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TOKYO, JAPAN

June 19, 2009

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Attention: Mr. Jeffrey A. Ciocco

Docket No. 52-021
MHI Ref: UAP-HF-09314

Subject: Partial Responses to US-APWR DCD RAI No. 282-1984, Revision 1 and to US-APWR DCD RAI No. 283-2200 – SRI SUPPLEMENTAL

Reference: 1) "Request for Additional Information No. 282-1984, Revision 1, TIER 1, CHAPTER 2, TIER 2, CHAPTER 13.6, REV.1, MHI TECHNICAL REPORTS UAP-SGI-08001, REV.1 (SECURITY ELEMENT REPORT), AND UAP-SGI-080002, REV.0 (HAE)," dated March 18, 2009.

2) "Request for Additional Information No. 283-2200 – SRI SUPPLEMENTAL, TIER 1, CHAPTER 2, TIER 2, CHAPTER 13.6, REV.1, MHI TECHNICAL REPORTS UAP-SGI-08001, REV.1 (SECURITY ELEMENT REPORT), AND UAP-SGI-080002, REV.0 (HAE)," dated March 18, 2009. 10, 35, 36, 44, 50, 102

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") responses to Questions 13.06-10, 13.06-22 to 25, 13,06-35, 13.06-36, 13.06-44, 13.06-50, 13.06-66, 13.06-67, 13.06-83 and 13.06-103 of Request for Additional Information No. 282-1984, Revision 1 and responses to Questions 13.06.02-6 and 13.06.02-7 of Request for Additional Information No. 283-2200 – SRI SUPPLEMENTAL. These responses are being submitted in two versions. One version (Enclosures 1 and 2) includes certain information, designated pursuant to the Commission guidance as sensitive unclassified non-safeguards information, referred to as security-related information ("SRI"), that is to be withheld from public disclosure under 10 C.F.R. § 2.390. The information that is SRI is identified by brackets. The second version (Enclosures 3 and 4) omits the SRI and is suitable for public disclosure. In the public version, the SRI is replaced by the designation "[Security-Related Information - Withheld Under 10 CFR 2.390]."

For some questions concerning the design and performance of physical security systems, separate design certification and reference COLA answers are being provided.

Additional responses to Request for Additional Information No. 282-1984 Revision 1 and to Request for Additional Information No. 283-2200 – SRI SUPPLEMENTAL, which contain Safeguards Information are being transmitted separately.

DC081
NRO

Please contact Dr. C. Keith Paulson, Senior Technical Manager, Mitsubishi Nuclear Energy Systems, Inc. if the NRC has questions concerning any aspect of this submittal. His contact information is below.

Sincerely,

Y. Ogata

Yoshiki Ogata,
General Manager- APWR Promoting Department
Mitsubishi Heavy Industries, LTD.

Enclosures:

1. Partial Responses to Request for Additional Information No. 282-1984 Revision 1 (SRI included version)

2. Partial Responses to Request for Additional Information No. 283-2200 – SRI SUPPLEMENTAL (SRI included version)

3. Partial Responses to Request for Additional Information No. 282-1984 Revision 1 (SRI excluded version)

4. Partial Responses to Request for Additional Information No. 283-2200 – SRI SUPPLEMENTAL (SRI excluded version)

CC: J. A. Ciocco
C. K. Paulson

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Docket No. 52-021
MHI Ref: UAP-HF-09314

Enclosure 3

UAP-HF-09314
Docket No. 52-021

Partial Responses to Request for Additional Information
No. 282-1984 Revision 1

June 19, 2009

(Security excluded version)

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

06/19/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:	NO. 282-1984 REVISION 1
SRP SECTION:	SRP SECTION: 13.06 - PHYSICAL SECURITY
APPLICATION SECTION:	TIER 1, CHAPTER 2, TIER 2, CHAPTER 13.6, REV.1, MHI TECHNICAL REPORTS UAP-SGI-08001, REV.1 (SECURITY ELEMENT REPORT) AND UAP-SGI-080002, REV.0 (HAE)
DATE OF RAI ISSUE:	3/18/2009

QUESTION NO. : 13.06-10

10. **(U)** Tier 2, Chapter 13, Section 13.6.2.4 (Page 13-6.4): Provide descriptions of design and performance requirements of the US-APWR design of secondary power for assuring reliability and availability of plant security lighting to meet security functions (i.e., assessment and target discrimination for interdicting between adversaries and vital area/equipment). Also describe the design requirements for lighting or other features within the building to assure adequate assessment and target discrimination for security responders. Incorporate MHI response, dated September 18, 2008, to NRC RAI 14.0312.1 that provides additional descriptions of secondary power and uninterruptable power supply in Section 13.6 or appropriate section of the MHI technical report UAPSGI-08002 R0.

(U) Regulatory Basis: Same as previously stated (i.e., Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, 10 CFR 52.48, 10 CFR Part 73, and 10 CFR 73.55(a)). The security features incorporated in the standard US-APWR design provides the technical basis for determining adequacy of a physical protection system that will protect against the DBT and meeting regulatory requirements. A reliable secondary power supply and uninterrupted transition from primary to secondary is required for assuring reliability and availability of security systems to perform their intended security functions.

(U) ***Note Applicable to All RAI Responses*: *The information addressing specific details related to security features will be safeguards information (SGI) and must be marked and protected in accordance with 10 CFR 73.21. The applicant should portion mark text in the response to request for information (RAI) as appropriate to identify SGI that reveals the specific details of security features incorporated in the US-APWR design. Other security-related or not of sensitive information should be identified and protected as required. The RAI responses supplementing the DC Tier 1 document must be publicly available***

ANSWER:

Design Certification Answer

Security-Related Information - Withheld Under 10 CFR 2.390

External security lighting for the PA and the isolation zone will be provided by the licensee. Refer to response to Question 13.06-36 for discussion of backup power for security lighting.

