



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, D.C. 20555-0001

September 12, 2003

MEMORANDUM TO: ACRS Members

FROM: Ralph Caruso, Senior Staff Engineer  
Technical Support Staff

A handwritten signature in black ink, appearing to read "R. Caruso", written over the printed name of the sender.

SUBJECT: CERTIFICATION OF THE MINUTES OF THE ACRS SUBCOMMITTEE  
MEETING ON PLANT LICENSE RENEWAL, JUNE 11, 2003,  
ROCKVILLE, MARYLAND

The minutes of the subject meeting, issued on July 23, 2003, have been certified as the official record of the proceedings of that meeting. A copy of the certified minutes is attached.

Attachment: As stated

cc: ACRS Members  
R. Savio

cc via e-mail:  
ACRS Members  
J. Larkins  
S. Bahadur  
R. Savio  
H. Larson  
S. Duraiswamy  
ACRS Staff Engineers



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, D.C. 20555-0001

September 12, 2003

MEMORANDUM TO: Ralph Caruso, Senior Staff Engineer  
Technical Support Staff

FROM: Mario Bonaca, Chairman  
Plant License Renewal Subcommittee

SUBJECT: CERTIFICATION OF THE MINUTES OF THE ACRS SUBCOMMITTEE  
MEETING ON PLANT LICENSE RENEWAL, JUNE 11, 2003,  
ROCKVILLE, MARYLAND

I hereby certify that, to the best of my knowledge and belief, the Minutes of the subject meeting issued July 23, 2003, are an accurate record of the proceedings for that meeting.

Mario Bonaca  
Mario Bonaca, Chairman

9/12/03  
Date

**CERTIFIED**

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
PLANT LICENSE RENEWAL SUBCOMMITTEE MEETING MINUTES  
FT. CALHOUN STATION UNIT 1  
JUNE 11, 2003  
ROCKVILLE, MARYLAND

**Introduction**

The ACRS Subcommittee on Plant License Renewal held a meeting on June 11, 2003, with representatives of the Omaha Public Power District and the NRC staff. The purpose of this meeting was to discuss the license renewal application for the Fort Calhoun Station, Unit 1, and the NRC Staff's Initial Staff Evaluation Report. Mr. Ralph Caruso was the cognizant ACRS staff engineer and Designated Federal Official (DFP) for this meeting. The meeting was convened at 8:30 a.m., June 11, 2003, and adjourned at 4:30 p.m. that day.

**Attendees**

<u>ACRS Members/Staff</u>	<u>NRC Staff</u>	<u>Omaha Public Power District</u>
Mario V. Bonaca (Chairman)	Stewart Bailey (NRR)	T.C. Matthews
F. Peter Ford (Member)	William (Butch) Burton (NRR)	Ken Henry
Thomas S. Kress (Member)	Barry Elliot (NRR)	Joe Gasper
Dana A. Powers (Member)	John Fair (NRR)	Bernie Van Sant
Victor H. Ransom (Member)	Paul Gill (NRR)	Phillip DiBenedetto
Stephen L. Rosen (Member)	David Jeng (NRR)	Sudesh Gambhir
William J. Shack (Member)	Steve Jones (NRR)	
John D. Sieber (Member)	Cheryl Kahn (NRR)	
Ralph Caruso (DFO)	PT Kuo (NRR)	
	Sam Lee (NRR)	
	Muhammad Razzaque (NRR)	
	Paul Shemanski (NRR)	
	Wayne Walker (NRR)	
	Ken Chang (NRR)	

A list of public attendees is attached to the Office Copy of these Minutes

The presentation slides and handouts used during the meeting are attached to the Office Copy of these Minutes. The presentations to the Subcommittee are summarized below. One request from the public was received to make an oral presentation - Mr. Bill Watson, representing Dominion Energy, discussed ongoing industry efforts to improve license renewal application documentation.

### **Opening Remarks (M. Bonaca, ARCS)**

Dr. Bonaca convened the meeting. He had no specific comments relative to the meeting agenda.

### **Staff Introduction (P.T. Kuo, NRR)**

Mr. Kuo introduced the staff member who would be leading the staff presentation, Mr. William Burton, and remarked that this review had proceeded smoothly, and it represented the first application of the new license renewal review process.

### **Omaha Public Power District (OPPD) Presentations (Sudesh Gambhir, Joseph Gasper, Bernie Van Sant, OPPD)**

#### **Background**

Mr. Sudesh Gambhir began the OPPD presentation with an overview of the plant history and status, and he noted that OPPD had carried out this project using employees who had experience from the Calvert Cliffs license renewal program. The plant has been maintained in good material condition, which made the process easier. The plant has been fully amortized, and the decommissioning fund is fully funded, so the plant is a strong asset of the OPPD, and its performance determines its future in the company. He noted that OPPD has also been working with the Alliance group of nuclear power plants to share experience and resources.

Mr. Joe Gasper recalled that this was the first plant license renewal application to be based on the new Standard Review Plan (SRP) for License renewal, and on the Generic Ageing Lessons Learned (GALL) report. The timing of the effort was not ideal, though, and modifications had to be made to the application to link the various sections together in a way that made them easier to understand and use by the NRC staff. The Application was initially submitted on January 9, 2002, with a revision on April 5, 2002.

#### **License Renewal Application Scoping and Screening Process**

Mr. Bernie Van Sant described the scoping criteria and screening process that OPPD used to develop the application. It matched the 10 CFR54.4 criteria and used a wide variety of plant documents to identify all of the structures, systems, and components that are within the scope of license renewal. Several structures that were unique to Ft. Calhoun were identified, such as the circulating water discharge tunnel, the enclosed above-ground fire protection diesel fuel oil tank, and the safety injection refueling water tank.. The electrical systems were considered on a system basis, and passive components were screened into several commodity groups.

### **Aging effects and Ageing Management(AM)**

Aging effects for components, materials, and environments were identified, and the components were included into the appropriate AM programs, which were compared to the GALL. Descriptions of these classifications can be found in table 3.X-1, 3.X-2, and 3.X-3, as appropriate. Twenty four existing AM programs were credited for dealing with these components, and Appendix B of the application describes the programs and their consistency with GALL. Plant-specific program descriptions include the 10-criteria evaluation described in the SRP.

### **Time Limited Aging Analyses(TLAA)**

Fourteen TLAA's were identified, including four plant specific ones: (1) Environmental Fatigue, (2) Leak Before Break, (3) Pressurizer Nozzle J-groove Weld, and (4) High Energy Line Break. Additional discussion of these items occurred during the staff presentations.

### **Interim Staff Guidance, commitments, and open items**

OPPD reported that it has implemented all issued Interim Staff Guidance Documents, on the GALL Position on AM, station blackout, AM of concrete, AM of fire protection systems, and the treatment of fuse holders. All OPPD commitments are listed in the SER, and are tracked through the plant action tracking system, with annotations to the appropriate implementing procedures. There were 11 open items and 4 confirmatory items in the draft SER, they have all been discussed with the NRC staff, and OPPD has provided acceptable responses to all of them.

### **Plant Operating Experience**

Mr. Van Sant noted that all of the NRC performance indicators for Ft. Calhoun are green, and the Problem Identification and Resolution Inspection that was completed on May 8, 2003 did not have any findings. The plant has been recognized for Industry Operating Excellence by INPO, and it is in excellent material condition, with only one forced shutdown since June 1998. The Reactor Vessel Upper Head visual inspection was performed at the last outage, and no leaks were identified from any of the nozzles. Another inspection will be performed in September, 2003, but the licensee has already decided to change the reactor head in 2006.

### **Questions from Members**

Dr. Bonaca noted that the pressurizer spray head was not "in-scope" He asked how this could be, given that pressurizer spray is the primary cooldown method. The licensee responded that the analysis basis for plant operation does not include pressurizer spray, even though that is the normal method of reducing pressure. Any degradation in the operation of the spray nozzle would be noted during normal operation, because the spray nozzles are used for normal pressure control. This item was discussed in more detail in the staff presentation.

Dr. Shack asked how the licensee had dealt with SCC in the Type 347 SS CRDM housings, and the license replied that these would be dealt with as part of the Part 50

licensing actions to deal with CRDM cracking. The plant uses on-line noise monitoring to detect problems with the thermal shields, and the reactor vendor is doing additional studies on Alloy 600 cracking that will be taken into account.

Mr. Leitch noted that some buckling in the containment liner plate had been detected, and the licensee replied that this was believed to have occurred during plant construction. It has been analyzed, and does not affect the functionality of the containment liner plate.

Mr. Rosen noted that there is a "bow-wave" of inspection activities that will be needed to support license renewal activities in the future, and the staff will need to plan accordingly for these inspections. Dr. Bonaca agreed that the GALL process increases the reliance on pre-license renewal inspections. Dr. Kuo, of the staff pointed out that headquarters reviewers have become more involved in on-site license renewal audits, and he promised to discuss this activity during the staff presentation. Dr. Bonaca agreed that this was an important activity that needs to be included in the Committee's letter regarding license renewal.

Mr. Rosen asked whether it would be possible to better define a schedule for the implementation of many of the commitments that the license had made, rather than just state that they would be completed "before the start of the license renewal period". This is information that would be useful to the ACRS, the staff, and the Regional inspectors, for planning purposes. The licensee reported that it will be replacing the reactor vessel head, steam generators, and possibly the pressurizer in 2006, and was strongly inclined to complete the other actions as soon as possible, consistent with the availability of data and components.

### **NRC Staff Presentation (William Burton, Wayne Walker, PT Kuo, Muhammad Razzaque, Barry Elliot, NRR)**

#### **Overview and Status**

Mr. Burton opened his presentation with the observation that Ft. Calhoun was the first plant to fully implement the GALL process, and the staff learned several lessons from this application. The initial review of the application determined that the functional realignment methodology used by the licensee was not well described, but further discussion clarified the process. The staff has since issued new guidance about the treatment of 50.54(a)(2) issues, and has brought seven more systems in-scope of license renewal. All open items are resolved, and are expected to be closed by September, 2003.

#### **Scoping and Screening Methodology**

Mr. Walker then described the process that the staff used to perform the license renewal scoping and screening inspection. This process was carried out by a team of eight staff members who spent four weeks at the plant. The team sampled 22 of the mechanical systems, 13 electrical systems and nine structures. It looked at the functions defined by the licensee, the interfaces between systems, components, and structures, and the plant drawings. It verified the consistency of the licensee designations among several different drawings. When a

discrepancy was identified, the scope of the review was expanded, up to a review of the entire system.

In response to a question from Mr. Rosen, Mr. Walker noted that this was not just a paper exercise, but included detailed equipment walkdowns. Similar detailed inspections had been performed by the licensee, with physical inspections of cables to verify the drawing configurations. Regarding a specific question about the switchyard, the licensee responded that the plant is responsible for the switchyard, and it maintains its records for that equipment in a highly controlled fashion.

Mr. Burton noted that it is not unusual to have an issue raised in the license renewal review that has not yet been resolved in the normal licensing process, and the staff accepts that these situations will arise, and be resolved as part of a generic issue.

### **Ageing Management Programs and Review Results (AMR)**

Mr. Burton described the staff process for evaluating the Ageing Management Program of the licensee, using the guidance contained in the GALL report and additional guidance provided by the staff. Mr. Leitch noted that the staff review effort and the number of RAIs had not dropped significantly from previous license renewal reviews, and he asked whether the GALL had actually increased the staff workload. Mr. Burton replied that it had, in this first instance of applying the GALL, but the overall review effort by headquarters staff has been reduced to an audit verification of GALL implementation. The staff is re-considering the process, and with the Ft. Calhoun experience, will likely focus its future efforts on on-site verification work. The staff has developed, and is using, a training program to ensure that all of the staff and contractor participants in LR activities understand the GALL process. The training program is expected to help reduce future staff review effort.

Dr. Razzaque discussed the reactor systems review, including the scope of review, and the non-inclusion of the pressurizer spray nozzle in the scope of license renewal. Dr. Bonaca noted that the pressurizer spray nozzle is the normal path for reducing plant pressure following a shutdown, and although there are other methods available, they are not normally used. The staff replied that it understands that the other methods may not be preferable, but the staff does not use the license renewal process to change the licensing basis for the plant. If the licensee demonstrates that use of pressurizer spray is outside the licensing basis, because other methods are credited for pressure control, then it does not require the nozzle to be in scope. Dr. Bonaca did not understand why the primary method for pressure control was not in-scope, and the staff agreed that it would investigate this staff position, and discuss it at the full Committee meeting.

