II in the checklist addresses timeliness of the application.

Items III.1 through III.4 and Item IV in the checklist address technical information and technical specification changes. The reviewer may consult Chapters 2 through 4 of this standard review plan for information regarding a technical review. Although the purpose of this docketing/sufficiency review is not to determine the technical adequacy of the application, the reviewer should determine whether the applicant has provided reasonably complete information in the application to address the renewal rule requirements. The reviewer may request assistance from appropriate technical review branches to determine whether the application is reasonable in addressing the items in the checklist such that there is sufficient information in the application for the staff to begin its technical review. The reviewer would check the "Yes"

(Insert RA, Attached)

column for a checklist item if the applicant has provided reasonably complete information in the application to address the checklist item.

Item V in the checklist addresses environmental information. The environmental review staff should review the supplement to the environmental report in accordance with the guidelines in Draft Regulatory Guide DG-4005, "Preparation of Supplemental Environmental Reports for Applications to Renew Nuclear Power Plant Operating Licenses" (Ref. 2), which is the draft environmental regulatory guide for 10 CFR Part 51. The reviewer would check the "Yes" column if the staff in the branch responsible for environmental review determines that the renewal application contains information consistent with the guidelines in the draft environmental regulatory guide. The NRC staff review and the NRC staff preparation of the supplemental environmental impact statement will be guided by Supplement 1, "Operating License Renewal for Nuclear Plants," to NUREG-1555 (Ref. 3).

The application should address each item in the checklist for it to be a reasonably complete and sufficient application. If the reviewer determines that an item in the checklist is not applicable, the reviewer should include a brief statement that the item is not applicable and provide the basis for the statement.

If information in the application for a checklist item is either not provided or not reasonably complete and no justification is provided, the reviewer would check the "No" column for that checklist item. By checking the "No" column for any checklist item in Table 1.1-1, except as discussed in Subsection 1.1.3.2 of this review plan section, the reviewer indicates that the application is not acceptable for docketing as a sufficient renewal application, unless the applicant modifies the application to provide the specific information.

If the staff determines that the application is not acceptable for docketing as a sufficient application, the staff's letter to the applicant should clearly state that the application is not sufficient and is not acceptable for docketing, and that the provisions in 10 CFR 2.109(b) are not satisfied and the current license will expire at its expiration date. Further, the staff should discuss the deficiencies found in the application and offer an opportunity for the applicant to modify its application to provide the specific information. The staff would review the modified application, when submitted, to determine whether it is acceptable for docketing as a sufficient application.

If the reviewer is able to answer "Yes" to the applicable items in the checklist, the application is acceptable for docketing as a timely and sufficient renewal application. Therefore, the provisions of 10 CFR 2.109(b) are satisfied and the current license will not expire until the NRC makes a final determination on the renewal application. The staff would issue a letter to the applicant documenting the staff's determination that the application is acceptable for docketing as a timely and sufficient renewal application. Normally, this letter should be issued within 30 days of receipt of a renewal application. A notice of acceptance for docketing of the application and notice of opportunity for a hearing regarding renewal of licenses would then be published in the Federal Register.

If the staff determines that the application is acceptable for docketing as a sufficient application, the staff would begin its technical review. For license renewal applications, the NRC intends to

## PARAGRAPH A

An applicant may choose to submit plant-specific reports addressing portions of the license renewal rule requirements for NRC review and approval prior to submitting a renewal application. An applicant may incorporate by reference these reports or other information contained in previous applications for licenses or license amendments, statements, or correspondence filed with the Commission, provided that the references are clear and specific. However, the final determination of the docketing of a timely and sufficient renewal application is made only after a formal renewal application has been tendered to the NRC.

maintain the docket number of the operating license in effect to ensure continuation of the requirements in the current licensing basis (CLB).

#### 1.1.3.2 Timeliness of Application

Upon receipt of a tendered application for license renewal, the reviewer performs a docketing/sufficiency review, as discussed in Subsection 1.1.3.1 of this review plan section. If the reviewer determines that the application is acceptable for docketing as a sufficient application, the reviewer should determine whether this application is submitted in a timely manner to meet the provisions of 10 CFR 2.109(b).

If the sufficient application is submitted at least 5 years before the expiration of the current operating license, the reviewer would check the "Yes" column in item II in the checklist in Table 1.1-1. If an applicant has to modify its application, as discussed in Subsection 1.1.3.1 of this review plan section, before the staff can find the application acceptable for docketing as a sufficient application, the modified application should be submitted at least 5 years before the expiration of the current operating license.

If the reviewer checks the "No" column in item II in the checklist indicating that a sufficient renewal application is not submitted at least 5 years before the expiration of the current operating license, the staff's letter to the applicant should clearly state that the application is not timely and that the provisions in 10 CFR 2.109(b) are not satisfied and the current license will expire at its expiration date. However, if the application is otherwise determined to be acceptable for docketing, the staff technical review would continue.

