January 8, 2001

ORGANIZATION: Nuclear Energy Institute

SUBJECT: SUMMARY OF MEETING WITH THE NUCLEAR ENERGY INSTITUTE (NEI) ON THE USE OF THE DRAFT "GENERIC AGING LESSONS LEARNED" (GALL) REPORT AND STANDARD REVIEW PLAN FOR LICENSE RENEWAL

On November 9, 2000, representatives from NEI and other interested industry groups met with the Nuclear Regulatory Commission (NRC) staff in Rockville, Maryland, to discuss use of the draft GALL and the Standard Review Plan (SRP) for license renewal. A list of meeting attendees is provided in Attachment 1. The meeting agenda consisted of the questions NEI provided in Attachment 2.

NEI stated that the purpose of the meeting was to clarify the NRC's expectations for the application of the GALL report and the SRP. Applicants submitting license renewal applications in 2000 and 2001 will use the GALL report primarily as an information source on the types of components, aging effects/ mechanisms, and programs to be considered in a license renewal application. In this context, the GALL report will help focus the presentation of information in a license renewal application and the basis to resolve questions and open items. For 2002 and beyond, after Commission approval, an applicant may use GALL as an approved topical report that is generically applicable.

The industry representatives explained that they wanted the NRC to better define both how the GALL report will be utilized by an applicant, during the preparation of a license renewal application, and how the NRC staff will use it to facilitate the review of an application. The industry representatives stated that neither the GALL report nor the Standard Review Plan adequately described how to appropriately employ the GALL report to an applicant's advantage.

The industry representatives were particularly concerned about the staff's expectation for the level of detail associated with the certification that an applicant's programs conformed with the program descriptions in GALL and how exceptions to the GALL report would be described in an application. Since an applicant must evaluate the aging management programs to comply with the requirements in Part 54, the industry representatives believed that a "line-by-line" evaluation of those programs would involve unnecessarily duplicative effort. The staff stated that an applicant who references GALL in a license renewal application would be expected to verify that the programs relied on for a specific structures or components is bounded by the program evaluated in GALL, in order to use GALL as a reference for an acceptable program in the same way that topical reports are used as references for accepted programs. The staff review would intend to use GALL to focus on the areas where further evaluation is recommended or a plant-specific aging management program is proposed. By referencing the GALL, the staff would expect that an applicant decreases the volume of the application and the level of effort required for the staff review. The references along with exceptions to the GALL report may be in tables, footnotes to tables, or in a separate section in the front or the back of the application.

The FSAR supplement that is included in the application needs to reflect a summary description of the aging management programs, but it may take the form of the tables for components and aging management programs covered by GALL as described in Chapter 3 of the SRP.

The industry representatives stated that NEI 95-10 would be revised to state how to use the GALL report and the SRP. They further stated that the table of contents in the SRP needs to be revised since it appears to be inconsistent with the standard content for a license renewal application. The staff agreed with both of those comments.

Action Assignments:

- NRC - Schedule a future meeting to clarify how the NRC will revise the table of contents of the SRP
- Industry - Revise NEI 95-10 to state how to apply GALL and the SRP.

/RA/

Christopher I. Grimes, Chief
License Renewal and Standardization Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Project No. 690

Attachments: As stated

cc: See next page

The FSAR supplement that is included in the application needs to reflect a summary description of the aging management programs, but it may take the form of the tables for components and aging management programs covered by GALL as described in Chapter 3 of the SRP.

The industry representatives stated that NEI 95-10 would be revised to state how to use the GALL report and the SRP. They further stated that the table of contents in the SRP needs to be revised since it appears to be inconsistent with the standard content for a license renewal application. The staff agreed with both of those comments.

Action Assignments:

- NRC - Schedule a future meeting to clarify how the NRC will revise the table of contents of the SRP
- Industry - Revise NEI 95-10 to state how to apply GALL and the SRP.

