



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 31, 1996

ORGANIZATION: Westinghouse Owners Group

SUBJECT: SUMMARY OF MEETING WITH THE WESTINGHOUSE OWNERS GROUP (WOG)

On October 3, 1996, the Nuclear Regulatory Commission (NRC) staff met with representatives of the WOG in Rockville, Maryland, to discuss the WOG responses to the staff's request for additional information, dated June 5, 1996, on WCAP-14422, "License Renewal Evaluation: Aging Management for Reactor Coolant System Supports, Revision 1, March 1996." In addition, the WOG discussed their expectations of NRC generic technical reports (GTR) reviews and provided a brief introduction to WCAP-14574, "License Renewal Evaluation: Aging Management for Pressurizers, July 1996." A list of meeting attendees is provided in Attachment 1. Attachment 2 is a copy of the material distributed at the meeting.

The WOG first discussed its expectations of the NRC GTR review. The WOG stated that it intends to use the GTR as reference documents in future applications as described in section 4.2.2 of NEI 95-10. With this end, the WOG stated that they would like the NRC review to include approval of the GTR scope, the aging effects and time limited aging analyses (TLAAs) identified in the GTR, the aging effects and TLAA evaluations, and the aging management program attributes. The WOG stated that it developed an internal review process for the GTR that is based on the Part 54, the license renewal rule and NEI 95-10.

The staff discussed the WOG response to the RAI issued June 5, 1996. The staff either requested clarification or commented on a number of the RAI responses. The most significant comments focused on the WOG response to the staff's request to provide justification for the aging management program attributes. The staff stated that the aging management program attributes discussion did not provide a basis as to why a program with the set of attributes identified would be an effective aging management program (i.e., provide reasonable assurance that a program with the attributes described would be able to detect and correct the effects of aging prior to the component reaching a condition in which it can not perform its intended function under all CLB design conditions). The staff and WOG also discussed the WOG position on inaccessible areas. The staff and WOG agreed to conduct a telephone conference to further discuss technical issues related to the WOG RAI responses. The WOG asked when a draft safety evaluation report (DSER) would be issued if the WOG revises the RAI responses and GTR by November 1996. The staff stated that a DSER would most likely be completed within four months from the receipt of the revised GTR.

The WOG also provided a brief introduction to the Pressurizer GTR, WCAP-14574. The WOG stated that one TLAA (fatigue) was identified for the pressurizer and six potential aging effects, three (fatigue-related cracking, stress corrosion cracking of safe ends and welds metal, and pressurize water stress corrosion cracking of Inconel 82/182 weld metals in nozzles) of which are considered

DF03/1

9611040261 961031
PDR PROJ
686

PDR

PROJ 686


96-139

PROJ 686

October 31, 1996

potentially safety significant and required an aging management review. The WOG stated that in the Pressurizer GTR Boric acid corrosion is not considered an aging effect because current programs detect reactor coolant leakage and requires timely clean up of any leaks identified. The WOG also stated that leakage of manway gaskets is caused by improper maintenance and gaskets are replaced when opened. Therefore, the WOG concluded that manway gaskets are not subject to an aging management review. The staff stated that it has begun to review the pressurizer report and intends to issue RAIs by the end of October.

At the conclusion of the meeting, the WOG informed the staff that it intends to submit two more reports in November of this year. The WOG also inquired about the status of the staff's review of it's request for fee wavier of the review fees for the GTRs. The staff stated that it was currently evaluating the WOG fee wavier request and intended to respond as soon as possible.


Scott C. Flanders, Project Manager Original signed by
License Renewal Project Directorate
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

Project No.: 686

Attachments:

1. Attendance List
2. Meeting Handout

cc w/attachments:

See next page

October 31, 1996

potentially safety significant and required an aging management review. The WOG stated that in the Pressurizer GTR Boric acid corrosion is not considered an aging effect because current programs detect reactor coolant leakage and requires timely clean up of any leaks identified. The WOG also stated that leakage of manway gaskets is caused by improper maintenance and gaskets are replaced when opened. Therefore, the WOG concluded that manway gaskets are not subject to an aging management review. The staff stated that it has begun to review the pressurizer report and intends to issue RAIs by the end of October.

At the conclusion of the meeting, the WOG informed the staff that it intends to submit two more reports in November of this year. The WOG also inquired about the status of the staff's review of it's request for fee wavier of the review fees for the GTRs. The staff stated that it was currently evaluating the WOG fee wavier request and intended to respond as soon as possible.