The MHI response, dated September 18, 2008, to NRC RAI 14.0312.1, as modified and elaborated on in the response to Question 13.06-36, will be incorporated into Section 13.6 or the appropriate section of the MHI technical report UAP-SGI-08002, R0.

Reference COLA Answer

Security-Related Information - Withheld Under 10 CFR 2.390

Impact on DCD

Section 13.6 of the DCD (or the HAE) will be revised to provide further description of the secondary security power provided for by the US-APWR standard plant design.

Impact on COLA

There is no impact on the COLA

Impact on PRA

There is no impact on the PRA

Impact on HAE

The HAE (or Section 13.6 of the DCD) will be revised to provide further description of the secondary security power provided for by the US-APWR standard plant design.

Impact on Vital Equipment Report

There is no impact on the Vital Equipment Report.

This completes MHI's response to NRC Question 13.06-10.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

06/19/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

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DATE OF RAI ISSUE:	**3/18/2009**

QUESTION NO. : 13.06-22

22. **(U)** Section 4.4, Determination of Most Attractive Targets (Page 6 of HAE Report): Clarify the statement that "The target set analysis for this evaluation did not exclude any of the potential targets identified in Section 4.3 above because they were considered unachievable." Clarify if it should be because they were not considered unachievable.

(U) Regulatory Basis: Same as previously stated (i.e., Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, 10 CFR 52.48, 10 CFR Part 73, and 10 CFR 73.55(a)). Clarification is need for text indicated for accurate and completeness of information in the application.

(U) ***Note Applicable to All RAI Responses: The information addressing specific details related to security features will be safeguards information (SGI) and must be marked and protected in accordance with 10 CFR 73.21. The applicant should portion mark text in the response to request for information (RAI) as appropriate to identify SGI that reveals the specific details of security features incorporated in the US-APWR design. Other security-related or not of sensitive information should be identified and protected as required. The RAI responses supplementing the DC Tier 1 document must be publicly available.***

ANSWER:

The target set analysis for the HAE did not identify any target sets that were considered unachievable. Accordingly, no target sets were excluded from the HAE on that basis. For further detail on MHI's systematic approach used to determine attractiveness of target sets from the all identified target sets for the US-APWR design refer to the response to Question No. 13.06-66. Refer also to Question No. 13.06-72 for information on the selection of target sets.

Impact on DCD

There is no impact on the DCD

Impact on COLA

There is no impact on the COLA

Impact on PRA

There is no impact on the PRA

Impact on HAE

The HAE will be revised to say that no target sets were excluded because they were determined to be unachievable.

Impact on Vital Equipment Report

There is no impact on the Vital Equipment Report.

This completes MHI's response or responses to NRC Question 13.06-22.

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DATE OF RAI ISSUE:	**3/18/2009**

QUESTION NO. : 13.06-23

23. **(U)** Section 4.4, Determination of Most Attractive Targets (Page 7 of HAE Report): Provide additional descriptions of MHI systematic process used to determine attractiveness target sets from the all identified target sets for the US-APWR design. Describe the technical bases for eliminating certain target sets as unachievable or the adversaries would not choose because of extensive level of effort, beyond capabilities, or time. Specifically how did the process and expert panel consider: (a) adversaries' task times and the specific criteria used; (b) what were assumptions and screening criteria used regarding readily available plant heavy equipment and tools (cranes, forklifts, welding and cutting tools) that could supplement adversaries' capabilities to cause destruction or disabling SSCs or breaching, and (c) whether readily available plant flammable liquids and gases were considered (e.g., causing destruction, diversion, or delaying security responders) and (d) what criteria were used for determining achievable or attractive target. Include the discussion of key assumptions that the expert panel used for screening and criteria regarding limitation of available time for adversaries to complete tasks within facilities or out of fields of fire from fixed DFPs and whether assumptions for response include plans and availability of responders for pursuit to interrupt and interdict adversaries.

(U) Regulatory Basis: Same as previously stated (i.e., Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, 10 CFR 52.48, 10 CFR Part 73, and 10 CFR 73.55(a)). An adequate systematic process that provides a complete and accurate determination of the USAPWR design standard target sets is the building blocks for determining required and adequate protection against the DBT. The thorough and systematic approach of how MHI determined final or attractive target set provides assurance for adequate determination of target sets that must be protected.

(U) ***Note Applicable to All RAI Responses: The information addressing specific details related to security features will be safeguards information (SGI) and must be marked and protected in accordance with 10 CFR 73.21. The applicant should portion mark text in the***

response to request for information (RAI) as appropriate to identify SGI that reveals the specific details of security features incorporated in the US-APWR design. Other security-related or not of sensitive information should be identified and protected as required. The RAI responses supplementing the DC Tier 1 document must be publicly available.

ANSWER:

MHI's response to Question No. 13.06-66 describes the systematic approach for determining attractive target sets from all identified target sets for the US-APWR design. As the words achievable and attractive pertain to the development of the target sets for the HAE, achievable target sets would be those target sets which are accessible to the adversary within the capabilities of the DBT. In comparison, the attractive target sets are those that are not only accessible, but also desirable since they would be the easiest path to core damage or radiation release exceeding the limits of Part 100.

As discussed in response to Question No. 13.06-22, no targets sets were eliminated because they were determined to be unachievable or inaccessible to the adversary. All identified target sets were determined to be accessible and achievable. For detail on MHI's systematic approach and criteria used to determine attractiveness of target sets, refer to the response to Question 13.06-66.

