

REQUEST FOR ADDITIONAL INFORMATION 481-3756 REVISION 0

10/27/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 14.03.12 - Physical Security Hardware - Inspections, Tests, Analyses, and Acceptance Criteria

Application Section: Tier 1, Chapter 2, Design Descriptions and ITAAC, Revision 0; MHI Response to US-APWR DCD RAI No. 396-2723, Reversion 1, Submitted by letter dated July 17, 2009 (MHI Ref: UAP-HF-09380)

QUESTIONS for Reactor Security Rulemaking and Licensing Branch (NSIR/DSP/RSRLB)

14.03.12-25

1. MHI Response to RAI 396-2723, Question 14.03.12-19 dated July 17,2009 (Page 14.12-2): Provide revision to ITTAC descriptions that include descriptions in Tier I, Section 2.12, "Physical Security Hardware," and Table 2.12-1, "Physical Security Hardware Inspections, Tests, Analyzes, and Acceptance Criteria," in accordance with NRC revised Standard Review Plan (SRP) 14.3.12 that provides acceptable revised generic ITAAC descriptions. Provide specific revision that will include Section 14.3.7, References, in Tier 2 of the DCD to indicate revised SRP for ITAAC that addresses the current regulation and remove reference that does not address recently revised 10 CFR 73.

Regulatory Basis: Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, requires that information submitted for a design certification (DC) must include performance requirements and design information sufficiently detailed to permit the preparation of acceptance and inspection requirements by the NRC, and procurement specifications and construction and installation specifications by an applicant. Tier 1 and Tier 2 descriptions of ITAAC for physical security systems must address new regulatory requirements identified in 73.55(h)(6)(ii), 10 CFR 73.55(e)(7)(i)(C), and 10 CFR 73.55(i)(4)(ii)(H)(iii).

The applicant has responded the question. MHI states that it "will revise it physical security ITAAC." The NRC has reviewed and agrees with the response but part of the response is not complete (e.g., Tier 1 and Tier 2 FSAR change have not been formally submitted and/or no mark-ups of planned changes were submitted with the RAI response). Specific revision should apply generic description of physical security ITAAC of SRP 14.3.12 and must be submitted on the docket.

14.03.12-26

2. MHI Response to RAI 396-2723, Question 14.03.12-20 dated July 17,2009 (Page 14.12-5): Provide revision to the DCD in Tier 2, Section 14.3.12, that include: (a)

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reference to MHI Technical Report - MUAP-08009, that will be applied for Inspections, Tests and Analyses (ITA) of physical protection systems; (b) description of MHI response in RAI 396-2723, Question 14.03.12-20 regarding applying the processes, controls, and organization stated in Technical Report MUAP-08009 for assurance of adequate ITA of physical protection systems; and (c) reference to revised MHI Technical Report, UAP-SGI-080002, High Assurance Evaluation that will include descriptions of required ITA for verification of physical protection systems (as stated in Impact to HAE).

Regulatory Basis: Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, requires that information submitted for a design certification (DC) must include performance requirements and design information sufficiently detailed to permit the preparation of acceptance and inspection requirements by the NRC, and procurement specifications and construction and installation specifications by an applicant. The DCD Tier 2 documentation currently does not provide information on required inspection, test, or analysis (ITA) of physical security systems and components. The regulatory requirement does not exclude physical security systems.

NRC Regulatory Guide 1.206, "Combined License Applications for Nuclear Power Plants," Section C.I.14, "Verification Programs," states that "In Chapter 14 of the FSAR, the COL Applicant should provide information concerning its initial test program for SSCs [structures, systems and components] and design features for both the nuclear portion of the facility and the balance of the plant." RG 1.206 does not exclude the physical security systems that are relied on to protect and assure safety of plant operations against the design basis threat (DBT). The required ITA of physical security systems within the scope of the DC should be addressed by the MHI.

The applicant has responded to the RAI 396-2723, Question No. 14.03.12-20. The NRC staff has reviewed and agrees with the response but a part of the response is not complete (e.g., Tier 1 and/or Tier 2 DCD changes have not been formally submitted and no mark-ups of planned changes were submitted with the RAI response) or appropriate references and interfaces have not been established in the DCD. MHI stated the following:

"The Testing requirements associated with the physical protection systems and related design features incorporated into the standard US-APWR design will be defined in Revision 1 to MHI Technical Report, UAP-SGI-080002, High Assurance Evaluation. These testing requirements will be consistent with the test abstracts included in Subsection 14.2.12.1."

"This test program description technical report is to be referenced in Section 14.2 of the DCD per the changes identified by MHI in the letter [dated September 30, 2008] transmitting the technical report to the NRC."

". . . test procedure format (for both preoperational and acceptance tests) is consistent with Sub-section 14.2.3.5."

