

August 7, 2007

LICENSEE: Wolf Creek Nuclear Operating Corporation (WCNOC, the licensee)
FACILITY: Wolf Creek Generating Station
SUBJECT: MEETING WITH REPRESENTATIVES OF WOLF CREEK NUCLEAR
OPERATING CORPORATION FOR WOLF CREEK GENERATING STATION
(TAC NO. MD0197)

A meeting was held on Thursday, July 11, 2007, between the Nuclear Regulatory Commission (NRC) staff and the licensee for Wolf Creek Generating Station (WCGS). The meeting was held at the request of the NRC staff to have the licensee address the NRC staff's second request for additional information (RAI) on the licensee's license amendment request (LAR) to revise Technical Specification (TS) 5.5.9, "Steam Generator (SG) Tube Surveillance Program," to exclude portions of the SG tube below the top of the tubesheet in the SGs from periodic tube inspections based on the application of structural analysis and leak-rate evaluation results to re-define the primary-to-secondary pressure boundary. The licensee submitted its application by letter dated February 21, 2006, and a response letter dated May 3, 2007, to the NRC staff's first RAI on the application (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML060600454 and ML071290101, respectively). The notice for the meeting was issued on June 19, 2007 (ADAMS Accession No. ML071650400).

The purpose of the meeting was to ensure that the licensee understood the information needed by the NRC staff to complete its review of the licensee's application dated February 14, 2006. Enclosure 1 is the list of attendees. Enclosure 2 is the material handed out by the NRC staff. Enclosure 3 is the handout from the licensee. Enclosure 4 is a list of abbreviations. The agenda for the meeting, Slide No. 2 of Enclosure 3, is the following:

- Introductions/Purpose of Meeting
- WCGS SG [steam generator] Management Program
- Industry Operating Experience
- WCGS SG Tube Inspection License Applications
- Success Path for Approval of WCNOG LAR
- NRC Staff Presentation
- Review of New RAIs [Enclosure 2]
- Questions/Conclusions
- Public Comments

The NRC staff and the licensee provided opening statements. The NRC staff stated that its review of the licensee's application was in its second year and had necessitated a second RAI (Enclosure 2). Because of this and to expedite the NRC staff's review, the meeting was requested to ensure that the licensee understood what information was needed by the NRC staff to complete its review to limit the possibility of any additional RAIs. The licensee thanked the NRC for having the meeting because it also wanted to expedite the NRC review of its

amendment application since the licensee wants to implement this amendment in the upcoming spring 2008 refueling outage (RO) 16 for WCGS. The current TS 5.5.9 will not allow the licensee to conduct limited inspections of the SG tube joints in the upcoming RO 16 and restart from the outage, and the licensee stated that the one-cycle amendment issued for RO 15 is not preferred. The licensee stated that NRC has approved one-cycle amendments to conduct limited tube inspections for the past two ROs and it wanted to have a permanent amendment approved for RO 16.

The licensee began its presentation. It stated that its handout did not contain any proprietary information. The licensee addressed the SG tube management program at WCGS, industry operating experience with SG tube inspections, the LARs submitted for WCGS since April 2005, and its concerns about a success path for the approval of the current WCGS LAR for the spring 2008 refueling outage. The licensee stated that at this time it expected to submit the responses to the 36 questions on or about September 14, 2007; however, the discussions in the meeting may cause this date to be changed. This presentation was covered by Slides Nos. 3 through 12. The licensee ended its presentation with a statement that it had concerns about the proposed amendment being issued by February 2008 because it did not see a defined success path for approval of the amendment -- an indication is the number of questions in the second RAI is greater than the questions in the first RAI and the introduction of issues (i.e., the divider plate mentioned below) not in the first RAI -- and it seems that NRC may have additional concerns and questions that have not been provided to the licensee.

In its presentation, the NRC staff replied that it was at the meeting to answer any queries from the licensee on the RAI questions sent to the licensee on June 22, 2007, to ensure the questions were understood by the licensee. The NRC staff understood that the licensee wanted the NRC staff to decide on the LAR before the spring 2008 outage and that a permanent amendment, rather than another one-cycle amendment, was preferred. The NRC staff stated that it had asked all the questions that it needed to have addressed for it to complete its review of the licensee's current LAR application. There were no NRC staff concerns about the licensee's LAR that have not been included in the RAI. The NRC staff's goal was to complete its review by February 2008, within the Office of Nuclear Reactor Regulation (NRR) 2-year goal for LARs, and the licensee's expected date in September 2007 to complete its responses to the RAI questions is consistent with NRC meeting this goal. However, the licensee has to address the NRC staff's questions in a manner that resolves the NRC staff's concerns because inadequate responses to the questions could only result in more questions by the NRC staff or a longer review time.

