MP4 ISG-06 R2 NRC Tabletop Content Prep

ISG-06 Section D.5.1.2, Resolution of Topical Report Plant-Specific Action Items

Proposed LAR Statements:

[Note: The material below was adapted from the Diablo Canyon LAR from the point-of-view that the LAR is being submitted under the Alternate Review Process.]

The Tricon V10 Safety Evaluation (SE) Section 4.2 lists 19 application-specific actions items (ASAIs) that an applicant needs to address when requesting approval for a safety-related system based on the Tricon V10 platform. Of these, ASAIs 1, 2, 4, 7, 9, 17, and 18 relate, in part or in full, to detailed design, implementation, testing, or ongoing life-cycle activities (i.e., activities completed after LAR submittal).

ASAI 1

As noted in Section 2.1, IOM also submitted the Nuclear Safety Integration Program Manual (NSIPM). The NSIPM governs application specific development activities that occur at IOM's facility. The NRC staff reviewed this document, but made no safety determinations and it is not approved by this SE. It is an ASAI for the NRC staff to perform a review of any application specific development activities governed by the NSIPM when requesting NRC approval for the installation of a SR system based on the Tricon V10 platform.

Licensee Response

Application specific development activities governed by the NSIPM are included as part of the system development process descriptions addressed elsewhere in this LAR (list specific sections) and are evaluated in accordance with ISG-06 Section D.4 criteria. In addition, these activities are subject to the provisions of the licensee's vendor oversight plan.

ASAI 2

Section 3.2 of this SE discusses the software development processes for the Tricon V10 platform. Although the NRC staff has approved the IOM software development and lifecycle planning program (Plans), the NRC staff determined that some of these Plans are also the responsibility of the licensee, and must be developed before the Tricon V10 platform software can be used for SR applications in nuclear power plants. Therefore, the following Plans must be developed and submitted with any license specific application referencing the Tricon V10 platform:

- *Software Installation Plan*
- *Software Maintenance Plan*
- *Software Operations Plan*
- *Software Safety Plan*

The NRC staff will evaluate these plans in accordance with BTP 7-14 when an applicant requests NRC approval for the installation of a SR system based on the Tricon V10 platform.

Licensee Response

ISG-06 (Revision 2) no longer describes these four plans, nor does it include them in Enclosure B, Information Provided in Support of a License Amendment Request for a Digital I&C Modification. The expected content of a Software Safety Plan, however, is contained in Triconex Document No. XXXXXX-Y-ZZZ, "PPS Replacement (insert name of plant) SSP".

ASAI 4

Section 3.1.3.2 of this SE discusses the use of the TriStation 1131. That section noted that the Tricon V10 platform is designed such that the Tricon V10 platform would not normally be connected to a TriStation PC during SR operation. The plant-specific procedures which disconnect or control the connection of the TriStation PC such that the TriStation tool cannot affect the safety related functions of the Tricon PLC system during operation will be reviewed by the NRC staff when an applicant requests NRC approval for the installation of a SR system based on the Tricon V10 platform. In addition, the testing of the operational software produced by the TriStation 1131, and these test plans, procedures, and results will be reviewed by the NRC staff when an applicant requests NRC approval for the installation of a SR system based on the Tricon V10 platform.

Licensee Response

The development of plant-specific procedures that disconnect or control the connection of the TriStation PC such that the TriStation tool cannot affect the safety related functions of the Tricon PLC system during operation is a licensing condition and is described elsewhere in this LAR (list specific section). The test plans, procedures, and results associated with testing the operational software produced by the TriStation 1131 are either addressed elsewhere in this LAR (list specific sections) and evaluated in accordance with ISG-06 Section D.4 criteria, or they are subject to the provisions of the licensee's vendor oversight plan to ensure conformance with applicable process and technical requirements.

ASAI 7

Sections 3.4.1 and 3.10.2.5 of this SE discuss response time. On the basis of the measured response times for the baseline testing, the Tricon V10 platform is not in compliance with Section 4.2.1, Item A, of EPRI TR-107330. However, the NRC staff determined that the response time characteristics are suitable to support SR applications in nuclear power plants. The licensee must make a determination regarding the response time performance of a SR system based on the Tricon V10 platform to ensure that it satisfies its plant- and application-specific requirements for system response time presented in the accident analysis in Chapter 15 of the safety analysis report for the plant. This determination will be reviewed by the NRC staff when an applicant requests NRC approval for the installation of a SR system based on the Tricon V10 platform.

Licensee Response

Bounding calculations, which determined that the Tricon V10 based channel response times satisfy plant- and application-specific requirements for system response times presented in the accident analysis in Chapter 15 of the plant safety analysis report, are addressed elsewhere in this LAR (list specific sections). These response times will be verified as part of the factory acceptance test. The licensee's vendor oversight plan includes reviewing the test procedures and test results to ensure the system satisfies its response time requirements.

ASAI 9

Section 3.7.2. 1 of this SE discusses communications interconnections. All external communications connections will require justification of the deterministic quality of TCM routed data in the application specific review. The licensee must provide a justification that should include the minimum guaranteed throughput on the COMBUS based on application specific scan time and number of I/O and the selected protocol. The justification should also include an assessment of TCM vulnerabilities based on the application specific design (reference CDR Report (Reference 32) and ISG 2&4 NTX-SER-09-10 (Reference 29)). This justification will be reviewed by the NRC staff when an applicant requests NRC approval for the installation of a SR system based on the Tricon V10 platform.

Licensee Response

This item is not applicable because the TCM is not utilized in the replacement architecture for any safety related communications within a Protection Set or between the four Protection Sets. Interdivisional communication is not incorporated in the replacement design and is prevented through separation of the Protection Sets.

ASAI 17

Section 3.10.3 of this SE discusses conformance with IEEE Std 603-1991, including setpoint determination. IOM has performed an analysis of accuracy, repeatability, thermal effects and other necessary data for use in a plant-specific setpoint analysis. Licensees must ensure that, when the Tricon V10 is installed, setpoint calculations are reviewed and, if required, setpoints are modified to ensure that the Tricon V10 platform will perform within system specifications. This determination will be reviewed by the NRC staff when an applicant requests NRC approval for the installation of a SR system based on the Tricon V10 platform.

Licensee Response

Bounding calculations, which determined that no trip setpoints need to be modified to ensure that the Tricon V10 platform performs within system specifications, are addressed elsewhere in this LAR (list specific sections). These calculations were performed using an approved setpoint methodology. These trip setpoints will be verified as part of the factory acceptance test. The licensee's vendor oversight plan includes reviewing the test procedures and test results to ensure the system responds correctly to specified trip setpoints.

ASAI 18

Section 3. 7. 1 of this SE discusses communications with SR equipment. The documentation confirms testing of the TriStation 1131 library with the SAP protocol. However, the protocol will also be implemented at the application layer of the connected SR equipment, presumably an SVDU. The documentation does not confirm that the protocol has been tested with any specific external SR devices. Therefore, it is an ASAI for the applicant to verify that the SAP library is tested in any proposed application specific SR devices. This determination will be reviewed by the NRC staff when an applicant requests NRC approval for the installation of a SR system based on the Tricon V10 platform.

Licensee Response

This item is not applicable because an SVDU is not utilized in the replacement architecture.