"The HAE will be revised to provide requirements for acceptance testing of physical protection systems and related design features incorporated into the standard US-APWR design consistent with the test abstract included in Section 14.2.12 of the DCD and for this acceptance testing to be performed under the

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US-APWR test program, described in Technical Report MUAP-080009, "US-APWR Test Program Description."

The staff identified that Revision 1 of the DCD Tier 2 Section 14.2 is titled Initial Test Program for safety-related systems and is not stated as applicable to the physical protection systems. Specific revision needs to clearly reference document and capture MHI RAI response.

14.03.12-27

3. MHI Response to RAI 396-2723, Question 14.03.12-21, dated July 17, 2009 (Page 14.12-7): Provide specific revision to the DCD that incorporate or reference MHI Technical Report MUAP-08009, September 2008, that supplements the US-APWR Test Program Description and capture the RAI responses on how processes and controls will be provided for adequate ITA of physical security hardware (e.g., including construction acceptance tests as stated in the RAI response).

Regulatory Basis: Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, requires that information submitted for a design certification (DC) must include performance requirements and design information sufficiently detailed to permit the preparation of acceptance and inspection requirements by the NRC, and procurement specifications and construction and installation specifications by an applicant. The DCD Tier 2 documentation currently does not provide information on required inspection, test, or analysis (ITA) of physical security systems and components. The regulatory requirement does not exclude physical security systems.

NRC Regulatory Guide 1.206, "Combined License Applications for Nuclear Power Plants," Section C.I.14, "Verification Programs," states that "In Chapter 14 of the FSAR, the COL Applicant should provide information concerning its initial test program for SSCs [structures, systems and components] and design features for both the nuclear portion of the facility and the balance of the plant." RG 1.206 does not exclude the physical security systems that are relied on to protect and assure safety of plant operations against the design basis threat (DBT). The required ITA of physical security systems within the scope of the DC should be addressed by the applicant (MHI).

The applicant has responded to the RAI 396-2723, Question No. 14.03.12-21. The NRC staff has reviewed and agrees with the response but a part of the response is not complete (e.g., Tier 1 and Tier 2 FSAR change have not been formally submitted and no mark-ups of planned changes were submitted with the RAI response) and appropriate references and interfaces have not been established in the DCD. MHI response to RAI 396-2723, Question 14.03.12-21 includes the following concluding statement:

"These processes would be implemented by the license to ensure proper installation and functionality of security-related hardware within the scope of the standard US-APWR design."

MHI stated RAI responses on how processes and controls will be provided for adequate ITA of physical security hardware must be captured appropriately in the DCD.

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14.03.12-28

4. MHI Response to RAI 396-2723, Question 14.03.12-22 dated July 17, 2009 (Page 14.12-8): Confirm whether the proposed revision to COL Information Item COL 14.2(2) is sufficient to address the processes and controls (in addition to the stated information item to reconcile of site-specific organization for test program) for the COL Information Item COL 14.3(3) that will require a COL applicant to propose ITAAC for the facility's physical security hardware not addressed in the DCD. Clarify whether it is the COL applicant's responsibilities to also reconcile the processes and controls, along with organization, for ITAAC not addressed in the DCD.

Regulatory Basis: Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, requires that information submitted for a design certification (DC) must include performance requirements and design information sufficiently detailed to permit the preparation of acceptance and inspection requirements by the NRC, and procurement specifications and construction and installation specifications by an applicant. Tier 2 documentation currently does not provide information on required inspection, test, or analysis (ITA) of physical security systems and components. The regulatory requirement does not exclude physical security systems.

The applicant has responded to the RAI 396-2723, Question 14.03.12-22. The NRC staff has reviewed and agrees with the response but a part of the response is not complete (e.g., Tier 1 and Tier 2 FSAR change have not been formally submitted and no mark-ups of planned changes were submitted with the RAI response), and appropriate references and interfaces have not been established in the DCD. MHI response to RAI 396-2723, Question 14.03.12-22 includes the following statement:

"The US-APWR test program described in Technical Report MUAP-08009, "US-APWR Program Description." Revision 0 (2008), applies to the testing of all plant SSCs following turnover from construction, which would include installation and acceptance testing of physical security systems and credit features for the US-APWR standard plant design. The organization and staffing for the installation and acceptance testing of physical security systems and credited features for the US-APWR standard plant design would be described in MUAP-08009 for the installation and acceptance testing. The COL applicant will reconcile the site-specific organization and staffing per COL 14.2(2), proposed in MHI letter (UAP-HF-08199) to be consistent, to be consistent with MUAP-08009"

Clarification is needed on whether COL Information Item COL 14.2(2) is sufficient to address the processes and controls (in addition to the stated information item to reconcile of site-specific organization for test program) for the COL Information Item COL 14.3(3) that will require a COL applicant to propose ITAAC.