The licensee then started its discussion on the 36 questions in the NRC staff's second RAI. These questions were sent to the licensee in e-mails on June 22, 2007, prior to the meeting, so that the licensee would have time to review the questions to determine if it needed any clarification from the NRC staff to understand what information was being requested. The NRC questions are in Enclosure 2 with minor editorial corrections.

Slides Nos. 14 through 98 address the 36 questions. Each NRC question is addressed in the slides by the following: (1) the licensee's restatement of the question, (2) the request for whatever clarification of the question was needed from the NRC staff, and (3) the licensee's planned response to the question. The licensee only identified the need for clarification of the question in the slides for Questions 4, 16, and 34. The planned responses for the questions

were presented to have the NRC staff understand how the licensee expected at this time to answer the questions and to solicit input from the NRC staff on the planned response. This was done to make sure that the responses to the questions would address the NRC concerns in the questions. These planned responses were not being included in the licensee's handout as a submittal of the licensee's official responses to the NRC questions. The official responses will be submitted to NRC in a future letter.

In the discussion on Question 2, the NRC staff identified that it had thermal expansion coefficient (TEC) data on SG tubing from Argonne National Laboratory and it would make the data available to the licensee. The licensee stated that the statement within the brackets in the question was confusing and not needed for the licensee to understand the question, and should be deleted from the question. The NRC staff agreed that the statement in brackets in Question 2 could be deleted from the question.

In the discussion on Question 4, the licensee clarified to NRC that the specimen number for test number 1 in the above Table 2 referenced in the question is D5H-R3-1 and not the listed D5H-R5-1. The licensee also stated that it is not appropriate to compare pullout strength trends at elevated temperatures from different specimens. Although it did not have a reason for the apparent discrepancy, the licensee stated it will review the data for the different lengths of specimens and address the NRC staff's question on the apparent discrepancy. It stated further that the pullout forces measured are more than adequate to hold the tubes in the tubesheet when considering residual mechanical joint strength and thermal effects alone.

For Question 7, the licensee stated that the reference to Table 7.0 on Slide No. 31 of its handout was incorrect and should have been to Table 7.6, as was stated in the question.

For Question 10, the NRC stated that the stated question in the slide was not exactly the question sent to the licensee (i.e., the Question 10 in Enclosure 2). The licensee stated that this difference did not affect the planned response given in its slides for Question 10.

In the discussion of Question 16, the licensee clarified to NRC that the tables with the revised contact pressure in Enclosure I to its supplemental letter dated May 3, 2007, are Tables 7-6 through 7-10, and Tables 7-7a through 7-10a. The licensee also addressed the divider plate inside the SG and stated that it has taken no structural credit in its calculations for the presence of the divider plate.

In the discussion on the divider plate in Questions 17 and 18, the licensee stated that the concerns being raised by the NRC staff on the divider plate were generic and were applicable to the SGs at WCGS even if the current LAR had not been submitted (i.e., these concerns did not come up because of the LAR). With these concerns being generic, they should be resolved on an industry-wide basis and not on a plant-specific basis through the NRC staff's review of the LAR. The licensee requested that the NRC separate its divider plate concerns from the LAR since the B*/H* inspection depths in the LAR do not take credit for the presence of the divider plate (i.e., the divider plate is not needed to justify the proposed B*/H* depths in the LAR).

The NRC staff responded that some of its concerns about the divider plate do come up because of the LAR since the LAR is proposing to limit the extent of the inspection of the tube

in the tubesheet and the acceptability of the LAR may require that the divider plate be able to limit the deflection of the tubesheet and, thereby, limit the length of the tube-to-tubesheet friction joint needed to hold the tube in place. The responses to the RAI questions not related to the divider plate need to demonstrate that all the uncertainties in the analyses have been adequately addressed and accounted for consistent with the LAR. If this is not demonstrated, then it may be necessary to take credit for the functionality of the divider plate in order to justify limiting the inspection of the tube in the tubesheet as proposed in the LAR. If it is necessary to take credit for the divider plate in the LAR, then the divider plate integrity would have to be addressed in the LAR.

For Question 19, with 8 subparts, where the licensee will provide a copy of the test report, the licensee stated that it will also provide a roadmap showing where each subpart question is answered in the report.

For Question 20, the licensee explained that the ordinate values in Figure 3 were incorrect and will be corrected. The corrected Figure 3 was shown in Slide No. 60.

For Question 22, the licensee stated that there are typographical errors in the text or figures of the White Paper and these will be corrected. The corrected Figure 3 was shown on Slide No. 64.