The staff discussed the One-Time Inspection(OTI) Program that the licensee has committed to develop, which will include a detailed description of the components that will be inspected to confirm that aging effect are not present before the start of the license renewal period. The items for which the OTI is credited are identified in the SER, Appendix A. In response to a question from Dr. Ransom about the scope of the inspection, the staff explained that the inspection would be visual, and would look for rust, corrosion, physical loss-of-material, or any other abnormal or unexpected condition.

Mr. Leitch asked whether any buried piping would be excavated for inspection, and the licensee replied that this would not generally be done, but some components, such as the buried Diesel Generator Fuel Oil Tank, would be dug up, periodically, and inspected. In other cases, when excavations occur for other reasons, the piping will be inspected, and the results evaluated and documented.

### **Time Limited Aging Analyses**

Mr. Burton described the Time Limited Aging Analyses that were performed by the licensee to evaluate reactor vessel lifetime, metal fatigue for certain components, environmental qualification issues over a longer plant lifetime than had originally been licensed, concrete containment tendon prestress, and containment liner plant and penetration sleeve fatigue. All of these issue have been resolved satisfactorily. He described in detail one item that was discovered after issuance of the SER, which involved a repair to a pressurizer temperature element nozzle weld. The staff described the repair process, and the use of an ASME code case to justify the repair process, which the staff found acceptable.

In the case of the containment liner plate, a slight buckle was noted during a containment walkdown, and after a fatigue analysis was performed, the staff determined that the buckle was not significant.

### **Lessons Learned and Staff Conclusions**

Mr. Burton summarized the lessons learned from this application of GALL.

The new LR application format used by the licensee reflects the new GALL process, but the staff believes that it can be improved further.

The staff still needs to better define what is meant by "consistent with GALL".

The SER template helped to more efficiently document the staff review.

Further improvements to GALL and the SRP have been identified, and will be incorporated into future review efforts.

The use of GALL results in a more efficient and effective staff review.

In conclusion, all open items have been resolved, and the staff only needs to verify the latest revisions that have been submitted by the licensee. Dr. Bonaca noted that there appeared to be no contentious issues arising from this application, and he thought that future staff reviews should now be able to focus on areas where licensees are not compliant with GALL.

### **Improvements to Generic License Renewal Guidance Documents (William Watson, Dominion Energy)**

Mr. Bill Watson, of Dominion Energy, then presented an industry report on the history of license renewal, and the progress that has been made by the NRC and industry to improve the Standard License Renewal Application (SLRA) Format. He recounted the history of the effort to



improve the LRA format, starting with NEI 95-10, and NUREG-1800, and the SRP. Industry and the staff continued to work together through 2002, and in September 2003, the industry expects to use a revision to NEI 95-10 which will include a new SLRA template. The new format will be highly table-formatted, to simplify the staff review effort, and focus on explaining the licensee logic for determining the scope of AMR.

The new Section 2 will include a list of the intended functions, abbreviations and a definitions table. It will discuss the applicants approach to ISGs, and will include enhanced system descriptions to identify which criteria require the system to be in-scope.

Section 3 will include internal and external environments tables and usage description tables. The AMR results will then be divided into the six SRP "Super Groups", and then into their systems, structural or commodity subgroups. For each subgroup, a roll-up section of the material, environments, ageing effects requiring management, and ageing management programs will be provided. The results will be presented in a format that is consistent with NUREG-1801. TLAAs will also be included, as well as items where further evaluation is recommended.

The industry believes that the new program is consistent with NUREG-1801, and will help take maximum advantage of NUREG-1801 to improve efficiency in the staff review process. It will provide a systematic, integrated presentation of system, structure and component aging management review data that can be used directly to develop the SER.

### **Subcommittee Comments, Concerns and Recommendations**

Dr. Ransom opened the discussion with the observation that the license renewal process seems to be working well. He did not understand, though what had happened to overall safety margin, and he asked whether the staff was able to quantify the change to safety margin as a result of license renewal. Dr. Kuo responded that the staff had not done so explicitly, but that the license renewal rule had stated that license renewal must maintain safety margins with respect to aging. The current licensing basis is retained through the license renewal process.

Mr. Leitch asked whether there were any license conditions associated with this review, that Dr. Kou explained that the commitments in the SER would be incorporated into the licensee's SAR. The licensee must notify the staff when it completes the commitments so that they can be inspected by the staff. Mr. Rosen thought that the schedule for completing any planned licensee OTIs should be announced in advance, so that the staff could be present when they were performed. The staff agreed to consider this suggestion and report back to the full committee about how these commitments will be tracked..

Dr. Kress thought that the staff had done a comprehensive job of reviewing this application, and he considered the industry participation in the SRP development program to be positive. He agreed with Dr. Bonaca that the issue of protection of multiple success paths needs to be re-evaluated, and reconsidered by the staff.

Dr. Powers also thought that the process was proceeding well, and he wondered whether it might be possible to reduce the labor effort even more. He suggested that the staff and NEI meet again with the ACRS in the future to explore additional efficiencies. Mr. Leitch also

thought that there would be more efficiencies to have been gained from the use of GALL than were evident from the Ft. Calhoun experience.

The meeting concluded with a recommendation from the members to forward the application to the full committee at its November meeting, with a recommendation for approval. After some initial birthing pains, the application was well done, the staff review proceeded smoothly, and the SER was well written. The Committee looks forward to hearing about future improvements to the LR process.

**Staff and Industry Commitments**

The Staff agreed to consider the suggestion to track planned OTIs and participate when they occurred. It will report back to the full committee about how the commitments in the SER will be tracked.

The staff will re-consider its position regarding the need to protect multiple success paths, such as the pressurizer spray nozzle, and will report back to the full Committee meeting.

**Subcommittee Decisions**

The Subcommittee agreed to report to the full Committee that the application for license renewal at the Ft. Calhoun Station, Unit 1, was complete, and the staff review was acceptable, and that the plant can continue to operate for twenty years beyond its original license period.

**Follow-up Actions**

The Subcommittee will report its finding to the Committee at the November, 2003 Committee meeting.

**Background Material Provided to the Subcommittee Prior to this meeting**

1. Subcommittee status report, including agenda
2. "Safety Evaluation Report with Open Items Related to the License Renewal of Fort Calhoun Station", April 2003
3. Fort Calhoun Station License Renewal Application, January 9, 2002
4. Annual Assessment Letter - Fort Calhoun Station, dated March 4, 2003
5. Response to Potential Open Items for the Review of the License Renewal Application for Fort Calhoun Station, dated March 14, 2003

\*\*\*\*\*

Note: Additional details of this meeting can be obtained from a transcript of this meeting available for downloading or viewing on the Internet at "http://www.nrc.gov/ACRSACNW" or can be purchased from Neal R. Gross and Co., Inc., (Court Reporters and Transcribers), 1323 Rhode Island Avenue, NW, Washington, DC 20005 (202) 234-4433

**Presentation Slides and Handouts Provided during the Subcommittee meeting**

RC

those procedures, oral or written views may be presented by members of the public, including representatives of the nuclear industry. Electronic recordings will be permitted only during the open portions of the meeting. Persons desiring to make oral statements should notify the Associate Director for Technical Support named below five days before the meeting, if possible, so that appropriate arrangements can be made to allow necessary time during the meeting for such statements. Use of still, motion picture, and television cameras during the meeting may be limited to selected portions of the meeting as determined by the Chairman. Information regarding the time to be set aside for this purpose may be obtained by contacting the Associate Director prior to the meeting. In view of the possibility that the schedule for ACRS meetings may be adjusted by the Chairman as necessary to facilitate the conduct of the meeting, persons planning to attend should check with the Associate Director if such rescheduling would result in major inconvenience.

In accordance with subsection 10(d) Pub. L. 92-463, I have determined that it is necessary to close a portion of this meeting noted above to discuss and protect information classified as national security information pursuant to 5 U.S.C. 552b(c)(1).

Further information regarding topics to be discussed, whether the meeting has been canceled or rescheduled, as well as the Chairman's ruling on requests for the opportunity to present oral statements and the time allotted therefor can be obtained by contacting Dr. Sher Bahadur, Associate Director for Technical Support (301) 415-0138, between 7:30 a.m. and 4:15 p.m., ET.

ACRS meeting agenda, meeting transcripts, and letter reports are available through the NRC Public Document Room at [pdr@nrc.gov](mailto:pdr@nrc.gov), or by calling the PDR at 1-800-397-4209, or from the Publicly Available Records System (PARS) component of NRC's document system (ADAMS) which is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> or <http://www.nrc.gov/reading-rm/doc-collections/> (ACRS & ACNW Mtg schedules/agendas).

Videoteleconferencing service is available for observing open sessions of ACRS meetings. Those wishing to use this service for observing ACRS meetings should contact Mr. Theron Brown, ACRS Audio Visual Technician (301) 415-8066, between 7:30 a.m. and 3:45 p.m., ET, at least 10 days before the meeting to ensure the availability of this service. Individuals or organizations requesting this service will be responsible for telephone line charges and for providing the equipment and facilities that they use to establish the videoteleconferencing link. The availability of videoteleconferencing services is not guaranteed.

Dated: May 20, 2003.

**Andrew L. Bates,**  
Advisory Committee Management Officer.  
[FR Doc. 03-13142 Filed 5-23-03; 8:45 am]

BILLING CODE 7590-01-P

## NUCLEAR REGULATORY COMMISSION

### \*Advisory Committee on Reactor Safeguards Meeting of the Subcommittee on Plant License Renewal; Notice of Meeting

The ACRS Subcommittee on Plant License Renewal will hold a meeting on June 11, 2003, Room T-2B3, 11545 Rockville Pike, Rockville, Maryland.

The entire meeting will be open to public attendance.

The agenda for the subject meeting shall be as follows: *Wednesday, June 11, 2003—8:30 a.m. until the conclusion of business.*

The purpose of this meeting is to review the license renewal application for the Fort Calhoun Station Unit 1 and the NRC staff's initial Safety Evaluation Report. The Subcommittee will hear presentations by and hold discussions with representatives of the NRC staff, the Omaha Public Power District, and other interested persons regarding this matter. The Subcommittee will gather information, analyze relevant issues and facts, and formulate proposed positions and actions, as appropriate, for deliberation by the full Committee.

Members of the public desiring to provide oral statements and/or written comments should notify the Designated Federal Official, Mr. Ralph Caruso (telephone 301/415-8065), five days prior to the meeting, if possible, so that appropriate arrangements can be made. Electronic recordings will be permitted.

Further information regarding this meeting can be obtained by contacting the Designated Federal Official between 7:30 a.m. and 4:15 p.m. (ET). Persons planning to attend this meeting are urged to contact the above named individual at least two working days prior to the meeting to be advised of any potential changes to the agenda.

Dated: May 19, 2003.

**Sher Bahadur,**  
Associate Director, for Technical Support,  
ACRS/ACNW.

[FR Doc. 03-13143 Filed 5-23-03; 8:45 am]

BILLING CODE 7590-01-P

## NUCLEAR REGULATORY COMMISSION

### Biweekly Notice; Applications and Amendments to Facility Operating Licenses Involving No Significant Hazards Considerations

#### I. Background

Pursuant to Public Law 97-415, the U.S. Nuclear Regulatory Commission (the Commission or NRC staff) is

publishing this regular biweekly notice. Public Law 97-415 revised section 189 of the Atomic Energy Act of 1954, as amended (the Act), to require the Commission to publish notice of any amendments issued, or proposed to be issued, under a new provision of section 189 of the Act. This provision grants the Commission the authority to issue and make immediately effective any amendment to an operating license upon a determination by the Commission that such amendment involves no significant hazards consideration, notwithstanding the pendency before the Commission of a request for a hearing from any person.

This biweekly notice includes all notices of amendments issued, or proposed to be issued from, May 2, 2003, through May 15, 2003. The last biweekly notice was published on May 13, 2003 (68 FR 25648).

