

March 26, 2008

MEMORANDUM TO: Thomas G. Hiltz, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

FROM: Jack N. Donohew, Senior Project Manager /RA/
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF SECOND CONFERENCE CALL HELD ON
JANUARY 16, 2008, WITH PWR LICENSEES ON THE NEW
TEMPORARY LICENSE AMENDMENT NEEDED FOR STEAM
GENERATOR TUBE INSPECTIONS IN SPRING 2008 REFUELING
OUTAGES (TAC NO. MD7762)

The U.S. Nuclear Regulatory Commission (NRC) staff has been reviewing the license amendment request (LAR), for the Wolf Creek Generating Station (WCGS), submitted by letter dated February 21, 2006 (ET 06-0004) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML060600456). In this review, Wolf Creek Nuclear Operating Corporation (WCNOC), the licensee for WCGS, has submitted two supplemental letters providing responses to NRC questions and the NRC staff has conducted three meetings with WCNOC, including the closed meeting held at the Westinghouse office on December 13, 2007, to discuss proprietary information submitted by WCNOC.

Following the December 13, 2007, meeting with WCNOC on the above LAR, the SG [Steam Generator] Tube Integrity and Chemical Engineering Branch (CSGB), Division of Component Integrity (DCI), NRR, which is reviewing the WCGS LAR, stated that it was not prepared to approve the Westinghouse H*/B* methodology that is being used by the licensee to justify its request in the LAR. Because of this decision, pressurized-water reactor (PWR) licensees, like WCNOC, will need to consider submitting new one operating cycle (1-cycle) LARs to cover SG tube inspections through the tubesheet region in the upcoming spring 2008 refueling outages if the licensees want to limit the repair of SG tubes in the upcoming spring 2008 refueling outages. Without such an license amendment, the plant Technical Specifications (TSs) require the inspection of the entire tube in the tubesheet and repair by the repair criteria stated in the TSs. Some licensees have previously had 1-cycle amendments approved that did not require inspections of the portion of the SG tubes more than 17 inches below the top of the tubesheet. CSGB has decided that these new 1-cycle LARs cannot be the same 1-cycle LARs that have been previously approved for PWR licensees in the past few years until the associated technical issues raised by CSGB have been resolved. The new amendments cannot rely on the justification that was previously submitted and approved by the NRC staff in the previous approved amendments.

A call was held with WCNOG on December 21, 2007, to explain to the licensee that a new LAR would be needed for the licensee's 2008 refueling outage as explained in the previous paragraph. A follow-up call was held with WCNOG on January 3, 2008, and this call included other PWR licensees that may be affected by the NRC staff decision regarding the unacceptability of the current H*/B* LARs submitted to NRC. The call was to continue the discussion with PWR licensees on the new 1-cycle LAR for the spring 2008 refueling outages. Licensees in addition to WCNOG may need to submit new LARs to limit the inspection and repair of the tubes more than 17 inches below the top of the tubesheet for the 2008 spring outages. A summary of the January 3, 2008, call was issued on January 22, 2008 (ADAMS Accession No. ML080090154).

The call held on January 16, 2008, is a follow-up to the calls held on December 21, 2007, and January 3, 2008. This conference call was set up through Mike Melton of the Nuclear Energy Institute (NEI) to include any interested PWR licensees, and a public notice of the call was issued on January 11, 2008 (ADAMS Accession No. ML080110311).

This memorandum documents the January 16, 2008, call, the licensee attendees on the call (Enclosure 1), and the NRC staff's presentation in the call. In the discussion following the NRC staff's presentation, the licensees were asked if they had any questions on what had been presented, and these questions were addressed by the NRC staff.

The purpose of the conference call was for the NRC staff to (1) explain why the new SG inspection license amendments are needed by PWR licensees for their 2008 spring refueling outage that want to limit the repair of tubes more than 17 inches below the top of the tubesheet, and (2) answer any questions from the licensees. In its presentation, the NRC staff addressed the reason for the NRC staff's position, the interim amendment philosophy, the information needed for these amendments, and the plants with existing amendments. It should be noted that some of this information was addressed in the January 3, 2008, call and given in the summary issued for that call.

Reason for NRC Staff Position

The NRC staff approved 1-cycle amendments with an expectation that the technical basis supporting permanent amendments would ultimately be found to be acceptable. Recent technical issues identified by the NRC staff and the vendor have undermined that expectation. On this basis, the NRC staff stated in the call that it cannot continue to issue approvals of amendments when the underlying technical basis for the amendments is under question.

