TOSHIBA

Toshiba Energy Systems & Solutions Corporation

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No. TOS-CR-FPG-2018-0003
December 6, 2018

NRC Project Number: PROJ0729

99902036

Document Control Desk
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852-2738

References:

(1) NRC Letter Dated December 20, 2017: Document Quality Supporting Topical Report, "Licensing Topical Report for Toshiba NRW-FPGA-Based Instrumentation and Control system for Safety-Related Application," UTLA 0020P, Revision 0 and Review Status (CAC No. ME9861; EPID: L-2012-TOP-0003)
(2) Toshiba Letter TOS-CR-FPG-2018-0002 Dated November 9, 2018

Subject: **Toshiba Response to the NRC Letter Dated December 20, 2017 (Docket No. 99902036)**

The purpose of this letter is as follows:

(i) To clarify the supplemental documents listed in the Toshiba Letter TOS-CR-FPG-2018-0002 dated November 9, 2018 (Reference 2).
(ii) To inform the NRC of the documents that Toshiba newly uploaded on Toshiba Portal by December 6, 2018.
(iii) To address the replacement of a table included in four (4) Enclosures of the Toshiba Letter TOS-CR-FPG-2018-0002 dated November 9, 2018 (Reference 2).

(i) Clarification of the supplemental documents listed in the Toshiba Letter TOS-CR-FPG-2018-0002 dated November 9, 2018 (Reference 2)

Toshiba Letter TOS-CR-FPG-2018-0002 dated November 9, 2018 (Reference 2) stated that the seventeen (17) supplemental documents (Item a. through q.) would be uploaded onto the Toshiba Portal. However, it was not stated which supplemental document was associated with Document Revision Policy A (revise the document but the new revision number is not changed in the reference list in the referencing documents). This letter clarifies that the Item q. E2-2018-001141, Rev. 0, Document Review Report (Supplemental) is prepared for the documents to which the Document Revision Policy A was applied. Remaining supplemental documents (Item a. through p.) are for the documents to which the Document Revision Policy B (supplemental reports are prepared to address the findings) was applied. For the Document Revision Policies, please see Toshiba Letter TOS-CR-FPG-2018-0002 dated November 9, 2018 (Reference 2).

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(ii) Documents uploaded onto Toshiba Portal as of December 6, 2018

Regarding these seventeen (17) supplemental documents addressed in the Toshiba Letter TOS-CR-FPG-2018-0002 dated November 9, 2018 (Reference 2) (Item a. through q.), Toshiba uploaded the following supplemental documents (Item a. through f.) on the Toshiba Portal by December 6, 2018.

a. FC51-3704-0007, Rev. 0, Nuclear Energy Systems and Services Division
Verification and Validation Report for Oscillation Power Range Monitor (OPRM) (Supplemental)
b. FC51-3704-0008, Rev. 0, Nuclear Energy Systems and Services Division
Software Safety Analysis Report for Oscillation Power Range Monitor (OPRM) (Supplemental)
c. FC51-3704-1119, Rev. 0, Nuclear Instrumentation & Control Systems Department
Requirements Traceability Matrix for Safety-Related Oscillation Power Range Monitor (OPRM) (Supplemental)
d. FC51-3704-1120, Rev. 0, Nuclear Instrumentation & Control Systems Department
Verification and Validation Report for Oscillation Power Range Monitor (OPRM) (Supplemental)
e. FC51-3704-1121, Rev. 0, Nuclear Instrumentation & Control Systems Department
Requirements Traceability Matrix Review Report for Oscillation Power Range Monitor (OPRM) (Supplemental)
f. FC51-3704-1484, Rev. 0, Nuclear Instrumentation & Control Systems Department
Software Safety Analysis Report for Safety-Related Oscillation Power Range Monitor (OPRM) (Supplemental)

Toshiba will upload the remaining supplemental documents (Item g. through q.) on the Toshiba Portal later, in a week or two.

g. FPG-DRT-C51-0017, Rev. 0, Verification and Validation Final Report (Supplemental)
h. FPG-DRT-C51-0024, Rev. 0, Hazard Analysis Report (Supplemental)
i. FPG-DRT-C51-0027, Rev. 0, Requirements Traceability Matrix Report (Supplemental)
j. FPG-DRT-C51-1001, Rev. 0, Nuclear Instrumentation & Control Systems Department
Requirements Traceability Matrix Review Report (Supplemental)
k. FPG-DRT-C51-1002, Rev. 0, Nuclear Instrumentation & Control Systems Department
Hazard Analysis Report for PRM System (Supplemental)
l. FPG-DRT-C51-1003, Rev. 1, Nuclear Instrumentation & Control Systems Department
Verification and Validation Report (Supplemental 2)
m. FPG-DRT-C51-1004, Rev. 0, Nuclear Instrumentation & Control Systems Department
Requirements Traceability Matrix (Supplemental)
n. MEM-JHA-000071, Rev. 0, Nuclear Instrumentation & Control Systems Department
Confirmation of OPRM Qualification Testing Records
o. QAS-2018-000185, Rev. 0, Evaluation among procedure revisions and record for the Power Range Monitor
p. FPG-DRT-C51-0007, Rev. 0, Critical Digital Review Report (Supplemental)
q. E2-2018-001141, Rev. 0, Document Review Report (Supplemental)

