

July 29, 2015

MEMORANDUM TO: Anthony J. Mendiola, Chief
Licensing Processes Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

FROM: Joseph J. Holonich, Project Manager */RA/*
Licensing Processes Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF MAY 28, 2015, MEETING ON "LICENSING TOPICAL
REPORT FOR TOSHIBA NRW [NON RE-WRITABLE]-FPGA [FIELD
PROGRAMMABLE GATE ARRAY]-BASED INSTRUMENTATION AND
CONTROL SYSTEM FOR SAFETY-RELATED APPLICATION"
UTLA 0020P, REVISION 2 (TAC NO. ME9861)

On May 28, 2015, staff from the U.S. Nuclear Regulatory Commission (NRC) met with representatives from the Toshiba Corporation (Toshiba) and MPR Associates. The purpose of the meeting was to discuss staff questions on the scope of the Toshiba topical report (TR). Information related to the meeting, including attendees, can be found in the Agencywide Documents Access and Management System (ADAMS) package for the meeting at ADAMS Accession No. ML15121A751.

In its opening remarks, the NRC staff stated it had struggled in getting the TR review started because of the construction and contents of the latest revision of the TR (submitted on February 23, 2015, ADAMS Accession No. ML15062A183). Further, the NRC staff stated that it believed Toshiba had developed a very comprehensive report that, as written, is only clear to Toshiba and those working for Toshiba.

However, the NRC staff stated it was hard to see how the technical and safety evaluations provided in the TR could be used for the NRC staff reviews. The NRC noted that there was a lot of confusion about what design was covered in the TR. For example, Part IV, Compliance, used a description related to a reactor trip isolation system (RTIS) to demonstrate compliance with the NRC regulations. In this example, the problem is that RTIS is not part of the scope of review.

CONTACT: Joseph J. Holonich, NRR/DPR
301-415-7297

Throughout the meeting, the NRC staff identified several other systems discussed in the report that are not part of the scope. Based on this, the NRC informed the Toshiba representatives that the current version of the TR does not match the scope of review agreed upon and documented in the NRC staff's December 3, 2014, letter (ADAMS Accession No. ML14296A479).

To help clarify what the scope of the TR review was, the NRC staff discussed the December 3, 2014, letter to Toshiba. In this letter, the NRC staff outlined what its review scope for the TR would be based on discussion with Toshiba. Therefore, the NRC staff told Toshiba that ancillary discussions of other systems should be removed from the TR. Also, the NRC staff requested that Toshiba organize the TR to provide descriptions associated with the scope of review.

In concluding its remarks, the NRC staff noted that the meeting was requested to make sure the review scope was clear to Toshiba. Also the NRC staff wanted to ensure Toshiba understood the steps it needed to take to ensure the TR was consistent with the review scope agreed upon by the NRC staff and the Toshiba representatives.

The Toshiba representatives stated in their opening remarks that they understood the confusion the NRC staff had on the scope of the TR. They further noted the intent was to describe modules common and applicable to systems besides the power range monitor (PRM) and oscillating power range monitor (OPRM).

During the Toshiba opening remarks, the NRC staff indicated that a concern it had was the review of the common modules could be interpreted as being approved beyond the use of the PRM system for boiling water reactor (BWRs)-5 and for other reactors including advanced BWRs (ABWRs). The NRC staff clarified its evaluation would only include the modules developed and qualified in a system.

Therefore, the PRM system for an ABWR would require additional evaluation by the NRC staff, which is outside of the current scope. Regarding the OPRM unit for ABWRs, the Toshiba representatives agreed to confirm whether it could be used with the PRM system for BWRs. If this is the case, the NRC staff asked Toshiba to provide a technical justification describing how and why the OPRM unit could be used with the PRM system for BWR.

The NRC staff emphasized that its review of the current TR was addressing just the applicability of the PRM to operating reactors. The PRM application to ABWRs was not being addressed because it was beyond the scope of the TR. The Toshiba representatives indicated that they understood and agreed.