Interim Amendment Philosophy

The NRC staff discussed an interim amendment philosophy to balance licensee desires to not perform unnecessary repairs with the NRC staff's understanding of the limits of current technical analysis capabilities.

The new 1-cycle amendments for the next cycle are expected to differ from the current amendments by: (1) deleting the current exemption to the inspection requirements that applies below 17 inches from the top of the tubesheet, and (2) modifying the current plugging criterion such that tubes with flaws below 17 inches may remain in service if their measured

circumferential extent is less than a certain value, X, to be proposed and justified by the licensee. Axial flaws are acceptable. The plugging criterion X should not take credit for friction between the tube and tubesheet. For the upcoming cycle, any licensees which currently do not have the special reporting requirements in their plant TSs would be expected to incorporate these requirements.

Information Needed for Amendment

Any request for an interim amendment should be accompanied with the following information:

1. The technical basis for the proposed plugging limit on circumferential extent of flaws located 17 inches or more from the top of the tubesheet. This includes accounting for flaw growth and eddy current measurement error.
2. In view of the unresolved issues pertaining to the H*/B* methodology, the NRC staff is unable to conclude at this time that the ratio of steam line break leakage to normal operating leakage (i.e., the Bellwether factor) is less than 2 for flaws at any location within the thickness of the tubesheet. For this reason, a conservative estimate of this leak rate ratio should be provided, including its technical basis, for flaws which may be located 17 inches or more below the top of the tubesheet. (Note, this ratio should be reflected in the special TS reporting requirement in lieu of the current value of 2.)
3. A key premise of the new interim approach is that the welds are capable of transmitting the axial load in the tubes to the tubesheet. For this reason, provide a discussion of your inspection and repair strategy with respect to the tube-to-tubesheet welds that will be implemented during the interim period pending approval of H*/B* methodology. (Note, the NRC staff is interested only in whether the welds will be addressed in a consistent manner with the lower 4 inches of tubing rather than the specific sampling strategy or inspection methods to be employed.)

Plants with Existing Amendments

Plants with on-going 1-cycle amendments are not considered by the NRC staff to be a safety risk because of the unlikelihood of extreme degradation in these plants as assumed in the technical basis. The level of tube degradation (in terms of extent and severity) at these units at this time is not expected to compromise SG tube integrity. In addition, the short-term nature of the 1-cycle amendments provides reasonable assurance that appropriate inspection and repair measures will be implemented on a sufficiently timely basis (upon expiration of the amendments) to assure that an acceptable level of risk is maintained.

Questions and Answers

Following its presentation, the NRC staff asked if any of the licensees had any questions on the presentation, in particular WCNOG. The following are questions asked by the licensees and the NRC staff's responses to the questions.

WCNOG asked about the extent of information needed by the NRC staff as was explained in the January 3, 2008, call. In that call, the NRC staff stated that extensive documentation was not expected to be required to be submitted; however, the following three areas of information would be needed: (1) justification for proposed alternate repair criteria (ARC), eddy current error, and crack growth through the operating cycle, (2) quantified rationale for Bellwether ratio considered appropriate, and (3) discussion on how welds in the tubesheet are inspected and repaired. If this documentation is in previous submittals to the NRC, the licensee may reference these submittals in its application.

Westinghouse explained what it currently viewed as the justification for an ARC in the new 1-cycle LARs to be submitted. It stated that the structural evaluation to account for the pressure drop across the tube and the leak rate evaluation in a postulated accident (i.e., a Bellwether factor of 1 to 10 depending on the plant) have been completed and are under peer review. These evaluations will account for parameter uncertainty and crack growth through the operating cycle following the spring outages. Westinghouse will be providing the evaluations to NRC through the submittals of LARs by licensees such as WCNOG. The NRC staff had no questions on the statements made by Westinghouse. It stated that the key difference between the new evaluations and the H*/B* methodology is that there is no contact pressure between the tube and the tubesheet. Enough crevice length creates sufficient flow resistance to meet the plant licensing bases.

The licensees had questions on the inspection scope and the expansion criteria if cracks are found in the region below 17 inches from the top of the tubesheet. Also, licensees asked if they could limit the portion of a tube below 17 inches to stress risers. The NRC staff replied that there is no change to the SG tube degradation assessment that PWR licensees are required to do to determine their tube inspection strategy, as required by their TSs. The licensees were told to follow their TSs as to planning for SG tube inspections (i.e., sampling a number of tubes) and expand the sample based on the results of the tube inspections. The new 1-cycle amendment would return the 17- to 21-inch portion of the tubes back to being inspected; however, there is also no change to the TS allowance for engineering judgement for choosing a sample of tubes to be inspected and expand that sample. There should be a good engineering evaluation done of the results of the tube inspections.

