

October 27, 2010

MEMORANDUM TO: John R. Jolicoeur, Chief
Licensing Processes Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

FROM: Stephen S. Philpott, Project Manager **/RA/**
Licensing Processes Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF SEPTEMBER 28, 2010, OPEN MEETING WITH
GE-HITACHI NUCLEAR ENERGY ON TSTF-493 IMPLEMENTATION
TOPICAL REPORT AND SINGLE-SIDED SETPOINT METHODOLOGY
(TAC NO. ME4756)

On September 28, 2010, a Category 1 public meeting was held between the U.S. Nuclear Regulatory Commission (NRC) and representatives of GE-Hitachi Nuclear Energy (GEH) at NRC Headquarters, Executive Boulevard Building, 6003 Executive Boulevard, Rockville, Maryland. The purpose of the meeting was for the GEH representatives to present materials for a proposed licensing topical report (LTR) incorporating the concepts described within traveler TSTF-493, Revision 4, into the GEH Setpoint Methodology for operating plants, and for the NRC staff and the GEH representatives to discuss the potential use of the GEH single-sided setpoint methodology in conjunction with setpoint calculations submitted in response to TSTF-493. A list of attendees is enclosed.

The GEH representatives first presented information regarding its plans for implementation of TSTF-493 for boiling water reactor (BWR) operating plants. This presentation began with a description of GEH's general approach for conducting setpoint calculations, which is based on its setpoint methodology that was approved by the NRC with LTR NEDC-31336P-A (Agencywide Documents Access and Management System (ADAMS) Accession No. ML072950103). GEH intends to submit a supplemental methodology for NRC approval to address the requirements of TSTF-493. The GEH representatives described this supplemental methodology which calculates "As Left Tolerance" (ALT) and "As Found Tolerance" (AFT) values in a manner consistent with the ALT and AFT requirements of TSTF-493. The GEH representatives indicated that GEH has been working with the BWR Owners Group (BWROG) in developing this methodology and will attend the NRC workshop with the BWROG planned for December 2010. The GEH representatives then worked through an example of a setpoint calculation to demonstrate how the GEH tolerances will satisfy the TSTF-493 requirements, but the setpoint methodology and the calculated setpoints will not change. The presentation concluded with a discussion of the proposed schedule for implementation. GEH expects to submit the supplemental methodology to the NRC in December 2010. For further details of this presentation, see ADAMS Accession No. ML102980532.

The NRC staff asked questions concerning analytic limits (AL) and allowable values (AV) and how they relate to GEH's use of ALT and AFT in its supplemental methodology. The NRC staff also asked if GEH will still use the same setpoint method terminology and how many licensees might use the supplemental methodology. The GEH representatives answered that plants will continue to use NEDC-31336P-A and the same terminology. The GEH representatives indicated that one licensee would like to implement the new supplement for TSTF-493 as soon as the methodology is approved, and that other plants would likely implement it later in 2011, if approved. Some discussion ensued about the timing and process for TSTF-493 application reviews. The NRC staff indicated that it would be dependent on the NRC resources available at the time, other applications under review, and the relative safety significance. Whether plants implement TSTF-493 Option A or Option B would also be a factor in the time needed. The NRC staff also indicated that recent licensing experience has indicated that the approval of Option B submittals may take longer than expected.

Members of the public were in attendance. Public Meeting Feedback forms were not received. At the end of the morning presentation, time was allowed for questions from the public. Several questions were raised regarding the requirements of TSTF-493 if a plant changes any of its AVs. If only a few of a plant's AVs will change, will they have to address the footnotes only for the AVs that changed, or will footnotes or AFT and ALT calculations be required for all 41 AVs? The NRC staff replied that licensees are not required to implement TSTF-493, but including notes for all 41 AVs would be preferred, and if not included, that NRC staff would likely ask why they weren't during its review of a plant's application. A representative from Excel Services identified that a March 9, 2009, letter of agreement (ADAMS Accession No. ML090560592) from the NRC to the Technical Specifications Task Force provides the NRC acceptance of the scope of AVs required to satisfy the TSTF-493 guidance. Further discussion ensued as to whether AFT and ALT calculations or just footnotes were needed for all AVs or AVs that changed, and the timing of when the calculations would be required. In addition, the combination of TSTF-493 implementation with an extended power uprate (EPU) application was discussed. The NRC staff recommended keeping EPU and TSTF-493 applications separate.