Scott C. Flanders, Project Manager Original signed by
License Renewal Project Directorate
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

Project No.: 686

Attachments:

1. Attendance List
2. Meeting Handouts

cc w/attachments:

See next page

DISTRIBUTION w/attachments:

Central File/Docket File
PUBLIC
PDLR R/F

DISTRIBUTION via e-mail w/o attachments:

JMitchell EDO (JAM) JVora RES (JPV)
MMayfield RES (MEM2) GMizuno OGC (GSM)
AMurphy RES (AJM1) SDroggitis OSP (SCD)
HBrammer NRR (HLB)
PDLR Staff
LShao RES (LCS1)
GBagchi NRR (GBB1)
MBanic NRR (MJB)

DISTRIBUTION w/o attachments:

JMithcan, 0-17 G21
FMiraglia/Athadani 0-12 G18
RZimmerman, 0-12 G18
Grolahan, 0-8
TMartin, 0-11 H21
ACRS, T-2 E26
MMalsch, 0-15 B18
TSpeis, T-10 F12
EJordan, T-4 D18
JMoore/EHoller, 0-15 B18
BSheron, 0-7 D26

DOCUMENT NAME: A:1003MS (SFlanders/LLM Disk)

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	PM: PDLR	ED: PDLR						
NAME	SFlanders/llm	SFNewberry						
DATE	10/31/96	10/31/96						

OFFICIAL RECORD COPY

October 31, 1996

potentially safety significant and required an aging management review. The WOG stated that in the Pressurizer GTR Boric acid corrosion is not considered an aging effect because current programs detect reactor coolant leakage and requires timely clean up of any leaks identified. The WOG also stated that leakage of manway gaskets is caused by improper maintenance and gaskets are replaced when opened. Therefore, the WOG concluded that manway gaskets are not subject to an aging management review. The staff stated that it has begun to review the pressurizer report and intends to issue RAIs by the end of October.

At the conclusion of the meeting, the WOG informed the staff that it intends to submit two more reports in November of this year. The WOG also inquired about the status of the staff's review of it's request for fee wavier of the review fees for the GTRs. The staff stated that it was currently evaluating the WOG fee wavier request and intended to respond as soon as possible.

Scott C. Flanders, Project Manager Original signed by
License Renewal Project Directorate
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

Project No.: 686

Attachments:

1. Attendance List
2. Meeting Handouts

cc w/attachments:

See next page

DISTRIBUTION w/attachments

Central File/Docket File
PUBLIC
PDLR R/F

DISTRIBUTION via e-mail w/o attachments:

JMitchell, EDO (JAM) Jvora, RES (JPV)
MMayfield, RES (MEM2) GMizuno, OGC (GSM)
AMurphy, RES (AJM1) SDroggitsis, OSP (SCD)
HBrammer, NRR (HLB)
PDLR Staff
LShao, RES (LCS1)
GBagchi, NRR (GXB1)
MBanic, NRR (MJB)

DISTRIBUTION w/o attachments:

JMithoan, 0-17 G21
FMiraglia/ATHadani 0-12 G18
RZimmerman, 0-12 G18
GHolahan, 0-8
TMartin, 0-11 H21
ACRS, T-2 E26
MMalsch, 0-15 B18
TSpeis, T-10 F12
EJordan, T-4 D18
JMoore/EHoller, 0-15 B18
BSheron, 0-7 D26

DOCUMENT NAME: A:1003MS (SFlanders/LLM Disk)

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	PM-PDLR	E D: PDLR							
NAME	SFlanders/llm	SFNewberry							
DATE	10/31/96	10/31/96							

OFFICIAL RECORD COPY

WESTINGHOUSE OWNERS GROUP (WOG)

Project No. 686

cc: Mr. Gregory D. Robison
Ad Hoc Technical Group Coordinator
LCM/LR Working Group
Westinghouse Owners Group
Duke Power Company
P.O. Box 1006
Charlotte, NC 28201

Mr. Sumner R. Bemis
Westinghouse Owners Group Project Office
Westinghouse Electric Corporation, ECE 5-16
P.O. Box 355
Pittsburgh, PA 15230-0355

Mr. Theodore A. Meyer
Westinghouse Program Manager for WOG LCM/LR Program
Westinghouse Electric Corporation, ECE 4-22
P.O. Box 355
Pittsburgh, PA 15230-0355

Mr. Gordon M. Vytlačil
Westinghouse Lead Engineer for WOG LCM/LR Program
Westinghouse Electric Corporation, ECE 4-22
P.O. Box 355
Pittsburgh, PA 15230-0355