#### *Notice of Consideration of Issuance of Amendments to Facility Operating Licenses, Proposed No Significant Hazards Consideration Determination, and Opportunity for a Hearing*

The Commission has made a proposed determination that the following amendment requests involve no significant hazards consideration. Under the Commission's regulations in 10 CFR 50.92, this means that operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety. The basis for this proposed determination for each amendment request is shown below.

The Commission is seeking public comments on this proposed determination. Any comments received within 30 days after the date of publication of this notice will be considered in making any final determination.

Normally, the Commission will not issue the amendment until the expiration of the 30-day notice period. However, should circumstances change during the notice period such that failure to act in a timely way would result, for example, in derating or shutdown of the facility, the Commission may issue the license amendment before the expiration of the 30-day notice period, provided that its final determination is that the amendment involves no significant hazards consideration. The final determination will consider all public

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
 PLANT LICENSE RENEWAL SUBCOMMITTEE MEETING  
 FT. CALHOUN STATION UNIT 1  
 JUNE 11, 2003, ROCKVILLE, MARYLAND

Contact: Ralph Caruso (301-415-8065, rxc@nrc.gov )

**-PROPOSED SCHEDULE-**

	<b>Topics</b>	<b>Presenters</b>	<b>Time</b>
I.	<b>Opening Remarks</b>	M. Bonaca, ACRS	8:30-8:35 a.m.
II.	<b>Staff Introduction</b>	P. T. Kuo, NRR	8:35-8:45 a.m.
III.	<b>Omaha Public Power District, Presentation</b> A. Background B. License Renewal Application Scoping and Screening Process C. Aging Effects D. Aging Management Programs E. Time Limited Aging Analyses (including ROP and recent events, if applicable).	Joseph Gasper, OPPD Bernie Van Sant, OPPD	8:45-9:30 a.m.
IV.	<b>Overview and Status</b> of Open Items Related to License Renewal of Ft. Calhoun Unit 1 SER	Butch Burton, NRR	9:30-10:15 a.m.
	<b>BREAK</b>		<b>10:15-10:30 a.m.</b>
V.	<b>SER Chap. 2:</b> Scoping and Screening Methodology and Results, Scoping and Screening Inspection	Butch Burton, NRR	10:30-11:30 noon
	<b>LUNCH</b>		<b>11:30-12:30 p.m.</b>
VI.	<b>SER Chap. 3:</b> Aging Management Programs and Review Results, Aging Management Review Inspection	Butch Burton, NRR	12:30-1:30 p.m.
	<b>BREAK</b>		<b>1:30-1:45 p.m.</b>
VII.	<b>SER Chap. 3:</b> Aging Management Programs and Review Results, Aging Management Review Inspection	Butch Burton, NRR	1:45 - 2:30
VIII.	<b>SER Chap. 4:</b> Time Limited Aging Analyses Overview Pressurizer Weld Repair (New Issue)	Butch Burton, NRR Barry Elliot, NRR	2:30-3:00 p.m.
IX.	<b>Improvements to Generic License Renewal Guidance Documents</b> Interim Staff Guidance Standardized Format for License Renewal Applications	NEI	3:15-3:45 p.m.
X.	<b>Subcommittee Discussion</b>		3:45 - 4:00 p.m.
XI.	<b>Adjourn</b>		4:00 p.m.

**NOTE:**

- Presentation time should not exceed 50 percent of the total time allocated for specific item. The remaining 50 percent of the time is reserved for discussion.
- 25 copies of the presentation materials to be provided to the Subcommittee

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
SUBCOMMITTEE MEETING ON PLANT LICENSE RENEWAL

JUNE 11, 2003  
Date

PLEASE PRINT

<u>NAME</u>	<u>AFFILIATION</u>
MICHAEL FALLON	CNS
T.C. MATTHEWS	Omaha Public Power District
Ken Henry	Omaha Public Power District
JOHN RYCINA	CNS
Joe Gasper	Omaha Public Power District
BERNIE VAN SANT	OMAHA PUBLIC POWER DISTRICT
DON FINDLAY	CNS
Rip A. Benedetto	CNS/OPPD
Sudesh K. Gambhir	OPPD
Paul Aitken	Dominion
FRED EMBESON	NET
Bill Watson	Dominion
Richard Grumbir	AEP
Alan Cox	Entergy
Neil Haggerty	AEP
David Wilson	RG&E
George Wrobel	RG&E
GARY ADKINS	IVA
BEN GANICK	ISL, INC
<del>TOM McCallister</del>	<del>NPPR/DTE/EM&amp;E</del>



ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
SUBCOMMITTEE MEETING ON PLANT LICENSE RENEWAL

JUNE 11, 2003  
Date

NRC STAFF SIGN IN FOR ACRS MEETING

PLEASE PRINT

<u>NAME</u>	<u>NRC ORGANIZATION</u>
Ken Chang	NRR/DRIP/RLEP
Ram Sullman	"
Steven Jones	NRR/DSSA/SPLB
DIANE JACKSON	NRR/DSSA/SPLB
STEPHANIE COFFIN	NRR/DE/EMCB
JOHN JOLICOEUR	OEDO/ROPMS
<del>M. M. Razzaghi</del>	SRXB/NRR
Lambros Lois	SRXB/DSSA/NRR
Jin-Sien Guo	SPLB/DSSA/NRR
TUDIA LU	NRR/DRIP/RLEP
JOSE CALVO	NRR/DE/EEIB
James Pulsipher	NRR/DSSA/SPSB
Tom McElmura	NRR/DE/EMCB
Daniel Frumkin	NRR/DSSA/SPLB
Hovise Lund	NRR/DE/EMCB
Cheyl Khan	NRR/DE/EMCB
Allison Black	NRR/DE/EMCB
Kris Parczawski	NRR/DE/EMCB
NOEL DUDLEY	NRR/DRIP/RLEP
Steve Hoffman	NRR/DRIP/RLEP



ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
SUBCOMMITTEE MEETING ON PLANT LICENSE RENEWAL

JUNE 11, 2003  
Date

NRC STAFF SIGN IN FOR ACRS MEETING

PLEASE PRINT

<u>NAME</u>	<u>NRC ORGANIZATION</u>
PAUL SHERMANSKI	NRC / DE / EEIB
WAYNE WALKER	NRC / RIU
Pt Kuo	NRC / RLEP
DAVID CULSW	NRR / DSSA / SPLB
John Fair	NRR / DE / EMEB
Jacquan Walker	NRR / DRIP / RLEP
Rani Franovich	NRR / DRIP / RLEP
Sam Lee	NRR / DRIP / RLEP
Kimberley Corp	NRR / DRIP / RLEP
TJ Kim	NRR / DRIP / RLEP
R. J. Arrighi	NRR / DRIP / RLEP
Om Chopra	NRR / DE / EEIB
Raj Anulele	NRR / DRIP / RLEP
S. K. Mittm	NRR / DRIP / RLEP
D. S. Kang	NRR / DRIP / RLEP
Y. C. (Renee) Li	NRR / DE / EMEB
Arnold Lee	NRR / DE / EMEB
Stewart B. Tez	NRR / DE / EMEB
Paul Gull	NRR / DE / EEIB
Greg Galotti	NRR / DRIP / RLEP

**ACRS LICENSE RENEWAL SUBCOMMITTEE  
FORT CALHOUN STATION, UNIT 1  
LICENSE RENEWAL APPLICATION  
JUNE 11, 2003**

**WILLIAM BURTON  
PROJECT MANAGER  
NRR**

## **OVERVIEW**

**APPLICATION SUBMITTED BY LETTERS DATED JANUARY 9 AND APRIL 5, 2002**

**PRESSURIZED WATER REACTOR. 1 UNIT**

**PLANT LOCATED IN WASHINGTON COUNTY, NEBRASKA, ON WEST BANK OF MISSOURI RIVER.**

**~19 MILES NORTH OF OMAHA**

**CURRENT LICENSE EXPIRES AUGUST 9, 2013. REQUESTS LICENSE RENEWAL THROUGH AUGUST 9, 2033**

## **OVERVIEW (con't)**

**FIRST LICENSE RENEWAL APPLICATION TO FULLY IMPLEMENT THE GENERIC AGING LESSONS LEARNED (GALL) PROCESS**

### **KEY CORRESPONDENCE**

**STAFF ISSUED 214 REQUESTS FOR ADDITIONAL INFORMATION (RAIs) ON OCTOBER 11, 2002. APPLICANT RESPONDED TO RAIs BY LETTERS DATED NOVEMBER 22, DECEMBER 12, AND DECEMBER 19, 2002**

**STAFF ISSUED POTENTIAL OPEN ITEMS (POIs) ON FEBRUARY 20, 2003. APPLICANT RESPONDED TO POIs BY LETTER DATED MARCH 14, 2003**

**SER WITH OPEN ITEMS WAS ISSUED ON APRIL 21, 2003**

**10 OPEN ITEMS**

**4 CONFIRMATORY ITEMS**

**1 ADDITIONAL OPEN ITEM WAS IDENTIFIED FOLLOWING ISSUANCE OF SER**

**PRESSURIZER WELD REPAIR**

**INSPECTIONS AND AUDITS**

**STAFF PERFORMED SCOPING AND SCREENING METHODOLOGY AUDIT JULY 8 - 12, 2002**

**STAFF PERFORMED SCOPING AND SCREENING INSPECTION NOVEMBER 4 - 8, 2002**

**4 INSPECTION OPEN ITEMS WERE IDENTIFIED**

**STAFF PERFORMED AMR INSPECTION AND CONCURRENT AUDIT JANUARY 6 - 10 AND JANUARY 20 - 23, 2003**

**INSPECTION REPORT DISCUSSES RESOLUTION OF THE 4 INSPECTION OPEN ITEMS IDENTIFIED DURING THE SCOPING AND SCREENING INSPECTION**

## **SECTION 2 - STRUCTURES AND COMPONENTS SUBJECT TO AN AGING MANAGEMENT REVIEW**

### **2.1 - SCOPING AND SCREENING METHODOLOGY**

**DESCRIBES METHODOLOGY USED TO IDENTIFY SSCs THAT ARE WITHIN THE SCOPE OF THE LICENSE RENEWAL RULE AND SUBJECT TO AN AMR**

**STAFF CONDUCTED METHODOLOGY AUDIT FROM JULY 8 - 12, 2002.**

**PURPOSE OF AUDIT WAS TO ENSURE THAT THE IMPLEMENTATION OF THE SCOPING AND SCREENING METHODOLOGY WAS CONSISTENT WITH THE LRA DESCRIPTION AND THE RULE.**

**AUDIT TEAM FOUND THE APPLICANT'S IMPLEMENTATION OF THE METHODOLOGY SATISFACTORY**

## **FUNCTIONAL REALIGNMENT**

**METHODOLOGY WASN'T WELL DESCRIBED**

**SOME COMPONENTS REALIGNED BASED ON SAME INTENDED FUNCTIONS (e.g., CIVs)**

**SOME COMPONENTS COMMUNITIZED (e.g., BUS BARS AND CABLES)**

**SOME COMPONENTS REALIGNED BASED ON SIMILAR MATERIAL/ENVIRONMENTS**

**CONFIRMATORY ITEM 2.1.3.1.2-1: SAFETY INJECTION TANK LEVEL AND PRESSURE INDICATORS SHOULD BE IN SCOPE (SCOPING INSPECTION OPEN ITEM)**

**APPLICANT BROUGHT INDICATORS IN SCOPE, BUT SCREENED OUT AS ACTIVE**

**STATUS: CLOSED**

**STAFF REVIEW AND METHODOLOGY AUDIT FOUND THAT THE APPLICANT'S SCOPING AND SCREENING METHODOLOGY SATISFIES THE RULE**

## **2.2 - PLANT LEVEL SCOPING RESULTS**

**SECTION 2.2 OF THE LRA IDENTIFIES THE SYSTEMS AND STRUCTURES WITHIN THE SCOPE OF THE RULE.**

**STAFF REVIEWED SECTION 2.2 TO DETERMINE IF ANY SYSTEMS OR STRUCTURES WERE OMITTED**

**SEVERAL SYSTEMS WERE INITIALLY OMITTED FROM SCOPE. THESE SYSTEMS MET SCOPING CRITERION 54.4(a)(2) (NON-SAFETY-RELATED SSCs WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY FUNCTION)**