Security-Related Information - Withheld Under 10 CFR 2.390

Impact on DCD

There is no impact on the DCD

Impact on COLA

There is no impact on the COLA

Impact on PRA

There is no impact on the PRA.

Impact on HAE

There is no impact on the HAE.

Impact on Vital Equipment Report

There is no impact on the Vital Equipment Report.

This completes MHI's response or responses to NRC Question 13.06-23.

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DATE OF RAI ISSUE:	**3/18/2009**

QUESTION NO. : 13.06-24

24. (U) Section 4.4, Determination of Most Attractive Targets (Page 7 of HAE): Describe the technical basis, assumptions, systematic process, and criteria applied by MHI HAE expert panel in determining values for "estimated time to core damage" for screening and determination of the most attractive target. Include the technical rationale and basis of referenced industry guidance that was specifically applied for excluding target sets that would result in postulated accident sequences where time to core damage is in excess of specified hours. Discuss assumptions for using time to core damage and implication to planned strategy (e.g., unprotected target sets or components for sequences leading to core damage). Discuss whether defense-in-depth protection would include security capabilities to interdict (i.e., room entry and clearing) to allow recovery from such scenario if the adversaries are able to achieve the targets excluded and still remain effective. Discuss expert panel considerations of plans or requirements to pursue and neutralize adversaries, providing plant conditions that allow operators or emergency responders to implement safety recovery actions.

(U) Regulatory Basis: Same as previously stated (i.e., Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, 10 CFR 52.48, 10 CFR Part 73, and 10 CFR 73.55(a)). An adequate systematic process that provides a complete and accurate determination of the USAPWR design standard target sets is the building block for determining required and adequate protection against the DBT. Defensible basis for determining standard target sets based on time to core damage time has not been provided. Industry's guidance for conduct of force-on-force exercise within context of inspection (i.e., constraints and artificiality) does not provide a defensive basis for licensing basis and postulating all credible scenarios for core damage.

(U) ***Note Applicable to All RAI Responses: The information addressing specific details related to security features will be safeguards information (SGI) and must be marked and protected in accordance with 10 CFR 73.21. The applicant should portion mark text in the response to request for information (RAI) as appropriate to identify SGI that reveals the specific details of security features incorporated in the US-APWR design. Other security-***

related or not of sensitive information should be identified and protected as required. The RAI responses supplementing the DC Tier 1 document must be publicly available.

ANSWER:

Security-Related Information - Withheld Under 10 CFR 2.390

Impact on DCD

There is no impact on the DCD

Impact on COLA

There is no impact on the COLA

Impact on PRA

There is no impact on the PRA

Impact on HAE

There is no impact on the HAE.

Impact on Vital Equipment Report

There is no impact on the Vital Equipment Report.

This completes MHI's response o NRC Question 13.06-24.

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DATE OF RAI ISSUE:	3/18/2009

QUESTION NO. : 13.06-25

25. **(U)** Section 4.4, Determination of Most Attractive Targets (Page 7 of HAE): Discuss the technical basis and assumptions of why the adversaries would be limited to a specific duration. Confirm whether it is MHI's assumption that security features (i.e., DFPs) have been incorporated in proposed external strategy such that security personnel would have clear lines of sight and overlapping fields of fire covering perimeters of the vital area boundaries to interdict adversaries' tasks. If so, illustrate using Figures of DFPs to demonstrate or show and describe whether the fields of fire covering perimeters of the VA walls and roof from the indicated DFPs.

(U) Regulatory Basis: Same as previously stated (i.e., Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, 10 CFR 52.48, 10 CFR Part 73, and 10 CFR 73.55(a)). The USAPWR design incorporates proposed design features to protect standard target sets from the DBT. Line of sights and fields of fire is fundamental to a defensible technical basis for adequate locations of DFPs or deployment of security officers to effective response and meet regulatory requirement to interdict between adversaries.

(U) ***Note Applicable to RAI Responses: The information addressing specific details related to security features will be safeguards information (SGI) and must be marked and protected in accordance with 10 CFR 73.21. The applicant should portion mark text in the response to request for information (RAI) as appropriate to identify SGI that reveals the specific details of security features incorporated in the US-APWR design. Other security-related or not of sensitive information should be identified and protected as required. The RAI responses supplementing the DC Tier 1 document must be publicly available.***

ANSWER:

Security-Related Information - Withheld Under 10 CFR 2.390

[**Security-Related Information - Withheld Under 10 CFR 2.390**]

Impact on DCD

There is no impact on the DCD

Impact on COLA

There is no impact on the COLA

Impact on PRA

There is no impact on the PRA

Impact on HAE

There is no impact on the HAE.

Impact on Vital Equipment Report

There is no impact on the Vital Equipment Report.

This completes MHI's response or responses to NRC Question 13.06-25.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

06/19/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

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DATE OF RAI ISSUE:	**3/18/2009**

QUESTION NO. : 13.06-35

35. **(U)** Section 5.2, Physical Security Design Features and Systems (Page 11 of HAE Report): Secondary Power Supply: Describe the technical basis regarding the adequacy of minimum hours of secondary power supply stated for security systems, and whether the capabilities will sustain required security functions (e.g., detection, alarm assessment, communications, activate barriers, etc.). Clarify whether this minimum power supply is in addition to US-APWR design requirement or the configuration also interconnects security systems to secondary power supply from plant systems or emergency/security lighting stated in MHI response to RAI 14.03.12-1 (i.e., non-safety gas turbine generators will be designed to provide the independent secondary security power supply for security significant systems, etc.). Discuss the assumption regarding the durations expected until plant condition or security actions could allow operations to safely move about onsite or offsite to restore primary power.