The afternoon session started with a presentation by the NRC staff from the Instrumentation and Controls Branch (EICB) in the Office of Nuclear Reactor Regulation (NRR). Mr. William Kemper, Branch Chief, EICB, offered some opening comments, stating that the use of a single-sided setpoint methodology (like the GEH methodology) is a technical issue that the NRC staff is trying to resolve, and encouraged open discussion between the NRC staff, the GEH representatives, and others in attendance. Mr. David Rahn, Senior Electronics Engineer, EICB, made a presentation to describe the view of several members of the NRC staff regarding interpretation of 95/95 tolerance limits in safety system setpoint analysis. He was clear to state that this was a matter that was still being discussed within the NRC and the material presented did not necessarily represent the concurrence of all cognizant NRC staff members or a final NRC decision. The NRC staff is looking to provide further clarification of some of the definitions and statements in Regulatory Guide (RG) 1.105 in the next revision under development (Revision 4) and discussing these possible clarifications was the purpose of the afternoon session. Mr. Rahn presented information regarding confidence interval estimation, tolerance intervals, and cumulative probability as they relate to instrument setpoint methodologies. He also articulated the NRC staff position regarding the definition of a 95/95 tolerance interval, which is important to understanding the NRC staff's interpretation of the appropriate interval of interest. For further details of this presentation, see ADAMS Accession No. ML102980536.

The GEH representatives followed the NRC staff presentation with a detailed description of the use of single-sided statistics as applied within setpoint margin calculations in the GEH setpoint methodology. For more details about this presentation, see ADAMS Accession No. ML102980517. The NRC staff questions and subsequent discussion with the GEH representatives dealt with “normal” distributions of instrument errors, what portion of that distribution must be accounted for between the limiting setpoint and the analytical limit, the meaning of “single-sided statistics” and whether they apply in cases where a setpoint is approached from one direction, and assuring a 95 percent probability that the system will trip before exceeding the AL. In response to an NRC staff question, the GEH representatives stated that they did not use the single-sided methodology for the Economic Simplified BWR (ESBWR) certification for the sake of expediency, but that did not mean this methodology did not apply to the ESBWR. The NRC staff who originally approved LTR NEDC-31336P are no longer involved with this issue; the details of the previous deliberations are no longer available; and there is a need to consider whether there is sufficient operating history demonstrating that AVs determined using the GEH methodology are not exceeded during periodic surveillances – all of which are reasons the NRC staff needs to have this discussion. The GEH representatives also stated that they would like to see more specific information from the NRC staff about the 5 percent limit on tolerances. Mr. Kemper suggested that the NRC could consider having a workshop with vendors and owners groups to discuss ideas for a revision to RG1.105, and that until such a revision was in place or a decision on this matter was otherwise documented, the NRC would continue to review applications in accordance with the previously approved methodologies.

Please direct any inquiries to me at 301-415-2365 or Stephen.Philpott@nrc.gov.

Project No. 710

Enclosure: List of Attendees

cc: See next page

The GEH representatives followed the NRC staff presentation with a detailed description of the use of single-sided statistics as applied within setpoint margin calculations in the GEH setpoint methodology. For more details about this presentation, see ADAMS Accession No. ML102980517. The NRC staff questions and subsequent discussion with the GEH representatives dealt with “normal” distributions of instrument errors, what portion of that distribution must be accounted for between the limiting setpoint and the analytical limit, the meaning of “single-sided statistics” and whether they apply in cases where a setpoint is approached from one direction, and assuring a 95 percent probability that the system will trip before exceeding the AL. In response to an NRC staff question, the GEH representatives stated that they did not use the single-sided methodology for the Economic Simplified BWR (ESBWR) certification for the sake of expediency, but that did not mean this methodology did not apply to the ESBWR. The NRC staff who originally approved LTR NEDC-31336P are no longer involved with this issue; the details of the previous deliberations are no longer available; and there is a need to consider whether there is sufficient operating history demonstrating that AVs determined using the GEH methodology are not exceeded during periodic surveillances – all of which are reasons the NRC staff needs to have this discussion. The GEH representatives also stated that they would like to see more specific information from the NRC staff about the 5 percent limit on tolerances. Mr. Kemper suggested that the NRC could consider having a workshop with vendors and owners groups to discuss ideas for a revision to RG1.105, and that until such a revision was in place or a decision on this matter was otherwise documented, the NRC would continue to review applications in accordance with the previously approved methodologies.

Please direct any inquiries to me at 301-415-2365 or Stephen.Philpott@nrc.gov.