**AUXILIARY STEAM  
CONDENSATE RETURN  
CHEMICAL FEED  
DEMINERALIZED WATER  
POTABLE WATER  
SERVICE WATER  
TURBINE PLANT COOLING WATER**

**THESE SYSTEMS WERE BROUGHT INTO SCOPE, ALONG WITH ASSOCIATED AGING MANAGEMENT INFORMATION. STAFF REVIEWED THE ADDITIONAL INFORMATION. THIS WAS IDENTIFIED AS OPEN ITEM 2.2-1 (STATUS: RESOLVED)**



**STAFF IDENTIFIED DISCREPANCY BETWEEN LRA TABLE AND SYSTEM DESCRIPTION FOR THE BLOWPIPE SYSTEM. THIS WAS IDENTIFIED AS OPEN ITEM 2.2-2. APPLICANT PROVIDED INFORMATION TO RESOLVE DISCREPANCY. OPEN ITEM IS CLOSED**

**BLOWPIPE: PROVIDES COMPRESSED AIR DURING CONTAINMENT INTEGRATED LEAK RATE TESTS. OTHERWISE BLOWPIPE IS BLANKED OFF**

**BLOWPIPE CONSISTS OF CONTAINMENT PENETRATION BLOCKED OF AT EACH END**

**BLOWPIPE COMPONENTS ARE INCLUDED IN LRA TABLE 2.3.2.2-1 (CONTAINMENT PENETRATION AND SYSTEM INTERFACE) UNDER BOLTING AND PRIMARY CONTAINMENT PENETRATIONS**

## **2.3 - SCOPING AND SCREENING OF MECHANICAL SYSTEMS**

**INCLUDES REACTOR SYSTEMS (3), ENGINEERED SAFETY FEATURES SYSTEMS (2), AUXILIARY SYSTEMS (20), AND STEAM POWER CONVERSION SYSTEMS (3)**

### **STEAM GENERATOR BLOWDOWN SYSTEM**

**LRA WAS INCONSISTENT ABOUT WHETHER SYSTEM WAS WITHIN SCOPE. RAI 2.3.4-1 ASKED FOR CLARIFICATION OF DISCREPANCY. SCOPING INSPECTION IDENTIFIED OPEN ITEM REGARDING FUNCTIONAL REALIGNMENT OF BLOWDOWN COMPONENTS**

**APPLICANT CLARIFIED THAT SYSTEM IS WITHIN SCOPE AND COMPONENTS ARE EVALUATED UNDER OTHER SYSTEMS**

**SG BLOWDOWN NOZZLES - RCS (2.3.1.2)**

**BLOWDOWN CIVs - CONTAINMENT PENETRATION AND SYSTEM INTERFACE COMPONENTS (2.3.2.2)**

**SAMPLE PIPING AND VALVES (FOR PRESSURE BOUNDARY FUNCTION) - SAMPLING (2.3.3.19)**

**OTHER PIPING AND VALVES - FEEDWATER (2.3.4.1)**

**STAFF IDENTIFIED FAILURE OF CIRCULATING WATER DISCHARGE TUNNEL COULD BLOCK DISCHARGE FLOW FROM RAW WATER SYSTEM, AND THEREFORE SHOULD BE IN SCOPE. THIS WAS IDENTIFIED AS OPEN ITEM 2.3.3.15-1.**

**TUNNEL WAS BROUGHT INTO SCOPE (AS PART OF INTAKE STRUCTURE) AND AGING MANAGEMENT INFORMATION WAS PROVIDED. STAFF REVIEWED DRAFT RESPONSE. OPEN ITEM IS RESOLVED**

## **2.4 - STRUCTURES AND STRUCTURAL COMPONENTS**

### **DESCRIBES STRUCTURES AND STRUCTURAL COMPONENTS**

**CONTAINMENT**

**AUXILIARY BUILDING**

**TURBINE AND SERVICE BUILDING**

**INTAKE STRUCTURE**

**BUILDING PILES**

**FUEL HANDLING EQUIPMENT AND HEAVY LOAD CRANES**

**COMPONENT SUPPORTS**

**DUCT BANKS**

**CIRCULATING WATER DISCHARGE TUNNEL BROUGHT INTO SCOPE AS PART OF THE INTAKE STRUCTURE (OPEN ITEM 2.3.3.15-1). NO OTHER OPEN ITEMS IDENTIFIED**

## **2.5 - ELECTRICAL SYSTEMS AND INSTRUMENTATION AND CONTROL SYSTEMS**

**20 SYSTEMS/COMMODITY GROUPS IN SCOPE, BUT ONLY 3 COMMODITY GROUPS  
CONTAIN COMPONENTS SUBJECT TO AN AMR**

**CABLES AND CONNECTORS  
CONTAINMENT ELECTRICAL PENETRATIONS  
BUS BARS**

**STAFF ISSUED RAI 2.5-1 FOR APPLICANT TO IDENTIFY SSCs REQUIRED TO COMPLY  
WITH STATION BLACKOUT (SBO) RULE, INCLUDING THE RECOVERY PATH**

**APPLICANT BROUGHT ADDITIONAL COMPONENTS WITHIN SCOPE**

## **SCOPING AND SCREENING INSPECTION**

**PURPOSE - EXAMINE APPLICANT ACTIVITIES THAT SUPPORT THE LRA  
PERFORMED NOVEMBER 4 - 8, 2002**

### **INSPECTION TEAM:**

**8 INSPECTORS - 5 FROM REGION, 3 FROM HEADQUARTERS**

**1 - CURRENT FCS RESIDENT INSPECTOR**

**3 - FORMER FCS RESIDENT INSPECTORS (2 WERE FCS SENIOR RESIDENTS  
INSPECTORS)**

**1 - CURRENT LICENSING PROJECT MANAGER**

**EXAMINED PROCEDURES AND REPRESENTATIVE RECORDS, AND INTERVIEWED  
PERSONNEL REGARDING SCOPING AND SCREENING PROCESS. SAMPLED 22  
MECHANICAL AND 13 ELECTRICAL SYSTEMS, AND 9 STRUCTURES (INCLUDING 2 NOT  
IDENTIFIED AS WITHIN SCOPE)**

## **SCOPING AND SCREENING INSPECTION**

**4 INSPECTION OPEN ITEMS WERE IDENTIFIED:**

- A. CCW COMPONENTS USED TO COOL SAFETY INJECTION LEAKAGE COOLERS WERE NOT INCLUDED WITHIN SCOPE**
- B. SAFETY INJECTION TANK LEVEL AND PRESSURE INDICATORS SHOULD BE WITHIN SCOPE**
- C. DISCREPANCY IN THE LRA REGARDING THE FUNCTIONAL REALIGNMENT OF THE BLOWDOWN SYSTEM**
- D. WARM WATER RECIRCULATION PATH SHOULD BE INCLUDED WITHIN SCOPE**

**ALL INSPECTION OPEN ITEMS ARE CLOSED. STAFF CONCLUDED THAT SCOPING AND SCREENING WERE CONDUCTED AS DESCRIBED IN THE LRA AND THAT DOCUMENTS ARE AUDITABLE AND RETRIEVABLE, AS REQUIRED BY 10 CFR 54.37**

## **SCOPING AND SCREENING SUMMARY**

- 1. METHODOLOGY CONSISTENT WITH RULE**
- 2. SCOPING AND SCREENING RESULTS INCLUDED ALL SSCs WITHIN THE SCOPE OF LICENSE RENEWAL AND SUBJECT TO AN AMR**
- 3. SCOPING AND SCREENING DOCUMENTATION MEETS THE REQUIREMENTS OF 10 CFR 54.37**



## **SECTION 3 - AGING MANAGEMENT REVIEW**

**GALL DIVIDES SYSTEMS AND STRUCTURES INTO 5 BROAD SYSTEM/STRUCTURAL GROUPS**

**REACTOR SYSTEMS GROUP (3.1)**

**ENGINEERED SAFETY FEATURES GROUP (3.2)**

**AUXILIARY SYSTEMS (3.3)**

**STEAM AND POWER CONVERSION SYSTEMS (3.4)**

**STRUCTURES (3.5)**

**ELECTRICAL AND I&C (3.6)**

# **GALL REVIEW PROCESS**

**STAFF REVIEW PROCESS IS DESCRIBED IN SER SECTION 3.0.2**

**REVIEW PROCESS CONSISTS OF 3 PHASES**

## **PHASE 1**

### **REVIEW OF AGING MANAGEMENT PROGRAMS**

**1. AMPs THAT THE APPLICANT CLAIMS TO BE CONSISTENT WITH GALL AMPs**

**CONSISTENCY CONFIRMED DURING AMR INSPECTION**

**USAR SUPPLEMENT REVIEWED**

**2. AMPs THAT APPLICANT CLAIMS TO BE CONSISTENT WITH GALL AMPs, BUT WITH DEVIATIONS**

**3 TYPES OF DEVIATIONS**

**ENHANCEMENTS  
CLARIFICATIONS  
EXCEPTIONS**

**DEVIATIONS REVIEWED TO DETERMINE WHETHER AMP, WITH THE DEVIATION, IS ADEQUATE TO MANAGE AGING**

**CONSISTENCY CONFIRMED DURING AMR INSPECTION**

**USAR SUPPLEMENT REVIEWED**

**3. NON-GALL AMPs**

**AMP IS REVIEWED AGAINST THE 10 PROGRAM ATTRIBUTES**

**USAR SUPPLEMENT REVIEWED**

## PHASE 2

### REVIEW OF AGING MANAGEMENT REVIEW (AMR) RESULTS

1. **AMRs THAT THE APPLICANT CLAIMS TO BE CONSISTENT WITH GALL AMRs**  
**CONSISTENCY CONFIRMED DURING AMR INSPECTION**
  
2. **AMRs THAT THE APPLICANT CLAIMS TO BE CONSISTENT WITH GALL AMRs BUT GALL RECOMMENDS FURTHER EVALUATION (SPECIFIC GUIDANCE IN SRP)**  
**CONSISTENCY CONFIRMED DURING AMR INSPECTION**  
**FURTHER EVALUATION REVIEWED TO DETERMINE IF AMR PROVIDES ADEQUATE AGING MANAGEMENT**
  
3. **AMRs NOT CONSISTENT WITH GALL**  
**AMR REVIEWED TO DETERMINE IF AMR PROVIDES ADEQUATE AGING MANAGEMENT**

**PHASE 3**

**ADEQUACY OF AGING MANAGEMENT OF STRUCTURES AND COMPONENTS**

**REVIEW PLANT-SPECIFIC STRUCTURES AND COMPONENTS FOR EACH SYSTEM/STRUCTURE TO DETERMINE WHETHER THEY ARE/WILL BE ADEQUATELY MANAGED, AS REQUIRED BY 10 CFR 54.21(a)(3)**

## **GALL TRAINING**

**HELD FORMAL AND INFORMAL TRAINING SESSIONS FOR TECHNICAL REVIEWERS,  
INSPECTORS, AND CONTRACTORS**

**HQ REVIEWERS AND CONTRACTORS - SEPTEMBER 17, 2002**

**VIDEOTAPED FOR FUTURE TRAINING NEEDS**

**REGION IV INSPECTORS - OCTOBER 3, 2002**

**ACRS PRESENTATION - MARCH 7, 2003**

**SER SECTION 3.0**

**SER SECTION 3.0.1 DESCRIBES NEW GALL FORMAT IN THE LRA**

**SER SECTION 3.0.2 DESCRIBES STAFF'S REVIEW PROCESS IN THE NEW GALL REGIME**

**SER SECTION 3.0.3 EVALUATES COMMON AGING MANAGEMENT PROGRAMS**

**SER SECTION 3.0.4 EVALUATES THE 3 COMMON QUALITY ASSURANCE ATTRIBUTES IN GALL**

**CORRECTIVE ACTIONS  
CONFIRMATION PROCESS  
ADMINISTRATIVE CONTROLS**

**STAFF LOOKS FOR 2 ITEMS TO CONFIRM APPROACH**

**10 CFR APPENDIX B QA PROGRAM USED TO ADDRESS THE THREE ATTRIBUTES**

**APPLICATION OF APPENDIX B IS APPLIED TO SAFETY-RELATED AND NONSAFETY-RELATED SSCs THAT ARE WITHIN SCOPE AND SUBJECT TO AN AMR**