(U) Regulatory Basis: Same as previously stated (i.e., Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, 10 CFR 52.48, 10 CFR Part 73, and 10 CFR 73.55(a)). The USAPWR design incorporates commitments and proposed design requirements for secondary power supply. Additional information is needed to understand assumptions and technical basis for the minimum capacity specified and whether it was based on postulated or required performance based (i.e., possible real event time). The minimum hours indicated in this section appears to be typical capacity for loss of power under normal conditions that would allow for initiating operator actions to return to primary power. Under security events, the operator actions may be delayed because of a need to secure the plant.

(U) ***Note Applicable to RAI Responses*: *The information addressing specific details related to security features will be safeguards information (SGI) and must be marked and protected in accordance with 10 CFR 73.21. The applicant should portion mark text in the response to request for information (RAI) as appropriate***

to identify SGI that reveals the specific details of security features incorporated in the US-APWR design. Other security-related or not of sensitive information should be identified and protected as required. The RAI responses supplementing the DC Tier 1 document must be publicly available.

ANSWER:

Design Certification Answer

Security-Related Information - Withheld Under 10 CFR 2.390

Reference COLA Answer

Security-Related Information - Withheld Under 10 CFR 2.390

Impact on DCD

There is no impact on the DCD

Impact on COLA

There is no impact on the COLA

Impact on PRA

There is no impact on the PRA

Impact on HAE

There is no impact on the HAE.

Impact on Vital Equipment Report

There is no impact on the Vital Equipment Report.

This completes MHI's response to NRC Question 13.06-35.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

06/19/2009

US-APWR Design Certification

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DATE OF RAI ISSUE:	3/18/2009

QUESTION NO. : 13.06-36

36. **(U)** Section 5.2, Physical Security Design Features and Systems (Page 11 of HAE Report): Describe design and performance requirements for system configurations of secondary power supply to security systems, such as the intrusion detection systems and security lighting. Describe how the reliability and availability of security functions and the duration of secondary power supply will be provided by the standard design.

(U) Regulatory Basis: Same as previously stated (i.e., Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, 10 CFR 52.48, 10 CFR Part 73, and 10 CFR 73.55(a)). The USAPWR design incorporates commitments and proposed design requirements for secondary power supply. Additional information is needed for standard design requirements for secondary power supply to systems relied on for performing security functions.

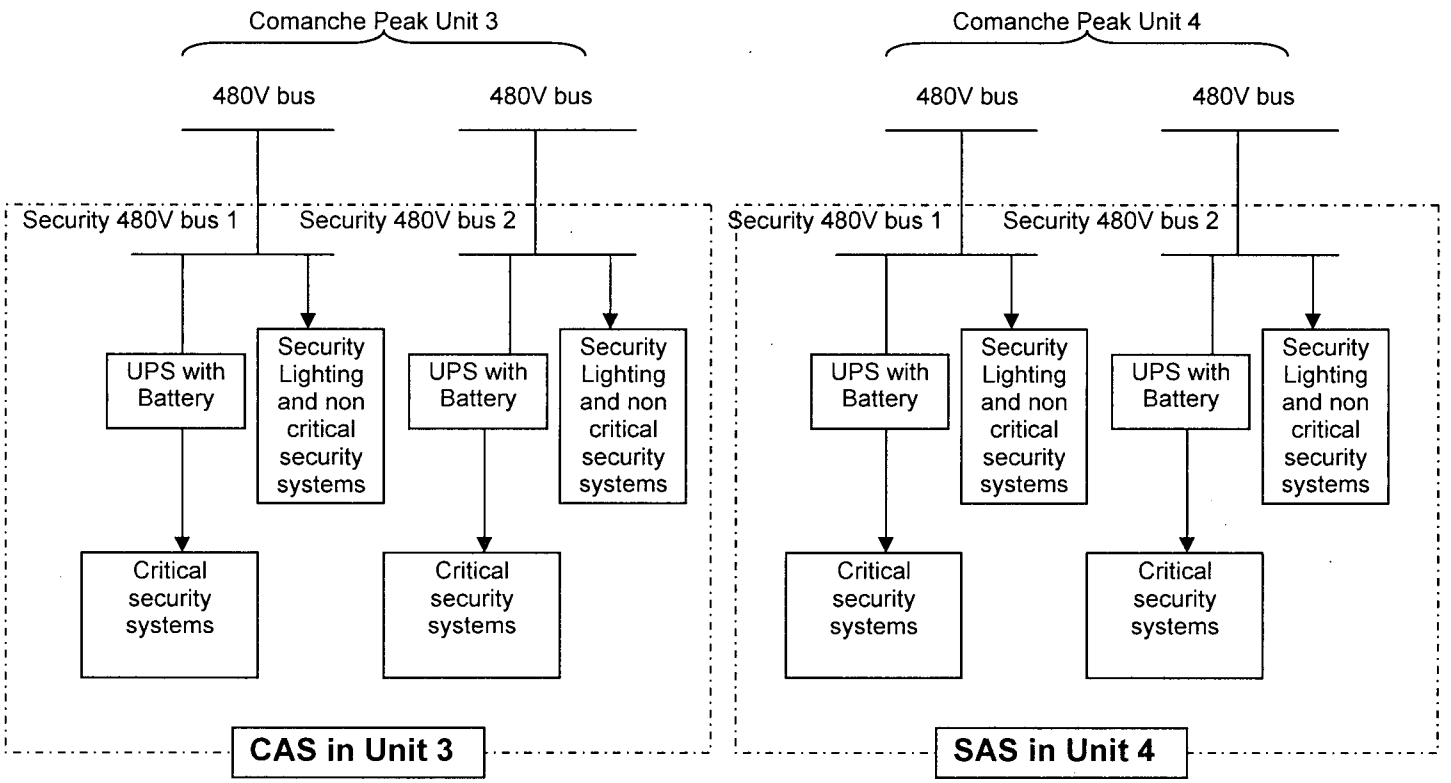
(U) Note Applicable to RAI Responses: The information addressing specific details related to security features will be safeguards information (SGI) and must be marked and protected in accordance with 10 CFR 73.21. The applicant should portion mark text in the response to request for information (RAI) as appropriate to identify SGI that reveals the specific details of security features incorporated in the US-APWR design. Other security-related or not of sensitive information should be identified and protected as required. The RAI responses supplementing the DC Tier 1 document must be publicly available.