In the discussion on Question 30, the licensee stated that it had not proposed new wording for the text referenced in the question and the word "may" is in the current TS 5.5.9. In response, the NRC staff stated that the standard 40 percent through-wall repair criteria would not apply to an inspection that was limited to the proposed H^* distance in the LAR. Therefore, as the question is stated, the word "may" should be changed to "shall" in the proposed TSs or, alternatively, the proposed inspection exclusion zone in TS 5.5.9.d could be revised to make the exclusion conditional on implementation of the alternate repair criterion in TS 5.5.9.c.1. Another way to state this is that the licensee either plans to (1) apply the standard repair criteria and then the tube inspection must be the entire tube length in the tubesheet or (2) apply the alternative repair criteria and then the tube only has to be inspected down to H^* . However, the proposed TSs do not reflect this requirement.

In the discussion for Questions 31 and 32 on the licensee's use of the word "degradation" in the proposed TS 5.5.9, it was agreed that the phrase "service-induced volumetric or crack-like flaws" should be used in place of the word "degradation."

In the discussion for Question 34, the licensee stated that it had not proposed the phrase "for each service-induced indication within the thickness of the tubesheet." The NRC staff stated that the Question 34 sent to the licensee was stated incorrectly. The question should have been stated as follows: Reference 2, Attachment II - Proposed specification TS 5.6.10.h - In listing what should be included in the SG tube inspection report, you have used the phrase "for each indication" in proposed item h. Discuss and clarify what is meant by this phrase and consider using what is more clear phrase "for each service-induced indication within the thickness of the tubesheet." Therefore, Question 34 is revised to be stated as that given in the previous sentence. The licensee stated that this clarification was what it needed to understand the question. The discussion on this question also included the discussion on the use of the word "degradation" for Questions 31 and 32.

At the end of the discussions on the NRC questions, the licensee identified that the significant questions that will have the most impact on its schedule to respond to the RAI are Questions 2, 4, 8, 9, and 36, and the divider plate issue in Questions 16, 17, and 18. The licensee stated further that the discussions in the meeting will require a re-assessment of the stated response date in the slides of September 14, 2007. After it and Westinghouse assesses the impact of the meeting on the planned responses to the questions, it will get back with NRC next week with the revised schedule for responding to the RAI. The NRC staff and the licensee completed their discussion of the RAI, and the meeting was closed.

Ten members of the public were in attendance. They were given the opportunity to ask questions of the NRC staff. During the meeting, a Public Meeting Feedback form was made available to each person. One form was handed back at the end of the meeting. This form and any comments received in the future on this meeting will be forwarded to the NRR Senior Communications Analyst, who will forward them to the Office of the Executive Director for Operations.

In a communication from the licensee after the meeting, the licensee stated that, based on its reassessment of its planned responses to the questions because of the meeting and the potential of additional work needed to be done, it should be able to complete the responses to all the questions by September 30, 2007.

Direct any inquiries about this meeting to me at 301-415-1307, or by electronic mail to jnd@nrc.gov.

/RA/

Jack Donohew, Senior Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No: 50-482

Enclosures: 1. List of Attendees at Meeting
 2. NRC Staff's Handout
 3. Licensee's Handout
 4. List of Abbreviations

cc w/encls: See next page

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Jack Donohew, Senior Project Manager
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ADAMS Accession Nos.: **PKG ML071980201** (Mtg Notice ML071650400, Mtg Summary ML071980203, Handouts ML071930377)

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA	CSGB/BC	NRR/LPL4/BC
NAME	JDonohew	JBurkhardt	AHiser	THiltz, Mthadani for
DATE	8/2/07	7/19/07 8/6/07	7/27/07	8/7/07

OFFICIAL RECORD COPY

Wolf Creek Generating Station

cc:

Jay Silberg, Esq.
Pillsbury Winthrop Shaw Pittman LLP
2300 N Street, NW
Washington, D.C. 20037

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
P.O. Box 311
Burlington, KS 66839

Chief Engineer, Utilities Division
Kansas Corporation Commission
1500 SW Arrowhead Road
Topeka, KS 66604-4027

Office of the Governor
State of Kansas
Topeka, KS 66612

Attorney General
120 S.W. 10th Avenue, 2nd Floor
Topeka, KS 66612-1597

County Clerk
Coffey County Courthouse
110 South 6th Street
Burlington, KS 66839

Chief, Radiation and Asbestos Control
Section
Kansas Department of Health
and Environment
Bureau of Air and Radiation
1000 SW Jackson, Suite 310
Topeka, KS 66612-1366

Vice President Operations/Plant Manager
Wolf Creek Nuclear Operating Corporation
P.O. Box 411
Burlington, KS 66839

Supervisor Licensing
Wolf Creek Nuclear Operating Corporation
P.O. Box 411
Burlington, KS 66839