**LATE IN THE SAFETY REVIEW, APPLICANT MADE MANY REVISIONS TO THE LRA BASED ON RESPONSES TO STAFF RAIs, POIs, AND ON THEIR OWN. STAFF IS EVALUATING THE REVISIONS. THIS IS OPEN ITEM 3.0-1 (STATUS: OPEN)**



# **AGING MANAGEMENT PROGRAMS**

## **14 COMMON AGING MANAGEMENT PROGRAMS (AMPs)**

**BOLTING INTEGRITY**

**CHEMISTRY**

**CONTAINMENT INSERVICE INSPECTION**

**FLOW-ACCELERATED CORROSION**

**INSERVICE INSPECTION**

**BORIC ACID CORROSION PREVENTION**

**COOLING WATER CORROSION**

**FATIGUE MONITORING**

**FIRE PROTECTION**

**PERIODIC SURVEILLANCE AND PREVENTIVE MAINTENANCE (PS/PMP)**

**STRUCTURES MONITORING**

**GENERAL CORROSION OF EXTERNAL SURFACES**

**ONE-TIME INSPECTION**

**SELECTIVE LEACHING**

**CONSISTENT WILL GALL: 5**

**CONSISTENT WITH GALL, BUT WITH SOME DEVIATION: 7**

**NON - GALL: 2**

**STAFF EVALUATION RESULTS DOCUMENTED IN SER SECTION 3.0.3**

# **AGING MANAGEMENT PROGRAMS**

## **GENERAL CORROSION OF EXTERNAL SURFACES**

**CONFIRMATORY ITEM 3.0.3.12.1-1: SPENT FUEL POOL COOLING SYSTEMS SHOULD BE BROUGHT INTO THE SCOPE OF THIS AMP**

**STATUS: RESOLVED**

## **ONE-TIME INSPECTION (OTI)**

**USED TO CONFIRM THAT AGING EFFECTS ARE NOT PRESENT**

**NOT YET DEVELOPED AT FCS**

**ITEMS FOR WHICH OTI IS CREDITED ARE IDENTIFIED IN SER APPENDIX A (COMMITMENT TABLE)**

# **AGING MANAGEMENT PROGRAMS**

## **10 SYSTEM/STRUCTURAL GROUP-SPECIFIC AMPs**

### **REACTOR SYSTEMS GROUP**

**REACTOR VESSEL INTEGRITY (3.1.2.3.1)**

**REACTOR VESSEL INTERNALS INSPECTION (3.1.2.3.2)**

**STEAM GENERATOR (3.1.2.3.3)**

**ALLOY 600 (3.1.2.3.4)**

**THERMAL EMBRITTLEMENT OF CAST AUSTENITIC STAINLESS STEEL  
(3.1.2.3.5)**

### **AUXILIARY SYSTEMS GROUP**

**DIESEL FUEL MONITORING AND STORAGE (3.3.2.3.1)**

**OVERHEAD LOAD HANDLING SYSTEMS INSPECTION (3.5.2.3.2)**

**BURIED SURFACES EXTERNAL CORROSION (3.3.2.3.2)**

### **STRUCTURES AND STRUCTURAL COMPONENTS GROUP**

**CONTAINMENT LEAK RATE (3.5.2.3.1)**

# **AGING MANAGEMENT PROGRAMS**

## **ELECTRICAL AND I&C SYSTEMS GROUP**

### **NON-EQ CABLE AGING MANAGEMENT (3.6.2.3.1)**

**CONSISTENT WITH GALL: 4**

**CONSISTENT WITH GALL, BUT WITH SOME DEVIATION: 6**

**NOT CONSISTENT WITH GALL: 0**

**STAFF EVALUATION RESULTS DOCUMENTED IN THE SER SECTION FOR EACH SYSTEM/STRUCTURAL GROUP**

## **FCS AMP STATISTICS**

**TOTAL NUMBER OF FCS AMPs - 24**

**NUMBER OF NON-GALL FCS AMPs - 3, NOW 2**

**NUMBER OF FCS AMPs THAT ARE CONSISTENT WITH GALL - 21, NOW 22**

**NUMBER OF FCS AMPs THAT DEVIATE FROM GALL - 13**

**CLARIFICATIONS - 4**

**EXCEPTIONS -6**

**ENHANCEMENTS - 10**

**NUMBER OF GALL AMPs THAT ARE REFERENCED IN THE LRA - 30, NOW 33  
(XI.E1/E2/E3)**

## **SER SECTION 3.1 - REACTOR SYSTEMS**

**REACTOR VESSEL INTERNALS  
REACTOR COOLANT SYSTEM  
REACTOR VESSEL**

**AMRs CONSISTENT WITH GALL**

**ISSUES REQUIRING FURTHER EVALUATION IN GALL WERE EVALUATED AND FOUND ACCEPTABLE**

**STAFF FOUND THAT REACTOR SYSTEMS' COMPONENTS ARE/WILL BE ADEQUATELY MANAGED**

**ALLOY 600 PROGRAM**

**APPLICANT COMMITTED TO IMPLEMENTING FINAL RESOLUTIONS FROM BULLETINS AND ORDERS RELATED TO CIRCUMFERENTIAL CRACKING OF VESSEL HEAD PENETRATIONS, BORIC ACID WASTAGE OF THE VESSEL HEAD, etc.**

**ORDERS ISSUED REQUIRING AUGMENTED INSPECTIONS OF ALLOY 600  
NOZZLES TO VESSEL HEAD**

**AS OTHER ALLOY 600 OR ALLOY 82/182 ISSUES ARISE, STAFF WILL  
ADDRESS THEM WITHIN THE CURRENT OPERATING TERM**

## **SER SECTION 3.1 - REACTOR SYSTEMS**

### **STEAM GENERATOR PROGRAM**

**GALL PROGRAM MANAGES AGING OF STEAM GENERATOR (SG) TUBES.  
APPLICANT CREDITS PROGRAM WITH MANAGING OTHER SG COMPONENTS**

**STEAM GENERATOR SHELL ASSEMBLY  
NOZZLES, NOZZLE SAFE ENDS, FEEDRING  
SECONDARY SIDE TUBESHEET  
PRIMARY SIDE TUBE SHEET AND PRIMARY HEAD**

**APPLICANT ADDRESSED THE AGING MANAGEMENT PROGRAM ELEMENTS FOR EACH  
OF THE ADDED COMPONENTS**

**THE STAFF CONCLUDED THE STEAM GENERATOR PROGRAM WILL EFFECTIVELY  
MANAGE AGING IN THE COMPONENTS FOR WHICH THIS PROGRAM IS CREDITED**



## **SER SECTION 3.2 - ENGINEERED SAFETY FEATURES (ESF) SYSTEMS**

### **SAFETY INJECTION AND CONTAINMENT SPRAY**

**HIGH-PRESSURE SAFETY INJECTION  
LOW-PRESSURE SAFETY INJECTION  
CONTAINMENT SPRAY**

### **CONTAINMENT PENETRATION AND SYSTEM INTERFACE COMPONENTS FOR NON-CQE SYSTEMS**

**CONTAINMENT ISOLATION VALVES (BLOWDOWN, CA, BLOWPIPE, DEMINERALIZED WATER SYSTEMS), INCLUDING PIPING BETWEEN PENETRATION AND THE CIVs**

**DEMINERALIZED WATER HEAT EXCHANGERS MAINTAIN COMPONENT COOLING WATER PRESSURE BOUNDARY**

**MECHANICAL PORTIONS OF ELECTRICAL PENETRATIONS THAT PROVIDE CONTAINMENT ISOLATION**

## **ENGINEERED SAFETY FEATURES (CON'T)**

**AMRs CONSISTENT WITH GALL**

**ISSUES REQUIRING FURTHER EVALUATION IN GALL WERE EVALUATED AND FOUND ACCEPTABLE**

**STAFF FOUND THAT ESF SYSTEMS' COMPONENTS ARE/WILL BE ADEQUATELY MANAGED**

## **SER SECTION 3.3 - AUXILIARY SYSTEMS**

### **20 AUXILIARY SYSTEMS**

**AMRs CONSISTENT WITH GALL**

**ISSUES REQUIRING FURTHER EVALUATION IN GALL WERE EVALUATED AND FOUND ACCEPTABLE**

**STAFF CONCERN REGARDING IMPACT OF DEGRADATION OF REGENERATIVE HEAT EXCHANGER TUBES ON THE ABILITY OF THE CHEMICAL AND VOLUME CONTROL SYSTEM TO PERFORM ITS INTENDED FUNCTION. THIS IS OPEN ITEM 3.3.2.4.1.2-1 (STATUS: RESOLVED)**

**STAFF FOUND AUXILIARY SYSTEM COMPONENTS ARE/WILL BE ADEQUATELY MANAGED**

## **SER SECTION 3.4 - STEAM AND POWER CONVERSION SYSTEMS**

**FEEDWATER**

**AUXILIARY FEEDWATER**

**MAIN STEAM AND TURBINE STEAM EXTRACTION**

**BLOWDOWN**

**AMRs CONSISTENT WITH GALL**

**ISSUES REQUIRING FURTHER EVALUATION IN GALL WERE EVALUATED AND FOUND ACCEPTABLE**

**STAFF FOUND THAT SPCS COMPONENTS ARE/WILL BE ADEQUATELY MANAGED**

## **SER SECTION 3.5 - CONTAINMENT, STRUCTURES, AND COMPONENT SUPPORTS**

**CONTAINMENT**

**AUXILIARY BUILDING**

**TURBINE AND SERVICE BUILDING**

**INTAKE STRUCTURE (INCLUDING CIRC WATER TUNNEL)**

**BUILDING PILES**

**FUEL HANDLING EQUIPMENT AND HEAVY LOAD CRANES**

**COMPONENT SUPPORTS**

**DUCT BANKS**

**AMRs CONSISTENT WITH GALL**

**ISSUES REQUIRING FURTHER EVALUATION IN GALL WERE EVALUATED AND FOUND  
ACCEPTABLE**

**STAFF FOUND THAT STRUCTURES AND STRUCTURAL COMPONENTS ARE/WILL BE  
ADEQUATELY MANAGED**

## **SER SECTION 3.6 - ELECTRICAL AND I&C**

**20 SYSTEMS IN SCOPE. ONLY 3 HAD COMPONENTS SUBJECT TO AN AMR (REMAINING COMPONENTS WERE EITHER ACTIVE OR COMMODITIZED)**

**CABLES AND CONNECTORS  
CONTAINMENT ELECTRICAL PENETRATIONS  
BUS BARS**

**GALL AMPs XI.E1, XI.E2, AND XI.E3:**

**XI.E1 - ELECTRICAL CABLES AND CONNECTIONS NOT SUBJECT TO 10 CFR 50.49 ENVIRONMENTAL QUALIFICATION REQUIREMENTS**

**AMP FOR NON-EQ CABLES AND CONNECTIONS EXPOSED TO LOCAL ADVERSE ENVIRONMENT CAUSED BY HEAT, RADIATION, OR MOISTURE**

**XI.E2 - ELECTRICAL CABLES NOT SUBJECT TO 10 CFR 50.49 ENVIRONMENTAL QUALIFICATION REQUIREMENTS USED IN INSTRUMENTATION CIRCUITS**

**AMP FOR NON-EQ CABLES USED IN INSTRUMENTATION CIRCUITS THAT MAY BE SENSITIVE TO REDUCTION IN INSULATION RESISTANCE**

**AND EXPOSED TO LOCAL ADVERSE ENVIRONMENT CAUSED BY HEAT,  
RADIATION, OR MOISTURE**

**XI.E3 - INACCESSIBLE MEDIUM-VOLTAGE CABLES NOT SUBJECT TO 10 CFR  
50.49 ENVIRONMENTAL QUALIFICATION REQUIREMENTS**

**AMP FOR NON-EQ INACCESSIBLE MEDIUM VOLTAGE CABLES  
EXPOSED TO LOCAL ADVERSE ENVIRONMENT CAUSED BY MOISTURE  
AND VOLTAGE EXPOSURE**