ANSWER:

Design Certification Answer

[**Security-Related Information - Withheld Under 10 CFR 2.390**]

Security-Related Information - Withheld Under 10 CFR 2.390



Security-Related Information - Withheld Under 10 CFR 2.390

Security-Related Information - Withheld Under 10 CFR 2.390

Security backup power duration is discussed in the response to Question 13.06-35.

Reference COLA Answer

Security-Related Information - Withheld Under 10 CFR 2.390

Impact on DCD

The DCD (or the HAE) will be revised to describe the standard plant supply of security backup power as described in the Answer.

Impact on COLA

There is no impact on the COLA

Impact on PRA

There is no impact on the PRA

Impact on HAE

The HAE (or the DCD) will be revised to describe the standard plant supply of security backup power as described in the Answer.

Impact on Vital Equipment Report

There is no impact on the Vital Equipment Report.

This completes MHI's response to NRC Question 13.06-36.

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DATE OF RAI ISSUE:	**3/18/2009**

QUESTION NO. : 13.06-44

44. **(U)** Section 6.2, General Assumptions for the Evaluation (Page 14 of HAE): Describe the technical basis and assumptions for the statement in Section 6.2.1 regarding the DBT vehicles (i.e., all types described in RG 5.69). Include design and performance requirements and assumptions for the PA barriers that prevent effective applications of certain DBT type vehicles. Discuss how the design requirements of the VBS address or provide robustness against possible defeat methods within the capabilities of the DBT. Include discussion of MHI assumptions for rate of travel by vehicles, compared to foot travel, as it relates to affecting probability neutralization of moving targets.

(U) Regulatory Basis: Same as previously stated (i.e., Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, 10 CFR 52.48, 10 CFR Part 73, and 10 CFR 73.55(a)). The USAPWR design incorporates proposed design features to protect standard target sets from the adversarial characteristics of the DBT. Additional information is needed to determine how MHI considered all types of DBT vehicles that may be used by adversaries and how the design would prevent use or protect against the various types of vehicles.

(U) ***Note Applicable to RAI Responses*****: *The information addressing specific details related to security features will be safeguards information (SGI) and must be marked and protected in accordance with 10 CFR 73.21. The applicant should portion mark text in the response to request for information (RAI) as appropriate to identify SGI that reveals the specific details of security features incorporated in the US-APWR design. Other security-related or not of sensitive information should be identified and protected as required. The RAI responses supplementing the DC Tier 1 document must be publicly available.***

ANSWER:

Design Certification Answer

The vehicle barrier system (VBS) designed to prevent an unacceptable consequence from the DBT vehicle bombs are not part of the US-APWR standard plant design. The VBS is a site specific item, dependent on the characteristics of the site, to be provided by the licensee, who would specify the site-specific design and performance requirements, in order to comply with the protection requirements for the DBT vehicle bomb in 10 CFR 73.55.

Reference COLA Answer

Refer to response to Question 13.06-2 for the minimum distance determined to be an appropriate safe standoff distances against the vehicle bomb threats. The VBS for the Comanche Peak reference plant, utilized as the basis for the HAE, will be located and designed against the mass and momentum of these vehicles in order to ensure the maintenance of the established safe standoff distance as required by 10 CFR 73.55 and verified prior to fuel load using the NRC-approved security ITAAC which states: "The vehicle barrier system is installed and located at the necessary stand-off distance to protect against the DBT vehicle bombs."

Security-Related Information - Withheld Under 10 CFR 2.390

Impact on DCD

There is no impact on the DCD.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

Impact on HAE

There is no impact on the HAE.

Impact on Vital Equipment Report

There is no impact on the VE Report.

This completes MHI's response to NRC Question 13.06-44.

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RAI NO.:	NO. 282-1984 REVISION 1
SRP SECTION:	SRP SECTION: 13.06 - PHYSICAL SECURITY
APPLICATION SECTION:	TIER 1, CHAPTER 2, TIER 2, CHAPTER 13.6, REV.1, MHI TECHNICAL REPORTS UAP-SGI-08001, REV.1 (SECURITY ELEMENT REPORT) AND UAP-SGI-080002, REV.0 (HAE)
DATE OF RAI ISSUE:	3/18/2009

QUESTION NO. : 13.06-50

50. **(U)** Section 6.2.2, General Assumptions for the Evaluation (Page 15, 8th bullet, of HAE): Provide the minimum distance determined to be "appropriate safe standoff distance." Provide clarification of last statement in this bullet. Specifically address the technical basis for how the design of the VBS would preclude tactics or equipment that is available to the person and not associated with a vehicle.

(U) Regulatory Basis: Same as previously stated (i.e., Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, 10 CFR 52.48, 10 CFR Part 73, and 10 CFR 73.55(a)). The USAPWR design proposed design features to protect target sets from the DBT. Additional information is needed on MHI design requirements and assumptions for a VBS.