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14.03.12-29

5. MHI Response to RAI 396-2723, Question 14.03.12-23 dated July 17, 2009 (Page 14.12-10 to 14.12-11): Provide specific revision to the DCD that includes reference to technical report MUAP-08009 and capture the RAI responses on how processes and controls will be provided for assurance of adequate ITA of physical security hardware (i.e., descriptions and references to MUAP-08009 in Tier 2, Section 14.3.12, ITAAC for Physical Security Hardware).

Regulatory Basis: Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, requires that information submitted for a design certification (DC) must include performance requirements and design information sufficiently detailed to permit the preparation of acceptance and inspection requirements by the NRC, and procurement specifications and construction and installation specifications by an applicant. DCD Tier 2 documentation currently does not provide information organization and processes for required inspection, test, or analysis (ITA) of security-related system that supports the Tier 1 descriptions of security ITAAC within the design scope for certification. The FSAR Chapter 14, Sections 14.2.3.1 through 14.2.3.5 establishes test procedures requirements for inspection and testing. Based on MHI responses to RAI No. 52-755, No. 14.03.12-4 and No. 14.03.12-5, clarification, and specific indications of a commitment, is needed to understand whether MHI has integrated verification of security systems (i.e., non-nuclear and non-safety systems) within the umbrella of its initial test program that includes a commitment to verify the design features for the facility and the balance of the plant. Indicate a specific commitment to address physical security systems and credited features.

The applicant has responded to the RAI 396-2723, Question 14.03.12-23. The NRC has reviewed and agrees with the response but a part of the response is not complete (e.g., Tier 1 and Tier 2 FSAR change have not been formally submitted and no mark-ups of planned changes were submitted with the RAI response) or appropriate references and interfaces have not been established in the DCD. MHI response to RAI 396-2723, Question 14.03.12-23 includes the following statement:

"Testing of plant systems that are not included in the preoperational tests defined in Subsection 14.2.12.1, such as the physical security systems and credited features for the US-APWR standard plant design, are performed using construction acceptance tests, installation tests, and acceptance tests are described in Technical Report MUAP-08009, "US-APWR Test Program Description," Revision 0 (2008). As stated in MUAP-08009, the test procedure format for both preoperational and acceptance tests is consistent with Subsection 14.2.3.5, MUAP-08009, also describes generally the review and approval of acceptance test procedures, the conduct of testing, and the review and approval of test results reports, and test closures and test records."

MHI revision to DCD must include reference to technical report MUAP-08009 and capture statements indicated in the RAI response for how processes and controls will be provided for assurance of adequate ITA of physical security hardware.

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14.03.12-30

6. MHI Response to RAI 396-2723, Question 14.03.12-24 dated July 17, 2009 (Page 14.12-12): Reconcile the statement in RAI 396-2723, Question 14.03.12-24 response that "MUAP-080009 describes and provides for the inspection and testing of non-nuclear and non-safety related systems and components, including physical security systems and credited features of the US-APWR standard plant design for satisfying physical security requirements" with the statement that "this Technical Report provides an outline of the administrative control program used to develop and administer the initial test program (ITP) as defined by Section 14.2 of the US-APWR Design Control Document (DCD). This Technical Report supplements the program description in Section 14.2 of the DCD," indicated in Section 1.0 of the MHI Technical Report MAUP-080009.

(U) Regulatory Basis: Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, requires that information submitted for a design certification (DC) must include performance requirements and design information sufficiently detailed to permit the preparation of acceptance and inspection requirements by the NRC, and procurement specifications and construction and installation specifications by an applicant. DCD Tier 2 documentation currently does not provide information on organization and processes for required ITA of security-related system that supports the Tier 1 descriptions of security ITAAC within the design scope for certification. The FSAR Chapter 14, Sections 14.2.4 through 14.2.6 provides process for conducting, evaluation, and records requirements for inspections and tests. Based on MHI responses to RAI No. 52-755, Question 14.03.12-4 and Question 14.03.12-5, clarification is needed to understand whether MHI has integrated verification of security system (i.e., non-nuclear and non-safety systems) within the umbrella of its initial test program that includes a commitment to verify the design features for the facility and the balance of the plant.

The applicant has responded to the RAI 396-2723, Question No. 14.03.12-24. The NRC has reviewed and agrees with the response but a part of the response is not complete (e.g., Tier 1 and Tier 2 FSAR change have not been formally submitted and no mark-ups of planned changes were submitted with the RAI response) or appropriate references and interfaces have not been established in the DCD. The NRC staff review of Technical Report MAUP-08009 identify statement are contrary to that stated in the RAI response and requires appropriate reconciliation of plan for implementing processes, controls and organization for ITAAC of non-nuclear and non-safety systems.