**LRA DESCRIBED THE APPLICANT'S NON-EQ CABLE AMP. THIS AMP WAS NOT  
CONSISTENT WITH THE GALL AMPs**

**APPLICANT DEVELOPED NEW AMP THAT IS CONSISTENT WITH GALL AMPs**

**SEVERAL OPEN ITEMS:**

**3.6.2.3.1.2-1: USAR SUPPLEMENT SHOULD BE REVISED TO DESCRIBE THE AMP**

**REVISED USAR SUPPLEMENT BEING DEVELOPED TO BE  
CONSISTENT WITH GALL AMPs**

**STATUS: RESOLVED**

**3.6.2.4.3.2-1: AGING MANAGEMENT PROGRAM SHOULD BE DEVELOPED TO  
MANAGE AGING OF BUS BARS**

**PERIODIC SURVEILLANCE AND PREVENTIVE MAINTENANCE  
PROGRAM (A NON-GALL AMP) WILL BE USED TO MANAGE AGING  
IN NON-SEGREGATED AND ISOPHASE BUS BARS**

**STATUS: RESOLVED**

**3.6.2.4.4.2-1: PROVIDE AMP TO MANAGE AGING OF HIGH-VOLTAGE  
CONDUCTORS OR PROVIDE JUSTIFICATION FOR WHY AN AMP IS  
NOT NEEDED**

**APPLICANT PROVIDED JUSTIFICATION FOR WHY AN AMP IS NOT  
NEEDED**

**STATUS: CLOSED**



**3.6.2.4.5.2-1: AGING MANAGEMENT OF FUSE BLOCKS**

**APPLICANT COMMITTED TO MANAGING FUSE BLOCKS IN  
ACCORDANCE WITH ISG-5**

**STATUS: RESOLVED**

## **AMR INSPECTION AND AUDIT**

**PURPOSE - EXAMINE APPLICANT ACTIVITIES THAT SUPPORT THE LRA**

**STAFF PERFORMED AMR INSPECTION AND CONCURRENT AUDIT JANUARY 6 - 10 AND  
JANUARY 20 - 23, 2003**

**INSPECTION TEAM:**

**9 INSPECTORS - 5 FROM REGION, 4 FROM HEADQUARTERS**

**1 - CURRENT FCS RESIDENT INSPECTOR**

**2 - FORMER FCS SENIOR RESIDENTS INSPECTORS**

**1 - FORMER SENIOR RESIDENT INSPECTOR**

**1 - CURRENT LICENSING PROJECT MANAGER**

**EXAMINED PROCEDURES AND REPRESENTATIVE RECORDS, AND INTERVIEWED  
PERSONNEL REGARDING AGING MANAGEMENT ACTIVITIES TO SUPPORT LICENSE  
RENEWAL. REVIEWED COMPONENTS IN MECHANICAL AND ELECTRICAL SYSTEMS,  
AND SEVERAL STRUCTURES.**

**REVIEWED 19 OF 24 AGING MANAGEMENT PROGRAMS**

**REVIEWED APPLICANTS RESOLUTION OF THE 4 INSPECTION OPEN ITEMS IDENTIFIED DURING THE SCOPING AND SCREENING INSPECTION. ALL INSPECTION OPEN ITEMS CLOSED**

- A. CCW COMPONENTS USED TO COOL SAFETY INJECTION LEAKAGE COOLERS WERE NOT INCLUDED WITHIN SCOPE**

**APPLICANT COMMITTED TO INCLUDE COMPONENTS WITHIN SCOPE. STAFF EVALUATION IN SER SECTION 2.3.3.16.2**

- B. SAFETY INJECTION TANK LEVEL AND PRESSURE INDICATORS SHOULD BE WITHIN SCOPE**
- C. DISCREPANCY IN THE LRA REGARDING THE FUNCTIONAL REALIGNMENT OF THE BLOWDOWN SYSTEM**
- D. WARM WATER RECIRCULATION PATH WILL BE RESOLVED FOR CURRENT OPERATING TERM**

**CONCLUDED THAT EXISTING AGING MANAGEMENT ACTIVITIES ARE BEING CONDUCTED AS DESCRIBED IN THE LRA, AND PLANS FOR NEW AGING MANAGEMENT ACTIVITIES APPEAR ACCEPTABLE TO MANAGE PLANT AGING**

## **SER SECTION 4 - TIME-LIMITED AGING ANALYSES**

**4.1 - IDENTIFICATION OF TLAAs**

**4.2 - REACTOR VESSEL NEUTRON EMBRITTLEMENT**

**4.3 - METAL FATIGUE**

**4.4 - ENVIRONMENTAL QUALIFICATION**

**4.5 - CONCRETE CONTAINMENT TENDON PRESTRESS**

**4.6 - CONTAINMENT LINER PLATE AND PENETRATION SLEEVE FATIGUE**

**4.7 - OTHER TLAAs**

**4.7.1 - RCP FLYWHEEL FATIGUE**

**4.7.2 - LBB ANALYSIS**

**4.7.3 - HELB**

**4.7.4 - PRESSURIZER WELD REPAIR (NEW ITEM)**

## **4.1 - IDENTIFICATION OF TLAAs**

**NEW TLAAs IDENTIFIED AFTER ISSUANCE OF THE SER (NEW OPEN ITEM)**

**WELD REPAIR ON PRESSURIZER LIQUID SPACE TEMPERATURE ELEMENT**

**DURING RCS HYDROSTATIC TEST IN OCTOBER, 2000, THE PRESSURIZER (PZR) LIQUID TEMPERATURE NOZZLE WAS FOUND TO BE LEAKING FROM ANNULUS BETWEEN SLEEVE AND PZR SHELL.**

**PLANT WAS SHUTDOWN AND LEAK REPAIRED (FLAW REMAINED)**

**FLAW WAS EVALUATED IN ACCORDANCE WITH IWA-4000 AND DISPOSITIONED USING A CORROSION ANALYSIS THAT CONSIDERED EXPOSURE TO FERRITIC VESSEL MATERIALS TO RCS BORIC ACID, RESULTING IN LIFETIME FOR THE REPAIR OF 86 YEARS.**

**IN APRIL, 2002, IT WAS FOUND THAT THE FLAW REMAINING IN SERVICE WAS NOT EVALUATED UNDER ASME SECTION XI IWB-3610 AND IWB-3612**

**OPEN ITEM 4.7.4-1 (CURRENTLY RESOLVED)**

**NEW OPEN ITEM (CON'T)**

**ISSUE WILL BE INCLUDED IN NEW SER SECTION 4.7.4**

## **4.2 - REACTOR VESSEL NEUTRON EMBRITTLEMENT**

### **PLANT HEATUP/COOLDOWN CURVES AND LTOP PORV SETPOINTS**

**IN LRA, APPLICANT'S PRESSURE/TEMPERATURE (P/T) ANALYSES EXTENDED BEYOND CURRENT TERM, BUT NOT TO THE END OF THE EXTENDED OPERATING PERIOD**

**LTOP LIMITS ARE CONSIDERED IN CALCULATION OF P/T CURVES**

**APPLICANT HAS USED STAFF-APPROVED METHODOLOGY TO PROJECT P/T AND LTOP LIMITS TO THE END OF THE EXTENDED OPERATING PERIOD AND DETERMINED THAT VESSEL CAN BE OPERATED WITHIN THE NEW LIMITS. TECH SPECS WILL CONTINUE TO BE UPDATED, AS REQUIRED BY 10 CFR 50, APPENDIX G OR H, TO ENSURE OPERATIONAL LIMITS REMAIN VALID FOR CURRENT AND PROJECTED CUMULATIVE NEUTRON FLUENCE LEVELS**

**STAFF CONCLUDES THAT APPLICANT'S PROCESS FOR UPDATING P/T CURVES AND LTOP PORV SETPOINTS MEETS APPENDIX G AND H, AND 10 CFR 54.21(C)(1)(iii)**



## **PRESSURIZED THERMAL SHOCK**

**FOR VESSEL BELTLINE BASE METAL MATERIALS, MATERIALS WILL PROVIDE ADEQUATE PROTECTION AGAINST PTS EVENTS IF  $RT_{PTS}$  VALUES ARE LESS THAN 270°. FOR BELTLINE CIRCUMFERENTIAL WELD MATERIALS, MATERIALS WILL PROVIDE ADEQUATE PROTECTION FROM PTS EVENTS IF  $RT_{PTS}$  VALUES ARE LESS THAN 300°**

**THE PTS REFERENCE TEMPERATURE,  $RT_{PTS}$ , WAS PROJECTED FOR THE EXTENDED OPERATING PERIOD AND FOUND THAT THE VESSEL BELTLINE MATERIALS WILL REMAIN BELOW THE 10 CFR 50.61 PTS SCREENING CRITERIA FOR THE EXTENDED OPERATING PERIOD**

## **VESSEL UPPER SHELF ENERGY**

**STAFF EVALUATED SURVEILLANCE DATA USING REG GUIDE 1.99 AND FOUND VESSEL BELTLINE MATERIALS ARE PROJECTED TO HAVE AN UPPER SHELF ENERGY ABOVE 50 FT-LBs AT THE END OF THE EXTENDED OPERATING PERIOD AND WILL MEET THE SCREENING CRITERIA OF 10 CFR Part 50, APPENDIX G**

## **4.3 - METAL FATIGUE**

### **ENVIRONMENTALLY-ASSISTED FATIGUE (EAF)**

**APPLICANT COMMITTED TO INSPECTING THE LIMITING SURGE LINE WELDS PRIOR TO THE PERIOD OF EXTENDED OPERATION. INSPECTION RESULTS WILL DETERMINE HOW TO ADDRESS EAF IN THE SURGE LINE. APPROACH WILL IN ONE OR MORE OF THE FOLLOWING OPTIONS:**

- 1. REFINE FATIGUE ANALYSIS TO LOWER CUMULATIVE USAGE FACTOR TO LESS THAN 1**
- 2. REPAIR AFFECTED LOCATIONS**
- 3. REPLACE AFFECTED LOCATIONS**
- 4. MANAGE AGING EFFECTS USING STAFF-APPROVED AMP**

**THIS APPROACH IS NORMAL FOR ADDRESSING EAF FOR THE SURGE LINE**

**IF OPTION 4 IS USED, OPPD SHOULD SUBMIT AMP DETAILS FOR STAFF REVIEW AND APPROVAL**

**CONFIRMATORY ITEM 4.3.2-1: REQUESTS APPLICANT TO CONFIRM THIS SUBMITTAL AS A LICENSE AMENDMENT**

**STATUS: CLOSED**

## **SAMPLING SYSTEM**

**USAS B31.1 LIMIT OF 7000 EQUIVALENT FULL-RANGE THERMAL CYCLES MAY BE EXCEEDED DURING THE PERIOD OF EXTENDED OPERATION. CYCLES FOR AFFECTED PORTIONS WILL BE TRACKED USING THE FATIGUE MONITORING PROGRAM (FMP)**

**AS PART OF THE FMP, SAMPLING PIPING WILL BE ANALYZED AND A STRESS CALCULATION PERFORMED TO DETERMINE THERMAL STRESS RANGE FOR THE LINE**

**CONFIRMATORY ITEM 4.3.2-2:      REQUESTS APPLICANT TO CONFIRM THAT RESULTS WILL MEET USAS B31.1**

**STATUS: RESOLVED**

## **4.4 - ENVIRONMENTAL QUALIFICATION**

**APPLICANT'S EEQ PROGRAM CONSISTENT WITH GALL**

**STAFF CONCLUDED EEQ PROGRAM WILL CONTINUE TO MANAGE EQUIPMENT IN ACCORDANCE WITH 10 CFR 50.49, AND MEETS 10 CFR 54.21(C)(1)(iii)**

**GSI-168, "ENVIRONMENTAL QUALIFICATION OF LOW-VOLTAGE INSTRUMENTATION AND CONTROL CABLES"**

**GSI-168 IS OPEN GENERIC ISSUE. WHEN RESOLVED, GUIDANCE WILL BE PROVIDED WITH REGARD TO LICENSE RENEWAL**

**APPLICANT WILL PURSUE OPTION 2 WITH REGARD TO GSIs**

**WILL CONTINUE TO MANAGE AGING EFFECTS TO MAINTAIN THE CURRENT LICENSING BASIS UNTIL A MORE REASONABLE OPTION IS AVAILABLE**