(U) ***Note Applicable to RAI Responses: The information addressing specific details related to security features will be safeguards information (SGI) and must be marked and protected in accordance with 10 CFR 73.21. The applicant should portion mark text in the response to request for information (RAI) as appropriate to identify SGI that reveals the specific details of security features incorporated in the US-APWR design. Other security-related or not of sensitive information should be identified and protected as required. The RAI responses supplementing the DC Tier 1 document must be publicly available.***

ANSWER:

Design Certification Answer

See response to Question 13.06-2 for the minimum distance determined to be an appropriate safe standoff distance. The vehicle barrier system (VBS) is not part of the US-APWR standard plant design. Rather, it is a site specific item, dependent on the characteristics of the site, to be provided by the licensee, who would specify the site-specific design and performance requirements, in order to comply with the protection requirements in 10 CFR 73.55.

Reference COLA Answer

The VBS for the Comanche Peak 3 and 4 reference plant, used as the basis for the example protective strategy in the HAE, will be of a robust design capable of handling the DBT as required by 10 CFR 73.55 (c) and will be verified prior to fuel load using the NRC-approved security ITAAC.

Security-Related Information - Withheld Under 10 CFR 2.390

Impact on DCD

There is no impact on the DCD.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

Impact on HAE

There is no impact on the HAE.

Impact on Vital Equipment Report

There is no impact on the VE Report.

This completes MHI's response to NRC Question 13.06-50.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

06/19/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:	**NO. 282-1984 REVISION 1**
SRP SECTION:	**SRP SECTION: 13.06 - PHYSICAL SECURITY**
APPLICATION SECTION:	**TIER 1, CHAPTER 2, TIER 2, CHAPTER 13.6, REV.1, MHI TECHNICAL REPORTS UAP-SGI-08001, REV.1 (SECURITY ELEMENT REPORT) AND UAP-SGI-080002, REV.0 (HAE)**
DATE OF RAI ISSUE:	**3/18/2009**

QUESTION NO. : 13.06-66

72. **(U)** In the "US-APWR High Assurance Evaluation Assessment," dated September 2008," UAP-SGI-08002 R0, MHI does not describe the systematic process used to develop target set analysis. Provide descriptions for the following:

(U) - Target identification process including how the process was risk-informed
- Methodologies used to determine and group the target set equipment
- Screening criteria for achievable targets
- Process for target set generation
- Characterization and screening process used for identification of attractive target sets
- Description of alternative approaches used such as prevention set analysis (if applicable)

Target Set Analysis Team qualification
- List of input documents used in target set analysis (i.e., site layout drawings, PRA analyses, table-top analyses, etc.)
- Process for considering cyber attacks on target sets.
- Screening criteria and bases for attractive targets sets and achievable targets

(U) Regulatory Basis: Same as previously stated (i.e., Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, 10 CFR 52.48, 10 CFR Part 73, and 10 CFR 73.55(a)). Title 10 CFR 73.2 defines vital equipment as "equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation. To adequately protect against the DBT of radiological sabotage, a design applicant must first identify a complete and accurate list of vital equipment and subsequently target sets for which the design of a physical protection systems and COL security programs are provided to meet general performance requirements of 10 CFR 73.20, 73.45, and 73.55. The results of the target set analysis and the analyses and methodologies used to determine and group the target set equipment or elements should be contained in the applicant's security assessment submittal for determining completeness and accuracy.

(U) ***Note Applicable to All RAI Responses**: The information addressing specific details related to security features will be safeguards information (SGI) and must be marked and protected in accordance with 10 CFR 73.21. The applicant should portion mark text in the response to request for information (RAI) as appropriate to identify SGI that reveals the specific details of security features incorporated in the US-APWR design. Other security-related or not of sensitive information should be identified and protected as required. The RAI responses supplementing the DC Tier 1 document must be publicly available.*

ANSWER:

For the HAE target set identification process, MHI utilized an approach consistent with the process and methodologies used by current operating plants for determining the most attractive target sets for the US-APWR standard plant design. The following systematic process was used in the development of the target sets:

Security-Related Information - Withheld Under 10 CFR 2.390

Security-Related Information - Withheld Under 10 CFR 2.390

Team Reviews were conducted throughout the process by a team of experts from MHI, MNES, Luminant and Enercon Services, Inc. Team qualifications are included in the response to Question 13.06-103.

Security-Related Information - Withheld Under 10 CFR 2.390

Prevention set analysis was not used in the determination of the attractive target sets for the HAE report.

There were a number of inputs documents used in the target set analysis process for the HAE report. Among the documents included were the following drawing types:

- Site physical layout drawings
- Major safety system process instrumentation and control (P&ID) drawings
- Fire zone drawings
- One line electrical diagrams.

In addition several US-APWR reports were used which included the DCD, the PRA, and the vital equipment report. Finally input from a series of table-top exercises was used as further review of the target sets and their accessibility.

The definition of attractive targets sets and achievable targets is described in the responses to Question Nos. 13.06-22 and 13.06-23. As discussed in those responses, no targets sets were eliminated because they were determined to be unachievable or inaccessible to the adversary. All identified target sets were determined to be accessible and achievable.

For the protection of safety related and other plant equipment that may comprise target sets, from cyber attacks, see MHI technical report, MUAP-08003-P(R0), "US-APWR Cyber Security Program."

Impact on DCD

There is no impact on the DCD

Impact on COLA

There is no impact on the COLA

Impact on PRA

There is no impact on the PRA

Impact on HAE

There is no impact on the HAE.

Impact on Vital Equipment Report

There is no impact on the Vital Equipment Report.

This completes MHI's response or responses to NRC Question 13.06-66.