A licensee asked if a no significant hazards consideration (NSHC) had to be included in the LAR submitted. The NRC staff stated that the regulations require a NSHC in the LAR for any proposed change to a license.

WCNOG stated that it currently expects to submit its 1-cycle LAR by mid-to-late February 2008. No other licensee mentioned a projected submittal date. No licensee other than WCNOG stated that it would submit a new 1-cycle LAR.

Exelon asked if the licensees with plants having a 2008 fall outage should wait until the amendments are issued for the licensees with plants having spring outages before submitting an LAR to NRC. The NRC staff stated that it would prioritize the LARs submitted for when the amendment is needed so the licensees with plants having a fall outage can either submit now or after the spring outages. It was entirely up to each licensee.

Florida Power & Light asked if the NRC staff considered that the amendments issued for Seabrook and Turkey Point Units 3 and 4 that covered two operating cycles were still valid. Seabrook and Turkey Point 4 are going into the 2008 spring outage with no tube inspections required to be conducted. The NRC staff stated that the TSs for these plants address when SG tube inspections must be performed and the NRC staff did not see any safety basis (as discussed above) for accelerating the inspections.

At the end of the questions from the licensees, the members of the public on the call were asked if they had any questions. There were no questions from the public. This ended the conference call.

Enclosure: List of Attendees

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Enclosure: List of Attendees

DISTRIBUTION:

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LPLIV Reading

RidsNrrDciCsgb

RidsNrrDorl (CHaney)

RidsNrrDorlLpl4 (THiltz)

RidsNrrPMJDonohew

RidsNrrLAJBurkhardt

JLubinski, NRR/DCI

EMurphy, NRR/DCI/CSGB

ADAMS Accession No.: ML080250085

NRC-001

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA	NRR/CSGB/BC	NRR/LPL4/BC
NAME	JDonohew	JBurkhardt	AHiser	THiltz
DATE	3/26/08	1/28/08	03/25/08	3/26/08

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LIST OF ATTENDEES PARTICIPATING IN CONFERENCE CALL OF JANUARY 16, 2008,
WITH PRESSURIZED-WATER REACTOR LICENSEES

	<u>NAME</u>	<u>AFFILIATION</u>
NRC:	J. Donohew	NRC/NRR/DORL
	J. Lubinski	NRC/NRR/DORL
	B. Singal	NRC/NRR/DORL
	S. Lingam	NRC/NRR/DORL
	W. Bateman	NRC/NRR/DCI
	A. Hiser	NRC/NRR/DCI
	E. Murphy	NRC/NRR/DCI
	A. Johnson	NRC/NRR/DCI
	M. Holmberg	NRC/Region III/DRS
Licensees:	S. Wideman	WCNOC
	P. Wagner	WCNOC
	T. Garrett	WCNOC
	G. Boyers	FPL
	E. Korkowski	FPL
	D. Gerber	Dominion
	R. McIntosh	Dominion
	J. Smith	Exelon
	M. Sears	Exelon
	S. Leshnoff	Exelon
	R. Hall	Exelon
	R. Gesior	Exelon
	P. Simpson	Exelon
	D. Czufin	Exelon
	P. Fabian	Salem
	D. Mayes	Duke Energy
	R. Graham	Southern Nuclear
	R. Mullins	Southern Nuclear
	W. Moore	Southern Nuclear
	J. Kiltner	Point Beach
Public:	N. Chapman	SERCH, Bechtel Power Corporation
	D-J. Shieh	TECRO
	S. Dolley	Platts Nuclear
	H. Lagally	Westinghouse
	G. Whiteman	Westinghouse
	C. Cassino	Westinghouse
	J. Kandra	Westinghouse
	M. Melton	NEI
	H. Cothron	EPRI

Where:

DCI	=	Division of Component Integrity
DORL	=	Division of Operating Reactor Licensing
EPRI	=	Electric Power Research Institute
FPL	=	Florida Power and Light
NEI	=	Nuclear Energy Institute
NRC	=	Nuclear Regulatory Commission
NRR	=	Office of Nuclear Reactor Regulation
SERCH	=	Service for Evaluating Regulatory Changes
WCNOC	=	Wolf Creek Nuclear Operating Corporation

ENCLOSURE