Project No. 710

Enclosure: List of Attendees

cc: See next page

DISTRIBUTION:

PUBLIC	RJasinski	Carl Schulten
PLPB Reading File	RidsOgcMailCenter	Thomas Burton
RidsNrrAdar	RidsAcrsAcnwMailCenter	Jonathan Rowley
RidsNrrDpr	RidsNrrDe	Arthur Salomon
RidsNrrDprPlpb	RidsNrrDeEicb	Kristy Bucholtz
RidsNrrLADBaxley	RidsNrrDirs	Ian Jung
RidsOpaMail	RidsNrrDirsltsb	Terry Jackson
PMNS	David Rahn	

ADAMS ACCESSION NO.:

Meeting Summary: ML102950624

Package: ML102950588

OFFICE	PLPB/PM	PLPB/LA	PLPB/BC	PLPB/PM
NAME	SPhilpott	DBaxley	JJolicoeur	SPhilpott
DATE	10/26/10	10/26/10	10/27/10	10/27/10

OFFICIAL RECORD COPY

cc:

Mr. Jerald G. Head
Senior Vice President, Regulatory Affairs
GE-Hitachi Nuclear Energy Americas LLC
P.O. Box 780, M/C A-18
Wilmington, NC 28401-0780
gerald.head@ge.com

Mr. James F. Harrison
GE-Hitachi Nuclear Energy Americas LLC
Vice President - Fuel Licensing
P.O. Box 780, M/C A-55
Wilmington, NC 28401-0780
james.harrison@ge.com

Ms. Patricia L. Campbell
Vice President, Washington Regulatory Affairs
GE-Hitachi Nuclear Energy Americas LLC
1299 Pennsylvania Avenue, NW
9th Floor
Washington, DC 20004
patriciaL.campbell@ge.com

Mr. Andrew A. Lingenfelter
Vice President, Fuel Engineering
Global Nuclear Fuel-Americas, LLC
P.O. Box 780, M/C A-55
Wilmington, NC 28401-0780
Andy.Lingenfelter@gnf.com

Edward D. Schrull
GE-Hitachi Nuclear Energy Americas LLC
Vice President - Services Licensing
P.O. Box 780, M/C A-51
Wilmington, NC 28401-0780
Edward.schrull@ge.com

Mr. Richard E. Kingston
GE-Hitachi Nuclear Energy Americas LLC
Vice President, ESBWR Licensing
PO Box 780, M/C A-65
Wilmington, NC 28401-0780
rick.kingston@ge.com

LIST OF ATTENDEES

CATEGORY 1 PUBLIC MEETING BETWEEN THE U.S. NUCLEAR REGULATORY

COMMISSION (NRC) AND GE-HITACHI NUCLEAR ENERGY (GEH)

PRE-SUBMITTAL MEETING FOR PROPOSED LICENSING TOPICAL REPORT (LTR)

INCORPORATING TSTF-493 AND GEH SETPOINT METHODOLOGY

TUESDAY, SEPTEMBER 28, 2010

<u>Name</u>	<u>Organization</u>
Patricia Campbell	GE-Hitachi Nuclear Energy
Richard Miller	GE-Hitachi Nuclear Energy
Ed Schrull	GE-Hitachi Nuclear Energy
Yogeshwar Dayal	GE-Hitachi Nuclear Energy
Andrew Poulos	GE-Hitachi Nuclear Energy
Ron Engel	GE-Hitachi Nuclear Energy
Fred Emerson	GE-Hitachi Nuclear Energy
Craig Nichols	GE-Hitachi / BWROG
Stephen Philpott	NRC
Jonathan Rowley	NRC
Carl Schulten	NRC
David Rahn	NRC
Thomas Burton	NRC
Arthur Salomon	NRC
Subinoy Mazumdar	NRC
Patrick Walsh	CENG, LLC
Jerry Voss	Excel Services
Robin Smith	Enercon Services
Mark Unruh	Nebraska Public Power District (Cooper Nuclear Station)
Michael Boyce	Nebraska Public Power District (Cooper Nuclear Station)

ENCLOSURE

Stephen Vanderslice	Nebraska Public Power District (Cooper Nuclear Station)
Mark Mursky	Exelon Corporation
Mahendra Shah	Exelon Corporation
Vikram Shah	Exelon Corporation
Michael Jesse	Exelon Corporation
Denise Anderson	Westinghouse Electric Company
By teleconference:	
Wayne Marquino	GE-Hitachi Nuclear Energy
William Kemper	NRC
Kristy Bucholtz	NRC
Kurt Schaefer	Westinghouse Electric Company
Robert Bakshi	Westinghouse Electric Company
George Stramback	Westinghouse Electric Company
Vijay Kumar	Westinghouse Electric Company