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Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:	**NO. 282-1984 REVISION 1**
SRP SECTION:	**SRP SECTION: 13.06 - PHYSICAL SECURITY**
APPLICATION SECTION:	**TIER 1, CHAPTER 2, TIER 2, CHAPTER 13.6, REV.1, MHI TECHNICAL REPORTS UAP-SGI-08001, REV.1 (SECURITY ELEMENT REPORT) AND UAP-SGI-080002, REV.0 (HAE)**
DATE OF RAI ISSUE:	**3/18/2009**

QUESTION NO. : 13.06-67

73. **(U)** In the "US-APWR High Assurance Evaluation Assessment," dated September 2008," UAP-SGI-08002 R0, MHI states that it identifies the complete list of achievable targets. List and describe those targets considered not achievable with their basis for exclusion from achievability.

(U) Regulatory Basis: Same as previously stated (i.e., Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, 10 CFR 52.48, 10 CFR Part 73, and 10 CFR 73.55(a)). Title 10 CFR 73.2 defines vital equipment as "equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation. To adequately protect against the DBT of radiological sabotage, a design applicant must first identify a complete and accurate list of vital equipment and subsequently target sets for which the design of a physical protection systems and COL security programs are provided to meet general performance requirements of 10 CFR 73.20, 73.45, and 73.55.

(U) ***Note Applicable to All RAI Responses: The information addressing specific details related to security features will be safeguards information (SGI) and must be marked and protected in accordance with 10 CFR 73.21. The applicant should portion mark text in the response to request for information (RAI) as appropriate to identify SGI that reveals the specific details of security features incorporated in the US-APWR design. Other security-related or not of sensitive information should be identified and protected as required. The RAI responses supplementing the DC Tier 1 document must be publicly available.***

ANSWER:

As discussed in the MHI's responses to Question Nos. 13.06-22 and 13.06-23, the HAE did not exclude targets based on their achievability. For further discussion on the identification and selection of target sets refer to MHI's responses to Question Nos. 13.06-66 and 13.06-72.

Impact on DCD

There is no impact on the DCD

Impact on COLA

There is no impact on the COLA

Impact on PRA

There is no impact on the PRA

Impact on HAE

There is no impact on the HAE.

Impact on Vital Equipment Report

There is no impact on the Vital Equipment Report.

This completes MHI's response or responses to NRC Question 13.06-67.

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RAI NO.:	NO. 282-1984 REVISION 1
SRP SECTION:	SRP SECTION: 13.06 - PHYSICAL SECURITY
APPLICATION SECTION:	TIER 1, CHAPTER 2, TIER 2, CHAPTER 13.6, REV.1, MHI TECHNICAL REPORTS UAP-SGI-08001, REV.1 (SECURITY ELEMENT REPORT) AND UAP-SGI-080002, REV.0 (HAE)
DATE OF RAI ISSUE:	3/18/2009

QUESTION NO. : 13.06-83

102. **(U)** Section 6.2.2, General Assumptions for the Evaluation (Page 15, 7th bullet, of HAE Report): Provide technical basis and assumptions regarding "not advantageous" for the use of terrain vehicles (all types) based on the design of the VBS and physical terrain. Describe the design assumptions for the characteristic of the VBS and the terrain characteristics that are required to meet the stated design assumption. Clarify whether there would be a COL action item for preparing site specific physical terrain in accordance with design assumptions indicated.

(U) Regulatory Basis: Same as previously stated (i.e., Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, 10 CFR 52.48, 10 CFR Part 73, and 10 CFR 73.55(a)). The USAPWR design incorporates proposed design features to protect target sets from the DBT. Proposed physical security design credits designed features of the VBS and terrain such that certain off-road vehicles of DBT adversarial characteristics need not be considered in postulated scenarios. Additional information is needed on the design and performance requirements and credited features (site terrain) that provide security functions.

(U) ***Note Applicable to All RAI Responses: The information addressing specific details related to security features will be safeguards information (SGI) and must be marked and protected in accordance with 10 CFR 73.21. The applicant should portion mark text in the response to request for information (RAI) as appropriate to identify SGI that reveals the specific details of security features incorporated in the US-APWR design. Other security-related or not of sensitive information should be identified and protected as required. The RAI responses supplementing the DC Tier 1 document must be publicly available.***

ANSWER:

Design Certification Answer

The DBT vehicles and associated vehicle barrier system (VBS) designed to prevent an unacceptable consequence to this action are not part of the US-APWR standard plant design. The VBS is a site specific item, dependent on the characteristics of the site, to be provided by the licensee, who would specify the site-specific design and performance requirements, in order to comply with the protection requirements in 10 CFR 73.55.

Reference COLA Answer

Security-Related Information - Withheld Under 10 CFR 2.390

Impact on DCD

There is no impact on the DCD.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

Impact on HAE

There is no impact on the HAE.

Impact on Vital Equipment Report

There is no impact on the VE Report.

This completes MHI's response to NRC Question 13.06-83.

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06/19/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:	**NO. 282-1984 REVISION 1**
SRP SECTION:	**SRP SECTION: 13.06 - PHYSICAL SECURITY**
APPLICATION SECTION:	**TIER 1, CHAPTER 2, TIER 2, CHAPTER 13.6, REV.1, MHI TECHNICAL REPORTS UAP-SGI-08001, REV.1 (SECURITY ELEMENT REPORT) AND UAP-SGI-080002, REV.0 (HAE)**
DATE OF RAI ISSUE:	**3/18/2009**

QUESTION NO. : 13.06-103

71. **(U)** In the "US-APWR High Assurance Evaluation Assessment," dated September 2008," UAP-SGI-08002 R0, MHI does not describe the scope and conduct of the analyses for performing the security assessment.