U.S. Nuclear Regulatory Commission
Resident Inspectors Office/Callaway Plant
8201 NRC Road
Steedman, MO 65077-1032

Mr. Rick A. Muench
President and Chief Executive Officer
Wolf Creek Nuclear Operating Corporation
Post Office Box 411
Burlington, KS 66839

LIST OF ATTENDEES AT MEETING OF JULY 11, 2007

WITH WOLF CREEK NUCLEAR OPERATING CORPORATION

<u>NAME</u>	<u>AFFILIATION</u>
J. Donohew	NRC/NRR/LPLIV
T. Hiltz	NRC/NRR/LPLIV
R. Kuntz	NRC/NRR/LPLIII-2
A. Hiser	NRC/NRR/CSGB
E. Murphy	NRC/NRR/CSGB
A. Johnson	NRC/NRR/CSGB
K. Karwoski	NRC/NRR/DCI
G. Makar	NRC/NRR/CIB1
S. Wideman	WCNOC
P. Wagner	WCNOC
L. Ratzlaff	WCNOC
H. Lagally	WEC
G. Whiteman	WEC
C. Cassino	WEC
H. Cothron	EPRI
M. Behraves	EPRI
W. Moore	SNOC
D. Graham	SNOC
D. Crawley	SNOC
P. Fabian	PSEG (Salem)
D. Chrzanowski	Exelon
S. Leshnoff	Exelon
D. Mayes	Duke
G. Boyers	FPL

Where:

Duke	= Duke Energy Company
EPRI	= Electric Power Research Institute
Exelon	= Exelon Generating Company
FPL	= Florida Power & Light
LPLXX	= Plant Licensing Branch XX
NRC	= Nuclear Regulatory Commission
NRR	= Office of Nuclear Reactor Regulation
PSEG	= Public Service Electric & Gas Company
SNOC	= Southern Nuclear Operating Company
WCNOC	= Wolf Creek Nuclear Operating Corporation
WEC	= Westinghouse Electric Company

NRC STAFF'S HANDOUT FOR JUNE 11, 2007, MEETING

ADAMS* ACCESSION NO. ML071930377

The NRC staff's handout (7 pages) contained a request for additional information (RAI) from the licensee on its technical specification amendment request dated February 21, 2006, and the supplemental letter dated May 3, 2007, on the steam generator tube inspections within the tubesheet (TAC No. MD0197). The 36 questions in the RAI were emailed to the licensee on June 22, 2007, in preparation for this meeting.

ENCLOSURE 2

LICENSEE'S HANDOUT FOR JULY 11, 2007, MEETING

ADAMS* ACCESSION NO. ML071930377

The licensee's handout (100 pages) contained (1) the licensee's presentation on its steam generator (SG) management program, its SG tube inspection license amendment application, and (2) the licensee's review of the 36 questions in the NRC request for additional information (RAI) providing the restatement of the question, its request for any clarification needed from the NRC staff on the RAI question, and its planned response to answering the question. This planned response is not the licensee's official response for the question to the NRC. The official response to the questions will be provided by letter at a later date.

ENCLOSURE 3

LIST OF ABBREVIATIONS

ASME	= American Society of Mechanical Engineers Boiler and PressureVessel Code
Aug	= August
B*	= distance into tubesheet based on leakage requirements
BLG	= bulge in SG tube
Dixon Ratio	= a commonly used statistical test to determine outliers in a limited data population
email	= electronic mail
FLB	= feed line [to a SG] break accident
H*	= distance into tubesheet based on structural strength requirements
LAR	= license amendment request
LOCA	= loss-of-coolant accident
Model D	= Model D steam generator
Model F	= Model F steam generator
NOP	= normal operating pressure
NRC	= Nuclear Regulatory Commission
NUREG-1431	= NRC Standard Technical Specifications, Westinghouse Plants
OMP	= overexpansion
+Pt	= SG tube inspection plus point probe
PWR	= pressurized water reactor (like WCGS)
RAI	= request for additional information
TEC	= thermal expansion coefficient
SLB	= steam line break accident
SG	= steam generator
TS	= Technical Specification in a plant TSs
TSs	= plant Technical Specifications
White Paper	= Appendix A to Enclosure I of WCNOG letter dated May 3, 2007
WCGS	= Wolf Creek Generating Station
WCNOG	= Wolf Creek Nuclear Operating Corporation (WCGS licensee) (the licensee's two letters have the following identifier numbers: ET 06-0004 (dated 02/14/06) and WO 07-0012 (dated 05/03/07)
Rev. X	= revision X
Rxx, Cyy	= SG row xx, column yy
WCAP-12522	= Westinghouse topical report entitled "Inconel Alloy 600 Tubing - Material Burst and Strength Properties," dated January 1990