Toshiba Letter TOS-CR-FPG-2018-0002 dated November 9, 2018 (Reference 2) stated that for older revisions of existing documents on the Portal, the new revisions would be uploaded as needed. Toshiba uploaded the following documents on the Portal by December 6, 2018 to provide the revisions of the documents which were reviewed in the Toshiba Extent of Condition Review, but for which only older

revisions of these documents have been available on the Toshiba Portal so far.

1. 5G8HA748, Rev.5, Local Power Range Monitor Unit HNU100 Equipment Design Specification
2. 5G8HA749, Rev.5, Local Power Range Monitor/Average Power Range Monitor Unit HNU200 Equipment Design Specification
3. 5G8HA750, Rev.4, Flow Monitoring Unit HNU300 Equipment Design Specification
4. 5G8HC104, Rev.3, CELL Module HNS0400 Series Module Design Specification
5. 5G8HC105, Rev.2, AGRD Module HNS0420 Series Module Design Specification
6. 5G8HC106, Rev.3, PBD Module HNS0430 Series Module Design Specification
7. 5G8HC107, Rev.3, DAT/ST Module HNS0410 Series Module Design Specification
8. 5G8HC108, Rev.4, TRN Module HNS053X Series Module Design Specification
9. 5G8HC109, Rev.4, RCV Module HNS054X Series Module Design Specification
10. 5G8HC111, Rev.2, LVPS Module HNS0500 Series Module Design Specification
11. FA32-3702-0005, Rev.3, Nuclear Energy Systems and Services Division FPGA-based Safety Related Systems Software Management Plan
12. FC51-3704-0001, Rev.9, Nuclear Energy Systems and Services Division Verification and Validation Report for Oscillation Power Range Monitor (OPRM)
13. FC51-3704-0004, Rev.6, Nuclear Energy Systems and Services Division Software Safety Analysis Report for Safety-Related Oscillation Power Range Monitor (OPRM)

In addition, Toshiba uploaded the following design memo, which was revised to incorporate the results of the Extent of Condition Review, onto the Toshiba Portal.

-E2-2016-000749, Rev.1, Toshiba response to Open Item: 98 (Operability Test)

(iii) Replacement of a table included in four (4) Enclosures of the Toshiba Letter: TOS-CR-FPG-2018-0002 dated November 9, 2018 (Reference 2)

Toshiba submitted Proprietary versions and Non-proprietary versions of eleven (11) documents by the Toshiba letter TOS-CR-FPG-2018-0002 dated November 9, 2018 (Reference 2). Subsequently, Toshiba identified that Table IV-4-2, included in the following four Enclosures of the Toshiba Letter TOS-CR-FPG-2018-0002, was not fully complete and needs replacement. The four associated Enclosures consist of the Proprietary and Non-proprietary versions of two documents. The Table IV-4-2 is entitled "Response Time Operability Test Results" and it was identified that although it was reviewed as part of our Extent of Condition review, it was also intended that the contents be same as in E2-2016-000934 Rev.0 that was put on Toshiba Portal earlier incorporating the Table, i.e, it is not considered to be complete in the below four documents.

(2) E2-2017-000812, Rev. 1, Toshiba response to RAI3 (Proprietary version)

(6) UTLR-0020P Part IV, Rev. 3, Licensing Topical Report for Toshiba NRW-FPGA-based Instrumentation and Control System for Safety-Related Application (Proprietary version)

(13) E2-2017-000812, Rev. 1, Toshiba response to RAI3 (Non-proprietary version)

(17) UTLR-0020NP Part IV, Rev. 3, Licensing Topical Repot for Toshiba NRW-FPGA-based Instrumentation and Control System for Safety-Related Application (Non-proprietary version)

Toshiba issued CAR-18-018 on this finding. Toshiba prepared the following document to address this matter and uploaded it to the Toshiba Portal by December 6, 2018. Toshiba requests that the NRC

review this document, and we plan to update the associated documents accordingly on receipt of results of your review.

-E2-2018-001214, Rev.0, Replacement of Table IV-4-2

If the NRC has any requests and/or questions, please contact with Jim Powers at 704-548-7910 or by electronic mail at Jim.Powers@toshiba.com.

This letter does not have any proprietary information and can be made public.

Sincerely,

H. Takeda Dec. 6, 2018

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