(U) Provide additional description of the scope and conduct of the analyses used to perform the security assessment including:

- **(U)** Evaluation methods and models used, including limitations, including the limitation and applicability of NEI 03-11 for establishing a licensing basis
- **(U)** Descriptions of the peer reviews performed, and review team qualifications for assurance of assessment completeness and accuracy. Summary of qualifications requirements or criteria applied by MHI should be described, along with technical disciplines included for peer reviews.
- **(U)** Validation process of the input data for the security assessment

(U) Regulatory Basis: Same as previously stated (i.e., Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, 10 CFR 52.48, 10 CFR Part 73, and 10 CFR 73.55(a)). Title 10 CFR

73.2 defines vital equipment as "equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation. To adequately protect against the DBT of radiological sabotage, a design applicant must first identify a complete and accurate list of vital equipment and subsequently target sets for which the design of a physical protection systems and COL security programs are provided to meet general performance requirements of 10 CFR 73.20, 73.45, and 73.55.

ANSWER:

The scope and purpose of the security assessment provided in the HAE was to develop an example protective strategy capable of defending the US-APWR standard plant design against the design basis threat (DBT), based on the proposed two-unit Comanche Peak reference plant, in order to identify enhancements that could be made to the standard plant design early in the design process to increase plant security. Refer to MHI response to Question 13.06-14. These

objectives were accomplished through an iterative process of developing preliminary target sets, identifying potential design enhancements, and table-top evaluation of adversary scenarios using example protective strategies.

Security-Related Information - Withheld Under 10 CFR 2.390

Security-Related Information - Withheld Under 10 CFR 2.390

Validation of the inputs for the HAE was accomplished using several methods. First a table-top peer review was completed with the NuStart Security Review Committee serving as the reviewers. This committee is comprised of senior security personnel from all of the NuStart plants, whose disciplines include engineering, licensing, security training and security management. In addition, a complete review of the input data, as well as the results, was conducted by independent reviewers at MHI and MNES.

Impact on DCD

There is no impact on the DCD

Impact on COLA

There is no impact on the COLA

Impact on PRA

There is no impact on the PRA

Impact on HAE

There is no impact on the HAE.

Impact on Vital Equipment Report

There is no impact on the Vital Equipment Report.

This completes MHI's response or responses to NRC Question 13.06-103.

Docket No. 52-021
MHI Ref: UAP-HF-09314

Enclosure 4

UAP-HF-09314
Docket No. 52-021

Partial Responses to Request for Additional Information No. 283-2200 – SRI SUPPLEMENTAL

June 19, 2009

(Security excluded version)

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

06/19/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:	NO. 283-2200 – SRI SUPPLEMENTAL
SRP SECTION:	SRP SECTION: 13.06 - PHYSICAL SECURITY
APPLICATION SECTION:	TIER 1, CHAPTER 2, TIER 2, CHAPTER 13.6, REV.1, MHI TECHNICAL REPORTS UAP-SGI-08001, REV.1 (SECURITY ELEMENT REPORT) AND UAP-SGI-080002, REV.0 (HAE)
DATE OF RAI ISSUE:	3/18/2009

QUESTION NO. : 13.06.02-6

Security-Related Information – Withhold Under 10 CFR 2.390

(U) Regulatory Basis: Same as previously stated (i.e., Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, 10 CFR 52.48, 10 CFR Part 73, and 10 CFR 73.55(a)). Title 10 CFR 73.2 defines vital equipment as "equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation. To protect adequately (i.e., a high assurance of protection) against the DBT of radiological sabotage, an applicant must first identify a complete and accurate list of vital equipment and subsequently target sets for which the design of a physical protection systems and COL security programs are provided to meet general performance requirements of 10 CFR 73.20, 73.45, and 73.55.

ANSWER:

Security-Related Information – Withhold Under 10 CFR 2.390

Impact on DCD

There is no impact on the DCD.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

Impact on HAE

There is no impact on the HAE.

Impact on VE Report

There is no impact on the VE Report.

This completes MHI's response to NRC Question 13.06.02-6.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

06/19/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

RAI NO.:	NO. 283-2200 – SRI SUPPLEMENTAL
SRP SECTION:	SRP SECTION: 13.06 - PHYSICAL SECURITY
APPLICATION SECTION:	TIER 1, CHAPTER 2, TIER 2, CHAPTER 13.6, REV.1, MHI TECHNICAL REPORTS UAP-SGI-08001, REV.1 (SECURITY ELEMENT REPORT) AND UAP-SGI-080002, REV.0 (HAE)
DATE OF RAI ISSUE:	3/18/2009

QUESTION NO. : 13.06.02-7

Security-Related Information – Withhold Under 10 CFR 2.390

(U) Regulatory Basis: Same as previously stated (i.e., Subpart B of Title 10 CFR (10 CFR) 52, § 52.47, 10 CFR 52.48, 10 CFR Part 73, and 10 CFR 73.55(a)). Title 10 CFR 73.2 defines vital equipment as "equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation. To adequately protect against the DBT of radiological sabotage, a design applicant must first identify a complete and accurate list of vital equipment and subsequently target sets for which the design of a physical protection systems and COL security programs are provided to meet general performance requirements of 10 CFR 73.20, 73.45, and 73.55.

ANSWER:

Security-Related Information – Withhold Under 10 CFR 2.390

Security-Related Information – Withhold Under 10 CFR 2.390

Impact on DCD

There is no impact on the DCD.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.

Impact on HAE

There is no impact on the HAE.

Impact on VE Report

There is no impact on the VE Report.

This completes MHI's response to NRC Question 13.06.02-7.