Next the NRC staff discussed problems with the system process and development description included in the TR. Specifically, the NRC staff noted there are multiple instances where the TR describes the original process mixed with the current process. The staff clarified that because it is reviewing two different systems that were developed using two different processes, the TR should clearly describe the process used to develop and qualify the PRM system and the OPRM unit. The staff showed portions of the TR where clarification was needed and where additional information was needed.

Based on the discussions and examples offered, the Toshiba representative committed to revise the TR. As an action item from the meeting, they agreed to provide a date by which the NRC staff would get the revised TR. The NRC staff ensured that the Toshiba representatives understood that the NRC staff could continue its review of the supporting documents. However, the NRC staff needed to get the revised TR within a reasonable timeframe or it would have to stop the effort and reopen it once a revised TR was received.

The Toshiba representatives acknowledged that it understood the need for a timely revision and stated it would provide the date for the revision within a week of the meeting. To help ensure it had the complete set of concerns Toshiba requested the NRC staff upload its highlighted version to the Toshiba Sharepoint site. The NRC staff agreed to upload a marked-up version of the TR to the Toshiba's Sharepoint site. This marked-up version will show the examples discussed during the meeting. The NRC staff cautioned that the marked-up TR does not include all situations or cases where problems or inconsistencies are encountered. Therefore, Toshiba should review the entire TR to address the NRC staff concerns.

In addition, the Toshiba representatives requested a second meeting be held once it had a chance to review the NRC staff concerns and make revisions to the TR. The NRC staff agreed to such a meeting to provide feedback on whether Toshiba understood the staff concern. The NRC staff did caution that the meeting could not be a situation where the NRC staff was providing insights to Toshiba on how to respond to the NRC staff concerns. This would put the NRC staff in a consultant-type situation and that was not the role of the NRC.

During the meeting the NRC staff discussed the open-item list. The open-item list is used to capture items to be discussed or clarified during a monthly conference call held with the Toshiba representatives. The NRC staff asked Toshiba to only provide responses using the open-items list, and not send separate documents with the responses.

Specifically, the NRC staff clarified if responses were not available before the current monthly call, then Toshiba should wait until the next cycle to provide its responses. The use of separate documents to respond to open items was producing problems with configuration control of the responses provided. The Toshiba representatives agreed to use the open-items list to respond to staff's questions.

Further, the NRC staff discussed those open items that were not administrative but related to the NRC determination of the acceptability of the Toshiba TR. The NRC staff indicated that these open items are currently being documented in requests for additional information (RAIs) that will be available to stakeholders.

The NRC will issue its RAI letter soon, and has provided an advance copy to Toshiba to identify proprietary material. The Toshiba representatives noted answers to several of these questions might be included in the next revision of the TR. The staff explained that if Toshiba decides to do that, then Toshiba needs to indicate what section of the revised TR includes the response to the RAI.

The following action items were identified:

- Toshiba will provide a date within a week of the meeting on when the revised TR will be submitted and will submit the revised TR by that date.
- The NRC staff will upload the version of the TR where it had identified areas needing clarification or additional information.
- Toshiba will provide a technical justification describing if the OPRM unit for ABWR could be used with the PRM system for BWR-5.
- Toshiba will identify a date for the second meeting to discuss the revisions made to the TR.

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- Toshiba will provide a technical justification describing if the OPRM unit for ABWR could be used with the PRM system for BWR-5.
- Toshiba will identify a date for the second meeting to discuss the revisions made to the TR.

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rschrauder@tane.toshiba.com

**ADAMS Accession Nos.: Package (ML15121A751); Summary (ML15152A045);
Notice (ML15121A749)**

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NAME	JHolonich	DHarrison via comments	AMendiola	JThorp (RALvarado for)	JHolonich
DATE	06/28/2015	07/ 14 /2015	7/6/2015	07/14/2015	07/29/2015

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