**EEQ WILL MANAGE AGING EFFECTS**

## **4.5 - CONCRETE CONTAINMENT PRESTRESS**

**MANAGED BY CONTAINMENT INSERVICE INSPECTION PROGRAM**

**SURVEILLANCES PERFORMED IN ACCORDANCE WITH ASME SECTION XI,  
SUBSECTION IWL**

**TENDON INSPECTION 1, 3, AND 5 YEARS, AND EVERY 5 YEARS AFTER INITIAL  
PRE-TENSIONING**

**10 CFR 50.55a(b)(2)(viii)(B) REQUIRES TREND LINES FOR PRE-STRESSING  
FORCES**

**STAFF REVIEWED RECENT TREND LINE INFORMATION AND FOUND APPLICANT'S  
APPROACH TO MANAGING TENDONS ACCEPTABLE**

## **4.6 - CONTAINMENT LINER PLATE AND PENETRATION SLEEVE FATIGUE**

**LINER AND PENETRATION SLEEVES DESIGNED IN ACCORDANCE WITH, AND MEET THE REQUIREMENTS OF, ASME SECTION III**

**FATIGUE LOADINGS ASSUMED IN THE DESIGN**

**CYCLING FROM**

**ONE LOSS-OF-COOLANT-ACCIDENT**

**VARIATION IN OUTDOOR TEMPERATURES (40 CYCLES)**

**VARIATION OF INTERNAL TEMPERATURE BETWEEN SHUTDOWN AND OPERATION CONDITIONS (500 CYCLES)**

**LINER EXPERIENCED SOME BUCKLING. EFFECT ON LINER FATIGUE EVALUATED AND FOUND ACCEPTABLE FOR THE EXTENDED OPERATING PERIOD**

## **4.7 - OTHER TLAAs**

**4.7.1 - REACTOR COOLANT PUMP FLYWHEEL FATIGUE**

**4.7.2 - LEAK BEFORE BREAK**

**4.7.3 - HIGH ENERGY LINE BREAK**

**4.7.4 - PRESSURIZER WELD REPAIR (NEW ITEM)**



## **4.7.1 - RCP FLYWHEEL FATIGUE**

**FCS HAS GE AND ABB REACTOR COOLANT PUMPS**

**FATIGUE FATIGUE CRACK GROWTH ANALYSES FOR BOTH RCPs REMAIN VALID FOR EXTENDED OPERATING PERIOD, IN ACCORDANCE WITH 10 CFR 54.21(C)(1)(i)**

## **4.7.2 - LEAK-BEFORE-BREAK (LBB) ANALYSIS**

**OPEN ITEM 4.7.2.2-1: LBB ANALYSIS MUST BE SUBMITTED FOR STAFF REVIEW AND APPROVAL**

**APPLICANT WILL COMPLETE AND SUBMIT LBB ANALYSIS PRIOR TO PERIOD OF EXTENDED OPERATION.**

**NEI 95-10 PROVIDES GUIDANCE ON THE DEFERRAL OF TLAAs**

**APPLICANT SHOULD DESCRIBE METHODOLOGY, ACCEPTANCE CRITERIA, CORRECTIVE ACTIONS THAT COULD BE PERFORMED TO ENSURE THE COMPONENT WILL PERFORM ITS INTENDED FUNCTION, AND IDENTIFY WHEN THE TLAA WILL BE COMPLETED**

**THE APPLICANT PROVIDED THIS INFORMATION**

**STATUS: RESOLVED**

### **4.7.3 - HIGH ENERGY LINE BREAK**

**FATIGUE ANALYSES PERFORMED FOR B31.7 CLASS I PORTIONS OF MAIN STEAM AND MAIN FEEDWATER OUTSIDE CONTAINMENT TO IDENTIFY LOCATIONS WITH CUMULATIVE USAGE FACTOR (CUF) ABOVE 0.1 (CRITERION FOR POSTULATED PIPE BREAKS)**

**EXISTING POSTULATED PIPE BREAKS BOUND ALL CLASS I SECTIONS OF MS AND MFW PIPING EXCEPT THE MS CONNECTIONS TO THE ISOLATION VALVES. THE CUFs AT THESE LOCATIONS WILL NOT EXCEED 0.1 DURING THE PERIOD OF EXTENDED OPERATION**

## **LESSONS LEARNED**

- 1. NEW LRA FORMAT REFLECTS NEW GALL PROCESS.  
FORMAT AND PROCESS CAN BE FURTHER IMPROVED**
- 2. BETTER DEFINE WHAT IS MEANT BY “CONSISTENT WITH GALL”**
- 3. SER TEMPLATE HELPED TO MORE EFFICIENTLY DOCUMENT STAFF’S REVIEW  
(FURTHER IMPROVEMENTS TO THE TEMPLATE HAVE BEEN IDENTIFIED)**
- 4. IMPROVEMENTS TO THE GALL REPORT AND SRP HAVE BEEN IDENTIFIED**
- 5. FCS LRA REVIEW HAS DEMONSTRATED THAT THE USE OF GALL RESULTS IN  
MORE EFFICIENT AND EFFECTIVE STAFF REVIEW WHILE MAINTAINING SAFETY  
FOCUS**
- 6. LESSON LEARNED FOR FCS REVIEW HAVE BEEN INCORPORATED INTO LATER  
STAFF REVIEWS AND CLASS OF 2003 LRAs (HELD LICENSE RENEWAL  
WORKSHOP WITH INDUSTRY ON OCTOBER 22, 2002. INCLUDED LESSONS  
LEARNED FROM FCS REVIEW)**

## SUMMARY

**STAFF REVIEW HAS IDENTIFIED 11 OPEN ITEMS AND 4 CONFIRMATORY ITEMS**

<b>OPEN ITEM (OI) CONFIRMATORY ITEM (CI)</b>	<b>STATUS</b>
<b>OI 2.2-1</b>	<b>RESOLVED</b>
<b>OI 2.2-2</b>	<b>CLOSED</b>
<b>OI 2.3.3.15-1</b>	<b>RESOLVED</b>
<b>OI 3.0-1</b>	<b>OPEN</b>
<b>OI 3.3.2.4.1.2-1</b>	<b>RESOLVED</b>
<b>OI 3.6.2.3.1.2-1</b>	<b>RESOLVED</b>
<b>OI 3.6.2.4.3.2-1</b>	<b>RESOLVED</b>
<b>OI 3.6.2.4.4.2-1</b>	<b>CLOSED</b>
<b>OI 3.6.2.4.5.2-1</b>	<b>RESOLVED</b>
<b>OI 4.7.2.2-1</b>	<b>RESOLVED</b>
<b>NEW OI 4.7.4-1</b>	<b>RESOLVED</b>

<b>CI 2.1.3.1.2-1</b>	<b>CLOSED</b>
<b>CI 3.0.3.12.2-1</b>	<b>RESOLVED</b>
<b>CI 4.3.2-1</b>	<b>CLOSED</b>
<b>CI 4.3.2-2</b>	<b>RESOLVED</b>

**GALL HAS MADE THE STAFF'S REVIEW MORE EFFICIENT, BUT AREAS FOR IMPROVEMENT HAVE BEEN IDENTIFIED**

# Standard License Renewal Application (SLRA) Format

# History

- Initial Guidance = NEI 95-10, NUREG-1800 SRP-LR
- Early 2001 = Plant X & Y Demonstration Project
  - Fort Calhoun - Plant X (preferred by NRC Staff)
  - Improvements realized, more to be done
- July 2002 = Class of '03 & NEI worked w/NRC to develop a standard LRA format for future applicants to improve LRA format & content
  - Concentrated on Sections 2, 3 & Appendix B
  - Most time spent on Section 3 tables
- Sept. 2003 = Going forward, industry expects to use SLRA (NEI 95-10 revision will include SLRA)



# Major Items

- Section 2:
  - Intended functions, abbreviations & definitions table
  - Discussion of applicant's approach to ISGs
  - Enhanced system descriptions identify which criteria require the system to be in scope, i.e., 10CFR54.4(a)(1), (2) or (3) and include system evaluation boundary descriptions
  - Components subject to AMR table (not new)
    - Lists components subject to AMR & intended function
    - Key to connecting sections 2 & 3

# Major Items

- Section 2:

**Table 2.0-1 Intended Functions Abbreviations & Definitions**

<b>Intended Function</b>	<b>Abbreviation</b>	<b>Definition</b>
Filtration	FLT	Provides filtration.
Heat Sink	HS	Provides a heat sink during SBO or design basis accidents.
Heat Transfer	HT	Provides for heat transfer.
Jet Impingement Shield	JIS	Provides jet impingement shielding for high energy line breaks.
Missile Barrier	MB	Provides a missile (internal or external) barrier.
Pressure Boundary	PB	Provides a pressure boundary.

# Major Items

- Section 2:

**Table 2.3.2-1 Containment Spray System**

<b>Component Type</b>	<b>Intended Function(s)</b>
Heat exchangers (shell)	Pressure boundary
Heat exchangers (tubes)	Heat transfer, Pressure boundary
Piping	Pressure boundary
Pump casing	Pressure boundary
Spray Nozzles	Flow control, Pressure boundary

# Major Items

- Section 3:
  - Internal & external environments tables
  - Results table usage description & reference to tables
  - AMR results divided into the six SRP “Super Groups,” then into their systems, structural or commodity subgroups
  - For each subgroup, a roll-up section of the materials, environments, aging effects requiring management and aging management programs (by name & hyperlink)
  - Aging Management Review (AMR) results tables
    - Table 1 = NUREG-1801, Volume 1 style table
    - Table 2 = plant specific AMR results

# Major Items

- Section 3:

**Table 3.0-1 Internal Service Environments**

Environment	Description
Air	Dry/filtered compressed air (identified as Dry Air), non-dried compressed air, and atmospheric air (when internal to components such as ventilation system components, components open to atmosphere, etc.). Moisture-laden air conditions are noted, when applicable.
Gas	Nitrogen, oxygen, hydrogen, carbon dioxide, helium, freon, or Halon gases. Also includes vent gases from process systems.
Lubricating Oil	All lubricating oils used for in-scope plant equipment.
Fuel Oil	All fuel oils used for in-scope plant equipment.
Raw Water <sup>1</sup>	From a river, lake, pond, or groundwater source. Raw water is not demineralized or chemically treated to any significant extent. In general, raw water is rough filtered to remove large particles. Biocides may be added to raw water to control micro-organisms or macro-organisms. Other designations of raw water include water that leaks from any system and condensation.
Sea Water <sup>1</sup>	Water from a bay, sound, or ocean source. Sea water is not demineralized or chemically treated to any significant extent. In general, sea water is rough filtered to remove large particles. Biocides may be added to sea water to control micro-organisms or macro-organisms.

# Major Items

- Section 3:

**Table 3.0-2 External Service Environments**

Environment <sup>1</sup>	Description
Borated Water Leakage	<p>The borated water leakage environment applies in all plant areas that include components and systems that contain borated water and that could leak on nearby components or structures. This environment is specified in the aging management review results only for materials susceptible to boric acid corrosion (carbon steel, low-alloy steels, and copper alloys). This environment is not considered for in-scope cables and connectors since cables are insulated, splices are sealed, and terminations are protected by enclosures.</p>
Soil	<p>The external environment for structures and components buried in the ground. Buried components (pipes and valves) are exposed to a soil environment and may be exposed to groundwater if they are located below the local groundwater elevation. The soil is assumed to entrain raw water and buried components are evaluated for the effects of corrosion.</p> <p>Concrete structural members below grade elevation are exposed to a soil environment and may be exposed to groundwater if they are located below the local groundwater elevation. The site groundwater is non-aggressive to concrete as determined by recent groundwater analyses.</p> <p>Steel piles are driven in undisturbed soil such that the soil environment surrounding the piles is deficient in oxygen at depths of a few feet below grade or below the water table. Therefore, the soil environment is not considered corrosive to steel piles.</p>

1. For certain structural members and system components that are submerged, the applicable environment identified in Table 3.0-1, Internal Service Environments, is specified in the aging management review results.