Mr. Roger A. Newton
Chairman, LCM/LR Working Group
Westinghouse Owners Group
Wisconsin Electric Power Company
231 West Michigan
Milwaukee, WI 53201

ATTENDANCE LIST
NRC MEETING WITH THE WESTINGHOUSE OWNERS GROUP
October 3, 1996

	<u>NAME</u>	<u>ORGANIZATION</u>
1.	SCOTT Flanders	NRC
2.	CITUCK KRAUSE	WISCONSIN ELECTRIC
3.	GORDON M. VYTLACIL	WESTINGHOUSE ELEC. CORP.
4.	WILLIAM S. LAPAY	WESTINGHOUSE ELEC. CORP.
5.	ROGER A. NEWTON	WISCONSIN ELECTRIC
6.	WILLIAM H. MACKAY	ENTERGY
7.	FRED POLASKI	PECO ENERGY
8.	TRICIA HERoux	for EPA
9.	Greg Robison	Duke Power
10.	Robert Gill	Duke Power
11.	AUCE CARSON	Bechtel
12.	DON EGGETT	Com Ed
13.	H.L. BRAMMER	NRR / DE
14.	Lynn Connor	for STS
15.	Bob Borsum	FTI
16.	SAM LEE	NRR / PDLR
17.	JOAN MURTON	NRR / PDLR
18.	Lee Panil	NRR / FMCB
19.	Hai-Bob Wang	NRR / PDLR
20.	WINSTON LUI	NRR / PDLR
21.	P.T. KUO	NRR / PDLR
22.	SCOTT Newberry	NRR / PDLR
23.		
24.		

Westinghouse Owners Group

WOG/NRC GTR Meeting

October 3, 1996
One White Flint North
Rockville, MD

Westinghouse Owners Group

1

Meeting Purpose

- WOG expectations of NRC GTR reviews
- RCS Supports GTR
 - Discuss RAI responses
 - Determine RCS Support DSER schedule
- Pressurizer
 - Introduce GTR
 - Introduce issues
- Discuss future activities:
 - GTR submittals
 - NRC review schedule & cost

Westinghouse Owners Group

2

WOG/NRC Meeting
Thursday, October 3, 1996
Rockville, MD
1 Whiteflint, Conf. Rm. 4B-11
Draft Agenda

1:00 Introductions/Purpose of Meeting

- Explain WOG Expectations of the NRC GTR Review
- Discuss RCS Support RAIs Responses and NRC Schedule
- Introduce the Pressurizer GTR and Specific Issues

1:15 WOG Expectations of NRC GTR Reviews

- Application of WOG GTRs and LR Applications (NEI 95-10, 4.2.2 - Ref. Previous Reviews)
- WOG Expectation of NRC GTR Reviews
- WOG GTR Review Criteria (Based on Template review criteria, draft Reg. Guide, & draft SRP)

1:45 RCS Supports GTR RAIs

- Responses to RAIs
- Schedule for DSER

3:00 Pressurizer GTR Introduction

- Summary of this Aging Management Review
 - Intended function & scope of the pressurizer subject to an aging management review
 - Identified TLAA & aging effects
 - Summary of TLAA & aging effect evaluations
 - Aging Management Programs
- Specific Issues:
 - Boric Acid Corrosion (G.L. 88-05)
 - Haddam Neck Cladding Cracking
 - Fatigue & Insurge/Outsurge Transients
 - FWSCC of Alloy 600 (Inconel 82/182 weld metal)
 - Manway gaskets

3:30 GTR Submittals and NRC Review

- GTR Submittals
- NRC Review Schedule & Costs
- WOG Review Fee Waiver Request

3:45 Summary and Followup Actions

WOG Expectations of NRC GTR Reviews

- **How GTRs Will Be Used:**
 - NEI 95-10, section 4.2.2 describes process
 - GTRs are:
 - used for performing utility specific aging effect evaluations
 - used for identifying and developing programs for managing the effects of aging
 - referenced in the LR application
 - To be effective, GTRs should be approved by the NRC

Westinghouse Owners Group

3

WOG Expectations of NRC GTR Reviews

- **Agree with GTR scope**
- **Agree with identified aging effects & TLAA's**
- **Agree with aging effects & TLAA evaluations**
 - » Aging effects needing management
 - » Aging effects NOT needing management
- **Approve aging management program attributes**

Westinghouse Owners Group

4

WOG GTR Review Criteria

- Section 2.0

- » Are SC intended functions identified and correct?
- » Are SCs subject to an AMR identified?
- » Are TLAA identified based on the six Rule criteria?
- » Have the appropriate aging effects been identified?