/RA/

Christopher I. Grimes, Chief
License Renewal and Standardization Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Project No. 690

Attachments: As stated

cc: See next page

DISTRIBUTION:
See next page

C:\NOV9MEETING MINUTESactual.wpd *See previous concurrence

OFFICE	LA:DRIP	ROE:RLSB:DRIP	SC:RLSB:DRIP	BC:RLSB:DRIP
NAME	EGHylton*	EAKleeh*	PTKuo*	CIGrimes
DATE	12/14/00	12/18/00	01/03 /01	01/08/01

OFFICIAL RECORD COPY

NUCLEAR ENERGY INSTITUTE

Project No. 690

cc:

Mr. Joe Bartell
U.S. Department of Energy
NE-42
Washington, D.C. 20585

Mr. Richard P. Sedano, Commissioner
State Liaison Officer
Department of Public Service
112 State Street
Drawer 20
Montipelier, Vermont 05620-2601

Mr. Douglas J. Walters
Nuclear Energy Institute
1776 I Street, N.W., Suite 400
Washington, DC 20006-3708
DJW@NEI.ORG

National Whistleblower Center
3238 P Street, N.W.
Washington, DC 20007-2756

Mr. Stephen T. Hale
Florida Power & Light Company
9760 S.W. 344 Street
Florida City, Florida 33035

Mr. Robert Gill
Duke Energy Corporation
Mail Stop EC-12R
P.O. Box 1006
Charlotte, NC 28201-1006

Mr. Charles R. Pierce
Southern Nuclear Operating Co.
40 Inverness Center Parkway
BIN B064
Birmingham, AL 35242

Mr. David Lochbaum
Union of Concerned Scientists
1707 H Street, NW
Suite 600
Washington, DC 20006-3919

Mr. Garry Young
Entergy Operations, Inc.
Arkansas Nuclear One
1448 SR 333 GSB-2E
Russellville, Arkansas 72802

DISTRIBUTION:
HARD COPY
RLSB RF
E. Hylton

E-MAIL:
PUBLIC
R. Zimmerman
J. Johnson
D. Matthews
S. Newberry
C. Grimes
C. Carpenter
B. Zalcman
J. Strosnider
R. Wessman
G. Bagchi
K. Manoly
W. Bateman
J. Calvo
C. Holden
P. Shemanski
J. Shea
G. Holahan
T. Collins
B. Boger
J. Peralta
J. Moore
R. Weisman
J. Euchner
M. Mayfield
S. Bahadur
A. Murphy
W. McDowell
S. Droggitis
RLSB Staff
S. Duraiswamy

A. Thadani
M. Federline
C. Julian
R. Gardner
D. Chyu
M. Modes
J. Vora

NRC MEETING WITH NEI TO ON THE USE OF THE DRAFT
"GENERIC AGING LESSONS LEARNED" (GALL) REPORT
AND THE STANDARD REVIEW PLAN FOR LICENSE RENEWAL

ATTENDANCE LIST
NOVEMBER 09, 2000

NAME	ORGANIZATION
RAJENDER AULUCK	NRC/NRR/DRIP/RLSB
GOUTAM BAGCHI	NRC/NRR/DE
CARL BERLINGER	NRC/NRR/DSSA
NANCY CHAPMAN	SERCH/BECHTEL
TALMADGE CLEMENTS	CAROLINA POWER AND LIGHT CO.
BILL CORBIN	DOMINION (VA POWER)
JERRY DOZIER	NRC/RES/DRIP/RLSB
DONALD FERRARO	WINSTON AND STRAWN
JOE GASPER	OPPD
ROBERT GILL	DUKE ENERGY
CHRIS GRIMES	NRC/NRR/DRIP/RLSB
STEVE HALE	FPL
STEVE HOFFMAN	NRC/NRR/DRIP/RLSB
ROGER HUSTON	LICENSING SUPPORT SERVICES
PETER KANG	NRC/NRR/DRIP/RLSB
EDMUND KLEEH	NRC/NRR/DRIP/RLSB
P.T. KUO	NRC/NRR/DRIP/RLSB
SAMSON LEE	NRC/NRR/DRIP/RLSB
ROGER NEWTON	NMC
JUAN PERALTA	NRC/NRR/DIPM/IQMB
ERACH PATEL	EXELON
FRED POLASKI	EXELON
KIMBERLY RICO	NRC/NRR/DRIP/RLSB
JOHN RYCYNA	CONSTELLATION NUCLEAR
JIM STRNISHA	NRC/NRR/DRIP/RLSB
DOUG WALTERS	NEI
CHARLES WILLBANKS	NUS INFORMATION SERVICES
MITZI YOUNG	NRC/OGC

Attachment 1

Meeting between NEI and NRC
November 9, 2000
Discussion on processes related to the GALL report

Questions for the Staff related to the process for using the GALL report are provided to facilitate the discussion. These questions are presented in 4 sections as follows:

1. Process for identification of Aging Effects
2. Process for using the GALL report for Aging Effects
3. Process to describe/demonstrate Aging Management Programs
4. Process for using the GALL report for Aging Management Programs

1. Questions Pertaining to the Process to Identify Aging Effects

Was the guidance provided in SRP Appendix A.1, Section A.1.2.1 used to identify all of the aging effects that require aging management that are identified in the GALL report?