# Major Items

- Section 3 (continued):
  - Table 1 = Based on NUREG-1801 table
    - Compares the results of the aging management reviews to NUREG-1801 summary results
    - Components from Section 2 are rolled up using the same SRP table format to provide linkage or exception to SRP aging effects and aging management programs
    - Item number column added to facilitate cross-referencing between Chapter 3 tables
    - Discussion column added for clarifications and explanations regarding table/program alignment

# Major Items

- Section 3 (continued):

- Table 1 = NUREG-1801 Style Table

**Table 3.2.1 Summary of Aging Management Evaluations in Chapter V of NUREG-1801 for Engineered Safety Features**

Item Number	Component	Aging Effect/ Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1- 01	Piping, fittings, and valves in emergency core cooling system	Cumulative fatigue damage	TLAA, evaluated in accordance with 10 CFR 54.21(c)	Yes, TLAA	This TLAA is further evaluated in Section 4.3. Low temperature portions are not susceptible to cumulative fatigue damage, for example, core flood.  Further evaluation documented in Subsection 3.2.2.2.1
3.2.1- 02	BWR Only				
3.2.1- 03	Components in containment spray (PWR only), standby gas treatment (BWR only), containment isolation, and emergency core cooling systems	Loss of material due to general corrosion	Plant specific	Yes, plant specific	Consistent with NUREG-1801 for containment isolation. System walkdown program is credited. For further evaluation, see Appendix B.  Not applicable for containment spray and ECCS as these components are not carbon steel in these systems.  Further evaluation documented in Subsection 3.2.2.2.2
3.2.1- 04	BWR Only				



# Major Items

- Section 3 (continued):
  - Table 2 = Plant-specific AMR results
    - Provides AMR results divided into the six SRP “Super Groups,” then into systems, structural or commodity subgroups
    - Contains 9 columns
    - Provides a means to cross-reference to Table 1, to NUREG-1801, to LRA Section 2 and to Appendix B
    - Contains a “Notes” column for referencing to explanations regarding alignment with NUREG-1801

# Major Items

- Section 3 (continued):
  - Table 2 = Plant-specific AMR results

**Table 3.2.2-1: Engineered Safety Features - Containment Spray System - Summary of Aging Management Evaluation**

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Heat exchangers (shell)	PB	Carbon steel	Air (external)	Loss of material	System walkdown	V.E.1-b	3.2.1-10	A
			Borated water leakage (external)	Loss of material	Boric acid corrosion	V.A.6-d	3.2.1-17	B
			Raw water (internal)	Loss of material	Heat exchanger monitoring Water chemistry control	V.A.6-a	3.2.1-12	E
			Treated water (internal)	Loss of material	Water chemistry control	V.A.6-c	3.2.1-13	E

# Major Items

- Section 3 (continued): Table 1 = NUREG-1801 Table

**Table 3.2.1 Summary of Aging Management Evaluations in Chapter V of NUREG-1801 for Engineered Safety Features**

Item Number	Component	Aging Effect/ Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1- 10	External surface of carbon steel components	Loss of material due to general corrosion	Plant specific	Yes, plant specific	Consistent with NUREG-1801. System walkdown program is credited. See Appendix B.  Further evaluation documented in Subsection 3.2.2.2.2.2
3.2.1- 11	Piping and fittings of CASS in emergency core cooling systems	Loss of fracture toughness due to thermal aging embrittlement	Thermal aging embrittlement of CASS	No	Not applicable as CASS is not used in this system.
3.2.1- 12	Components serviced by open-cycle cooling system	Local loss of material due to general, pitting, and crevice corrosion, MIC, and biofouling; buildup of deposit due to biofouling	Open-cycle cooling water system	No	Different programs are credited other than an open-cycle cooling water system. These are the heat exchanger monitoring, water chemistry control, and/or system testing programs. See Appendix B.
3.2.1- 13	Components serviced by closed-cycle cooling system	Loss of material due to general, pitting, and crevice corrosion	Closed-cycle cooling water system	No	Different programs are credited other than a closed-cycle cooling water system. These are water chemistry control, heat exchanger monitoring, and/or metal fatigue TLAA. See Appendix B.

# Major Items

- Section 3(continued):
  - “Further Evaluation Recommended” section
    - Summary results of NUREG-1801 Further Evaluations Recommended
    - Reference to LRA Section 4 provided for TLAA evaluation results
  - Time-limited aging analyses (TLAAs) section
    - Identifies the TLAAs associated with the super group
    - Reference to LRA Section 4 for TLAA evaluation results
  - Conclusions

# Major Items

- Appendix B:
  - Introduction section
    - Overview
    - Method of discussion
      - Consistent with NUREG-1801
      - Consistent, with exception, to NUREG-1801
      - Plant specific
    - Quality assurance program and administrative controls
    - Operating experience
    - Aging management programs list (indicates new and existing programs)

# Major Items

- Appendix B:
  - Introduction (continued...)
    - TLAA aging management programs list
    - List of AMPs correlated to NUREG-1801
      - Plant specific programs are listed last
  - Aging management programs (AMPs) section
    - AMP descriptions
      - Includes TLAA AMPs under 10 CFR54.21(c)(1)(iii)

# Major Items

- Appendix B:

- Method of discussion

- AMP is consistent with NUREG-1801

- Program description
- NUREG-1801 Consistency
- Exceptions to NUREG-1801
- Enhancements
- Operating Experience
- Conclusion

- AMP is consistent, with exception, to NUREG-1801

- Same sections as above, with exceptions defined and enhancements (if any) identified
- Program elements affected by the exception and/or enhancement are identified, along with a justification for why the exception is okay and/or the enhancement is needed.

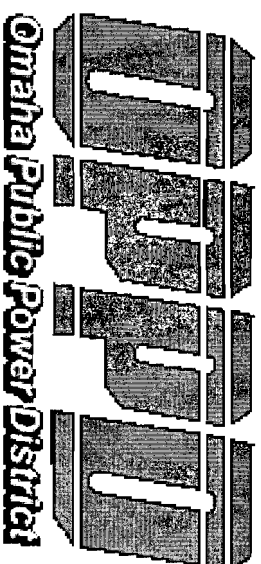
# Major Items

- Appendix B:
  - Method of discussion (continued...)
    - AMP is plant specific
      - Program description
      - All 10 program elements
      - Enhancements
      - Conclusion
    - This approach helps to take maximum advantage of NUREG-1801 and improves efficiency



# Summary

The proposed standard format is intended to promote review efficiency with a systematic, integrated presentation of system, structure and component aging management review data in LRA section 2, section 3 and Appendix B. In addition, information that can be directly used to develop the SER is consolidated in specific locations.



# Fort Calhoun Station Presentation to ACRS License Renewal Subcommittee

June 11, 2003

# Presenters

**Sudesh Gambhir – Division Manager,  
Nuclear Projects**

**Joe Gasper – Manager, Major Projects**  
**Bernie Van Sant – License Renewal  
Project Manager**

6/11/03



# Background

Joe Gasper

6/11/03



---

---

# Background

- First application based on SRP and GALL
- Format based on NRC/NEI GALL Demonstration Project
- Application submitted January 9, 2002
- Revision submitted April 5, 2002
  - Section 2 tables contain links to Section 3 tables

# Background

- Each AMR system grouping has 3 types of tables
  - 3.X-1: Structures/components (SCs) and AMPs matching those evaluated in GALL
  - 3.X-2: Plant-specific SCs and/or AMPs
  - 3.X.3: GALL AMPs credited for non-GALL SCs

# Background

- Aging Management Programs
  - Consistent with GALL
  - Consistent with GALL, with some deviation
  - Not consistent with GALL: plant-specific

# LRA Overview

Bernie Van Sant

6/11/03





---

---

# Presentation Outline

- Scoping and Screening Process
- Aging Management Reviews
- Time Limited Aging Analyses
- Interim Staff Guidance
- Commitments
- Open and Confirmatory Items in SER
- Recent Plant Operating Experience

---

---

# Scoping and Screening Process

- Scoping Criteria match 10 CFR 54.4 criteria
  - Safety Related = Critical Quality Element (CQE)
  - Non-safety Related which can affect Safety Related = Limited CQE (LCQE)
  - Regulated Events = CQE, LCQE, and Non-CQE

---

---

# Scoping and Screening Process

- Plant Equipment Database
- Updated Safety Analysis Report
- Design Basis Documents
- Q-List
- Piping & Instrumentation Diagrams
- Engineering Analyses
- Design Change Packages

# Scoping and Screening Process Mechanical

- Functional Realignment (regrouping of components) Methodology
- Functional Realignment
  - Commodity-based transfers
  - System interface transfers
  - GALL alignment transfers

---

---

# Scoping and Screening Process Structures

- FCS Unique Structures
  - Condenser Circulating Water Discharge Tunnel
  - Enclosed above-ground Fire Protection Diesel Fuel Oil Tank
  - Safety Injection Refueling Water Tank

# Scoping and Screening Process

## Electrical

- Scoped on a System Basis (20 Systems)
- Passive Electrical/I&C Components Screened into Commodity Groups
  - Cables and Connectors including Splices, Terminal Blocks, and Fuse-Blocks
  - Electrical Bus Bars
  - Containment Penetrations

# Aging Management Reviews

- Components, materials, and environments identified
- Aging effects identified
- Aging Management Programs assigned
- All of the above compared to GALL
- SSCs grouped in 3.X-1, 3.X-2, or 3.X-3 tables as appropriate

6/11/03



# Aging Management Reviews

- 24 Aging Management Programs credited
- Appendix B descriptions summarize consistency with GALL, Operating Experience, and Conclusion
- Plant-specific program descriptions include 10 criteria evaluation per SRP



---

---

# Time Limited Aging Analyses

- Fourteen TLAAs total
- Plant-specific TLAAs
  - Environmental Fatigue
  - Leak Before Break
  - Pressurizer nozzle J-groove weld
  - High Energy Line Break

---

---

# Interim Staff Guidance

- All issued Interim Staff Guidance documents (ISGs) were implemented
  - ISG-01: GALL Position on Aging Management
  - ISG-02: Station Blackout
  - ISG-03: Aging Management of Concrete
  - ISG-04: Aging Management of Fire Protection Systems
  - ISG-05: Treatment of Fuse Holders

---

---

# Commitment Management

- All commitments listed in SER
  - Program Enhancements
  - New Programs
  - TLAA Evaluations
- Commitments included and tracked in plant action tracking system
- Implementing procedures annotated

# Open and Confirmatory Items in SER

- Total of 11 Open Items (9 requiring OPPD action)
- 4 Confirmatory Items
- OPPD discussed all Open and Confirmatory Items requiring OPPD actions with NRC Staff and provided acceptable responses

6/11/03



---

---

# Recent Plant Operating Experience

- All Green NRC Performance Indicators
- NRC Problem Identification & Resolution Inspection completed May 8: no Green or higher findings
- Recognized for Industry Operating Excellence by INPO

---

---

# Recent Plant Operating Experience

- Previous fuel leakage problems resolved
- Excellent material condition - only one forced shutdown (in October 2000) since June 1998
- RV Head visual inspection

# Questions

6/11/03



Page 1 of 2

FTS

JUN-03-2003

CONFIRMATION #: 6832952

10:22 AM

ATTN: TONNA WEAVER

PHONE #: 1-301-415-7027

COMPANY: FTS-NUCLEAR REGULATORY COMMISSI

FAX #: 301-415-7010

BILLING ADDRESS: 11545 ROCKVILLE PIKE

ROCKVILLE, MD 20852-2747

USA

\*\*\* Thank you for choosing FTS conferencing for your upcoming meeting. To modify or cancel this reservation, call us at 877-855-4797. Calls must be canceled at least 30 minutes prior to the start time to avoid cancellation fees.

To invite participants to your conference, simply forward the PARTICIPANT ACCESS INFORMATION section, which is the last page of this fax. This is the only information participants will need to access your call. We highly recommend you do not forward any other information to them. \*\*\*

**MEETING INFORMATION**

LEADER: MR RALPH CARUSO

PHONE #: 1-301-415-8065

DAY OF CALL PHONE #: 1-301-415-8065

CALL DATE: JUN-11-2003 (Wednesday)

DIAL-IN NUMBERS:

CALL TIME: 08:30 AM EASTERN TIME

USA TOLL FREE NUMBER: 888-390-3401

DURATION: 9 hr

# OF LINES: Total=10 Dialout=0 Total Meet Me=10

Meet Me Toll=0

PASSCODE: 12988

CALL ACCESS TYPE: MEET ME

SERVICE LEVEL: UNATTENDED

**AUDIO FEATURES**

Tones