WOG GTR Review Criteria

- Section 3.0

- » Are TLAA **evaluated** using the three steps provided in the Rule?
 - Is the current analysis adequate for an extended period?
 - Is the analysis projected into an extended period adequate?
 - Is the aging effect related to the TLAA evaluated and managed as necessary?
- » Are mechanisms **described** to identify aging effects?
- » Are aging effects **evaluated** to determine potential impact on intended functions?
- » Are aging management programs **introduced**?

WOG GTR Review Criteria

- Section 4.0
 - » Are AMPs provided for significant aging effects?
 - » Are AMPs described using the appropriate six attributes?
 - » Are the AMP attributes described to an appropriate level of detail?
 - » Does the description explain how:
 - the AMP manages the aging effect(s) and
 - why the AMP will be effective during an extended period of operation?

Pressurizer GTR Introduction

- Summary of the WOG Pressurizer AMR
 - » Section 2.0
 - Intended function: maintain the RC pressure boundary
 - SCs subject to an aging management review: see Table 2-1

Pressurizer GTR Introduction

» Section 2.0 (continued)

- TLAA - fatigue
- Potential aging effects:
 - fatigue-related cracking
 - loss of material, material buildup, or cracking caused by corrosion/SCC/PWSCC
 - reduction in fracture toughness caused by irradiation and thermal aging embrittlement
 - loss of material caused by erosion and erosion/corrosion
 - loss of material due to wear
 - loss of prestress due to creep and stress relaxation

Westinghouse Owners Group

9

Pressurizer GTR Introduction

» Section 3.0

- TLAA evaluation
 - Conservative projection of fatigue service identified six subcomponents for further review
 - Aging management options for these six subcomponents are in section 4.0
- Potentially significant aging effects:
 - fatigue-related cracking
 - SCC of safe ends and weld metal
 - PWSCC of Inconel 82/182 weld metal in nozzles

Westinghouse Owners Group

10

Pressurizer GTR Introduction

- » Section 4.0 - Aging Effect Management
 - SCC/PWSCC - ASME, Section XI ISI
 - Fatigue:
 - ISE
 - recalculate CUF, OR
 - repair/replace per ASME, Section XI
 - Fatigue management consistent with the proposed industry position

Pressurizer GTR Introduction

- Issues:
 - » Boric Acid Corrosion
 - Caused by RC leakage
 - Effects exterior surface
 - Current programs detect leakage and clean leaks in a timely manner .:
 - Aging effects cannot occur
 - » Fatigue
 - Insurge/outsurge transients - WOG program will reduce thermal transients based on modified operating procedures
 - Environmental effects - work is continuing
 - Industry activities - EPRI LCM subcommittee has developed an industry position

Pressurizer GTR Introduction

- » PWSCC of Alloy 600
 - Alloy 600 is NOT used as a base metal
 - Inconel 82/182 weld metal is used
 - ✓ *THERE IS NO EVIDENCE OF PWSCC OF INCONEL 82/182 WELDS*
- » Haddam Neck Cladding Cracking
 - Caused by an operational event
 - Indications have been dormant since 1970
 - ✓ *Cracking is NOT due to an aging mechanism*

Westinghouse Owners Group

13

Pressurizer GTR Introduction

- » Leaking Manway Gaskets
 - Caused by improper maintenance
 - Gaskets are replaced when opened ∴
NOT subject to an AMR
 - ✓ *Leakage is NOT due to an aging mechanism*

Westinghouse Owners Group

14

GTR Submittals & NRC Review

- GTR Submittals - two more GTRs will be submitted for a total of five
 - » Containment - 11/96
 - » Reactor Vessel Internals - 11/96

Westinghouse Owners Group

15

GTR Submittals & NRC Review

- NRC Review Schedule & Costs
 - ☐ RCS Supports
 - ? If GTR revised & submitted 11/96, when will DSER be issued?
 - ? What is the estimated review time remaining for approval?
 - ☐ Pressurizer
 - RAIs due 10/96
 - Review estimate = 1,100 hours
 - ☐ RCS Piping
 - ? When will RAIs be received?
 - ? What is the estimated review time?

Westinghouse Owners Group

16

GTR Submittals & Review Cost

- WOG Review Fee Waiver Request

- Request based on 10 CFR Part 170.21
- Similar utility requests have been granted
- This generic program offers additional support for generic regulatory improvements & efforts