Due to the multiple authors of the GALL report, some of the aging effects/mechanisms terminology is used inconsistently. There should be a clearly defined list of terminology that can be used to assure consistency throughout the report.

Please explain why the guidance provided in SRP Appendix A.1, Section A.1.2.1 does not include the consideration of component function in the process to determine aging effects that need to be managed during the period of extended operation. (NEI 95-10, Section 4.2.1.1 discusses assessing the aging effects potentially affecting the structures' and components' ability to perform their intended function(s).)

Please explain why several aging effects identified within the body of the GALL report do not identify the technical basis or operating experience that supports the conclusion that the specific aging effect needs to be managed for the period of extended operation to maintain component function. References, whether in the body of the GALL report or in the program description need to clearly support the conclusion that an aging effect requires management. Examples:

- GALL II A 3.2, Mechanical Wear of Locks, Hinges and Closure Mechanisms, no technical basis or operating experience has been provided that supports this aging effect will result in a loss of function.

- GALL IV D1.1.3, 1.1.4, and 2.1.4 refer to loss of material due to pitting and crevice corrosion in the steam generator assembly and refers inappropriately to IN 90-04

- GALL V C.2.1, Local loss of material due to MIC

- GALL V D 1.2.3, Loss of material due to erosion in orifice

- GALL VII A.3.3.3, Hardening, cracking of rubber elastomers

- GALL VII B.1.1, Coating degradation

SRP Appendix A, Section A.1.2.1 states that abuse due to human activity is an abnormal event and aging effects from such abuse need not be postulated for license renewal. NRC letter dated June 5, 1998 from C. I. Grimes to NEI also provides insights to this topic. Please explain why several aging effects are listed in the GALL report that appear to be induced service driven or induced by human activity. Examples include:

- Vibration
- Unanticipated cyclic loading
- Coating damage
- Mechanical wear of fire doors, airlock hinges, closure mechanisms
- SCC due to electrical heat transfer tape adhesive

Why aren't NUREG-1705 and NUREG-1723 listed as references in the GALL report as these were the first two SERs for license renewal?

2. Process for using the GALL report for aging effects

(Reference SRP 3.1.1.2) The ‘further evaluation’ column is presented in the main body of the GALL report. In order for a staff reviewer to identify where a further evaluation 'yes' item exists in the licensee's application, the reviewer will have to match line items in the GALL report to those in the licensee's 6-column table. What process do you envision? Do you envision that the licensee should facilitate this matching in some way? Further, do you envision that the licensee would specifically address a further evaluation 'yes' item in the application? For example, for stainless steel (CASS)/borated water/cracking(SCC)/chemistry, the GALL report identifies a requirement to consider material analysis and the chemistry program. Do you envision that a licensee would do a search through the GALL report to find these 'yes' items? Would you expect to see an evaluation appear in the application? Where?

(Reference SRP 3.1.1.4) In order for a staff reviewer to identify components or aging effects not identified in the GALL report, the reviewer will have to perform a baseline matching of line items in the GALL report to the applicant's 6-column tables. Is it your intent that the reviewer will perform this activity? What process do you envision? Do you envision that the licensee should facilitate this matching in some way?

(Reference SRP 3.1.1.4) The GALL report covers many but not all of the components in a nuclear power station. An applicant may also choose to identify different component groups or commodity groups than those discussed in the GALL. Is it your intent that components not identified in the GALL report would need to be highlighted by the licensee? In many cases the additional components or different component groups are made of the same materials and exist in the same environments as other components identified in the GALL report. Is it sufficient for the applicant to ensure his component listing is bounded by material and environment types identified in the GALL report? For example, under RCS piping a licensee may identify a 'bellows' as a component type for which no entry can be found in the GALL report. However, it is made of stainless steel and provides pressure boundary service in a borated water environment.

(Reference SRP 3.1.1.4) The GALL report covers many but not all of the component/aging effect/program combinations at a nuclear power station. Let's assume that instead of a component/aging effect/program combination, one can address material/environment/aging effect/program combinations. If a licensee has identified a combination that is not addressed in the GALL report, what process would the staff reviewer use to evaluate the acceptability of using a program to manage that aging effect? Do you envision that the licensee should facilitate this evaluation in some way? For example, consider the evaluation process if a licensee has identified a combination such as 'stainless steel/borated water/loss of material/chemistry control.' This aging effect does not appear in the GALL report.

(Reference SRP 3.1.3.1) In the middle of the paragraph there is a statement, 'The reviewer also verifies that the applicant has stated that the applicable aging effects and industry and plant-specific operating experience had been reviewed by the applicant and are evaluated in the GALL report. The reviewer verifies that the applicant has identified those aging effects for the Reactor Coolant System components that are contained in the GALL report as applicable to its plant.' In order for an applicant to make a statement with regard to aging effects evaluated in the GALL report, the applicant would need to do a line-by-line

match of the entries in the GALL report to his 6-column tables. From that exercise, a statement could be made indicating which aging effects in his application are evaluated in the GALL report and which ones are not. Presumably, this is not just a verification of aging effects but material/environment/aging effect combinations. How would you envision a licensee would perform this review? What type of 'statement' do you expect to see? Where would the staff reviewer expect to find it in the application? How would the aging effects not evaluated in the GALL report be identified in the application?

3. Questions Pertaining to the Process to Describe/Demonstrate Aging Management Programs

Was the guidance provided in SRP Appendix A.1, Section A.1.2 used to write all of the program descriptions contained in the GALL report?

SRP Appendix A.1, Section A.1.2.3.1 indicates that "the scope of the program should include the specific structures and components that the program is credited for managing of." Several programs in the GALL report do not clearly identify the specific structures and components that the program is credited for managing of. Examples:

- Water Chemistry
- Bolting Integrity (Scope states all bolting within the scope of license renewal yet detection of aging effects uses ASME Section XI for Class 1 and 2 bolting only)
- Reactor Vessel Surveillance
- Loose Parts Monitoring
- Neutron Noise Monitoring

SRP Appendix A.1, Section A.1.2.3.4 discusses the detection of aging effects attribute. In essence, the requirement is that any detection of aging effects should occur before there is a loss of structure and component intended function. Please explain how this attribute is to be discussed in each of the four types of programs: prevention, mitigation, condition monitoring and performance monitoring. NEI comment SA 1-4 applies. Several programs described in the GALL report do not clearly describe how aging effects are detected. Examples:

- Closed-Cycle Cooling Water System (chemistry programs do not typically include inspections)
- Outer Surfaces of Above Ground Carbon Steel Tanks
- Outer Surface of Buried Piping and Components (visual, buried?)
- Fuel Oil Chemistry (chemistry programs do not typically include inspections)
- Fire Water Systems
- Water Chemistry (chemistry programs do not typically include inspections)
- Reactor Vessel Surveillance
- Loose Parts Monitoring
- Neutron Noise Monitoring

SRP Appendix A.1, Section A.1.2.3.5 discusses the monitoring and trending attribute. How is the monitoring of an aging effect different from the detection of an aging effect (discussed in the preceding attribute)? Please explain how this attribute is to be discussed in each of the four types of programs: prevention, mitigation, condition monitoring and performance monitoring. Please include how trending is to be discussed for each type of program. NEI comment SA 1-5 applies.

SRP Appendix A.1, Section A.1.2.3.10 states that operating experience with existing programs should be discussed. For several programs described in the GALL report, the operating experience does not support the effectiveness of the aging management program. Examples:

- Open Cycle Cooling Water System
- Closed Cycle Cooling Water System
- Outer Surface of Above Ground Carbon Steel Tanks
- Outer Surface of Buried Piping and Components
- Fuel Oil Chemistry
- Loose Part Monitoring
- Neutron Noise Monitoring
- Compressed Air Inspection and Maintenance

Several programs identified in the GALL report manage the design features of the plant rather than managing the effects of aging. Please discuss how such programs, which in reality are a part of the overall plant QA process, meet the Commission intent to manage the effects of aging during the period of extended operation. Examples of these design feature management programs include:

- Minimize and control SCC by RG 1.65
- Material Selection by RGs 1.44 and 1.43
- Compressed Air Inspection and Maintenance (BL 88-14)

Several generic programs described in the GALL report contain features that are beyond those currently accepted in existing plant specific programs. Examples include:

- GALL – II.A.2, Requiring Appendix J and Coatings Program in addition to ASME Section IWE

- GALL – II A.2 and others, Requiring inspections of inaccessible areas beyond the current requirements of 10 CFR 50.55a (b)(2)(ix)(A)

- GALL – II A.3.1, Requiring inspections of dissimilar metal welds beyond the optional inspection of 10 CFR 50.55a(b)(ix)(C)

- Requiring VT-1 in lieu of VT-3 examinations in many locations

- GALL – XI.S6 contains programmatic elements in excess of RG 1.160, Revision 2 and NUMARC 93-01, Revision 2

4. Questions pertaining to the Process to Utilize the GALL report in a license renewal application

Several statements are contained in the GALL report Volume 1 and the SRP that allude to a process that an applicant should use to incorporate the results of GALL into an application. In order to efficiently and correctly utilize the GALL report, the process needs to be clearly stated in a single location, preferably in a guidance document directed to preparation of the application.

The following is a proposed approach:

1. Applicant reviews its plant specific aging management program using the 10 attributes and documents the results.

2. Applicant compares its plant specific program with the corresponding generic program description contained in Section XI of the GALL report. Each attribute of the plant specific program is compared to the corresponding attribute of the generic GALL program.

3. Applicant certifies that the plant specific program meets the intent of the generic GALL program

4. Applicant documents the results of this comparison as required by §54.37(a).

In Section XI of the GALL report, each program is described in a "Program Description" paragraph (sometimes labeled 'Introduction) as well as in "Evaluation and Technical Basis." Should the applicant compare its plant specific program to the description in the Program Description / Introduction or Evaluation and Technical Basis?

Chapter 3 of the SRP contains several tables that provide example summary descriptions of aging management programs. These would appear to represent the long-term commitments that an applicant would add to the plant FSAR after the renewed licenses are issued. How do these summary descriptions relate to the program descriptions provided in Section XI of the GALL report? Should the comparison of the plant specific programs be made to the FSAR summary descriptions?

When an applicant compares its programs to those in Section XI of the GALL report, what is the long-term commitment with respect to the features and elements of the program? Is the commitment to the plant specific program? Is the commitment to the generic program as described in Section XI of the GALL report? Is the commitment to the summary FSAR program description?

For each attribute, the credited existing plant specific program may be less than or greater than the similar attribute in the corresponding generic GALL program description. What are the expectations of an applicant for each variation from the generic GALL program that could exist in a plant specific program? What are the specific criteria for determining when an existing aging management program must be reviewed by the staff even though there is a corresponding generic program described in Section XI of the GALL report?

What staff review is required if the scope of the plant specific program is less than that of the generic GALL program?

What staff review is required if more components are in the scope of the plant specific program but the materials and aging effects of these additional components is the same as those in the scope of the generic GALL program?

What staff review is required if the monitoring and trending of the plant specific program is effective and achieves the same confidence but somewhat different than the monitoring and trending contained in the generic GALL program?

What staff review is required if the plant specific operating experience demonstrates that the plant specific program is effective, but the plant specific attributes are similar but different than those described in the GALL report? How close a match is required?

If an applicant is required to review the specific corrective actions, confirmation and administrative controls for each plant specific program and compare them to the similar attributes in the generic GALL program, then why is the QA for non-safety-related structures and components always called out as “Further Evaluation Recommended?” Why are these QA-related attributes treated differently than any other attribute where there exists a difference between the plant specific program and the generic GALL program?

Some plant specific programs will be credited in several section of the application (e.g., Water Chemistry, ISI, Structural Monitoring). What staff review is required if the plant specific program is consistent with the generic GALL program in one section of the application, but different in another section? For example, water chemistry may be credited for all stainless steel ESF systems and may also be credited for precluding aging effects of the stainless steel spent fuel pool components. ESF systems are within the scope of the generic GALL program description of water chemistry, but spent fuel pool components currently are not.

If a plant specific program is determined to meet the intent of the generic GALL program, what specific statement should be included in Appendix B of the application?

What changes in the NRC regional license renewal inspections of aging management programs will occur as a result of crediting the generic GALL programs?

Applicants currently plan to provide the aging management review results in a six-column table format. The results will be reported system by system in one or more tables. Typically, the results for a systems will be reported by component in alphabetical order. This presentation allows the tables to be efficiently used by the Chapter 2 staff reviewers. The current version of the SRP has, for each section of Chapter 3, tables of aging management review results. However, each section has only one table to cover all of the systems within the section, the components are often grouped together rather than individually listed and the presentation appears to be in alphabetical order by aging effect/mechanism. Given the substantial differences between the presentation of the results in the typical application and the presentation of the material in the SRP, describe the process that the staff reviewers will use to review the aging management review results provided in Chapter 3 of the application.