### 1.1.4 Evaluation Findings

The reviewer determines if sufficient and adequate information has been provided to satisfy the provisions of this review plan section. Depending on the results of this review, one of the following conclusions is included in the staff's letter to the applicant:

> The NRC staff has determined that the applicant has submitted sufficient information that is complete and acceptable for docketing, in accordance with 10 CFR 54.19, 54.21, 54.22, 54.23, and 51.53(c). However, the staff's acceptance and sufficiency determination does not preclude request for additional information as the review proceeds.
>
> The application is not acceptable for docketing as a timely and sufficient renewal application.

### 1.1.5 Implementation

Except in those cases in which the applicant proposes an acceptable alternative method for complying with specified portions of the Commission's regulations, the method described herein will be used by the staff in its evaluation of conformance with Commission regulations.

### 1.1.6 References


1. Draft Regulatory Guide DG-1047, "Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses," August 1996.

2. Draft Regulatory Guide DG-4005, "Preparation of Supplemental Environmental Reports for Applications to Renew Nuclear Power Plant Operating Licenses," July 1998.

3. Draft Regulatory Guide DG-1555, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants," July 1997.


Reference final SRP i.e. NUREG1555, Supplement 1, Oct. 1999

**Table 1.1-1. Acceptance Review Checklist for Docketing of Timely and Sufficient Renewal Application**

| | | Yes | No |
|---|---|---|---|
| I. | **General Information** | | |
| 1. | Application identifies specific unit(s) applying for license renewal | ___ | ___ |
| 2. | Filing of renewal application [10 CFR 54.17(a)] is in accordance with: | | |
| | A. 10 CFR Part 2, Subpart A | | |
| | a. 10 CFR 2.101 | ___ | ___ |
| | b. 10 CFR 2.109(b) | ___ | ___ |
| | B. 10 CFR 50.4 | | |
| | a. The application is addressed to the Document Control Desk as specified in 10 CFR 50.4(a) | ___ | ___ |
| | b. The signed original application and 13 copies are provided to the Document Control Desk. One copy provided to the appropriate Regional office [10 CFR 50.4(b)(3)] | ___ | ___ |
| | c. Verify that the form of the application meets the requirements of 10 CFR 50.4(c) | ___ | ___ |
| | C. 10 CFR 50.30 | | |
| | a. Application filed in accordance with 10 CFR 50.4 [10 CFR 50.30(a)(1)] | ___ | ___ |
| | b. Application submitted under oath or affirmation [10 CFR 50.30(b)] | ___ | ___ |
| 3. | Applicant is eligible to apply for a license, and is not a foreign-owned or foreign-controlled entity [10 CFR 54.17(b)] | ___ | ___ |
| 4. | Application is not submitted earlier than 20 years before expiration of current license [10 CFR 54.17(c)] | ___ | ___ |
| 5. | Renewal application states whether it contains | | |

applications for other kinds of licenses [10 CFR 54.17(d)] — —

6. Information incorporated by reference in the application is contained in other documents previously filed with the Commission, and the references are clear and specific [10 CFR 54.17(e)] — —

7. Restricted data agreement is present and complies with 10 CFR 50.33(j) [10 CFR 54.17(f)] — —

8. Written agreement on the accessibility of restricted data is provided [10 CFR 54.17(g)] — —

9. Information specified in 10 CFR 50.33(a) through (e), (h), and (i) is provided or referenced [10 CFR 54.19(a)]:

   A. Name of applicant — —

   B. Address of applicant — —

   C. Business description — —

   D. Citizenship and ownership details — —

   E. License information — —

   F. Construction or alteration dates — —

   G. Regulatory agencies and local publications — —

10. Conforming changes have been submitted to the standard indemnity agreement (10 CFR 140.92, Appendix B) to account for the proposed change in the expiration date [10 CFR 54.19(b)] — —

## II. Timeliness Provision

Sufficient application is submitted greater than 5 years before expiration of current license [10 CFR 2.109(b). If not, application can be accepted for docketing but timely renewal provision in 10 CFR 2.109(b) does not apply — —

## III. Technical Information

1. An integrated plant assessment [10 CFR 54.21(a)] consists of:

   A. For those systems, structures, and components within the scope of license renewal [10 CFR 54.4], identification and listing of those structures and components that are subject to aging management review in accordance with 10 CFR 54.21(a)(1)(i) and (ii)

      a. Description of the boundary of the system or structure considered (if applicant initially scoped at the system or structure level). Within this boundary, identification of structures and components subject to aging management review. For commodity groups, description of basis for the grouping ___ ___

      b. Lists of structures, and components subject to an aging management review ___ ___

   B. Description and justification of method used to identify structures and components subject to aging management review [10 CFR 54.21(a)(2)] ___ ___

   C. Demonstration that the effects of aging will be adequately managed for each structure and component identified, so that their intended function(s) will be maintained consistent with the current licensing basis for the period of extended operation [10 CFR 54.21(a)(3)]

      a. Description of the structure and component intended function(s). ___ ___

      b. Identification of applicable aging effects based on materials, environment, operating experience, etc. ___ ___

      c. Aging management programs are identified and described. ___ ___

      d. Demonstration of aging management provided ___ ___

2. An evaluation of time-limited aging analyses (TLAAs) [10 CFR 54.21(c)] consists of: