MITSUBISHI HEAVY INDUSTRIES, LTD.
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TOKYO, JAPAN

April 26, 2013

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC20555-0001

Attention: Mr. Jeffrey A. Ciocco

Docket No. 52-021
MHI Ref: UAP-HF-13101

Subject: **Closure Plan for US-APWR Probabilistic Risk Assessment**

Reference: (1) Notice of Forthcoming Public and Closed Meeting with Mitsubishi Heavy Industries, LTD. to Discuss Remaining Issues in Chapter 19, "Probabilistic Risk Assessment and Severe Accident Evaluation," and Section 17.4, "Reliability Assurance Program", dated March 18, 2013, ML13073A560.

With this letter, Mitsubishi Heavy Industries, Ltd. (MHI) is providing a closure plan for the probabilistic risk assessment (PRA) to support US-APWR Design Control Document (DCD) Chapter 19 and Section 17.4. This PRA closure plan was requested by the NRC and discussed with the NRC staff at the March 28, 2013 public meeting (Reference 1).

Please contact Mr. Joseph Tapia, General Manager of Licensing Department, Mitsubishi Nuclear Energy Systems, Inc. if the NRC has questions concerning any aspect of this letter. His contact information is provided below.

Sincerely,

Y. Ogata

Yoshiki Ogata,
Executive Vice President
Mitsubishi Nuclear Energy Systems, Inc.
On behalf of Mitsubishi Heavy Industries, LTD.

CC: J. A. Ciocco
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1. Introduction

The purpose of this document is to provide a closure plan for resolution of the issues associated with the US-APWR DCD Chapter 19, "Probabilistic Risk Assessment and Severe Accident Evaluation" and the supporting Technical Report MUAP-07030, "US-APWR Probabilistic Risk Assessment". DCD Chapter 19 Revision 3 and Technical Report MUAP-07030 Revision 3 were submitted by MHI on March 31, 2011 and June 29, 2011, respectively (References 8-1 and 8-2). The NRC's Safety Evaluation (SE) based on these documents was issued on January 17, 2013 (Reference 8-3). An ACRS subcommittee meeting concerning these topics was held on February 21-22, 2013 (Reference 8-4). Following the ACRS subcommittee meeting, a public meeting was held on March 28, 2013 between MHI and the NRC to discuss closure of the issues for these topics (Reference 8-5). As part of that meeting, MHI committed to provide a closure plan. This commitment by MHI was reiterated in the ACRS full committee meeting that was held on April 11, 2013 (Reference 8-6). The following sections describe the issues remaining for resolution and provide the dates for submittals to the NRC. In addition, this closure plan also addresses some remaining actions for DCD Section 17.4 related to the Reliability Assurance Program (RAP).

Note that DCD Sections 19.1.5.1, Seismic Risk Evaluation, and 19.2.4, Containment Performance Capability, were not included in the NRC's SE in January 2013. Therefore, any issues related to those sections are omitted from this closure plan and will be addressed separately.

2. SE Open and Confirmatory Items

The NRC's SE for Chapter 19 identified 20 Open Items and 24 Confirmatory Items. (Note that the SE actually lists 25 Confirmatory Items, but one item is a duplicate.) The Open Items from the SE are listed below in Table 2-1. For each Open Item, Table 2-1 lists the associated RAIs, the current status, MHI's next required action to close the Open Item, and the date by which MHI will perform that action. The Confirmatory Items from the SE are listed below in Table 2-2. For each Confirmatory Item, Table 2-2 indicates which MHI submittal will contain the necessary information to allow the Confirmatory Item to be reviewed and closed.

Table 2-1 Chapter 19 SE Open Items				
Open Item No.	**Related RAIs**	**Current Status**	**MHI Action**	**Date**
OI 19.1-LPSD-66	RAI 39-548 Q 19-66 RAI 983-6953 Q 19-577	MHI submitted the response to RAI 983-6953 Q 19-577 on 2/6/13 (UAP-HF-13024). The NRC indicated that the response is acceptable. The status is now confirmatory pending incorporation of DCD changes.	MHI will incorporate the DCD changes described in the response into DCD Revision 4.	Aug. 2013*
OI 19.1-LPSD-494	RAI 669-5219 Q 19-494 RAI 161-1812 Q 16-117 RAI 1020-7081 Q 19-584	MHI provided a draft revised response to RAI 669-5219 Q 19-494 on 3/25/13. The NRC provided feedback on 4/18/13.	MHI will revise the response to RAI 669-5219 Q 19-494 (and related Chapter 16 RAI 161-1812 Q 16-117) to address the NRC comments.	Jun. 2013
OI 19.1-LPSD-495	RAI 681-5257 Q 19-495 RAI 925-6413 Q 05.04.07-14 RAI 979-6936 Q 05.04.07-15 RAI 998-7025 Q 05.04.07-16	The issues raised by this Open Item are being addressed by follow-up RAIs in Chapter 5.	None in Chapter 19.	NA
OI 19.1-LPSD-506	RAI 749-5651 Q 19-506 RAI 983-6953 Q 19-578	MHI submitted the response to RAI 983-6953 Q 19-578 on 2/6/13 (UAP-HF-13024). The NRC indicated that the response is not acceptable. MHI provided a draft revised response on 4/18/13 and is now waiting for additional NRC feedback.	MHI will revise the response to RAI 983-6953 Q 19-578 to address the NRC comments.	May 2013

Table 2-1 Chapter 19 SE Open Items				
Open Item No.	**Related RAIs**	**Current Status**	**MHI Action**	**Date**
OI 19.1-LEVEL1-512	RAI 750-5675 Q 19-512	MHI submitted the response to RAI 750-5675 Q 19-512 on 6/30/11 (UAP-HF-11201). The NRC indicated that the response is acceptable. The status is now confirmatory pending incorporation of DCD changes.	MHI will incorporate the DCD changes described in the response into DCD Revision 4.	Aug. 2013*
OI 19.1-LEVEL1-513	RAI 40-610 Q 19-97 RAI 40-610 Q 19-98 RAI 423-2710 Q 19-364 RAI 750-5675 Q 19-513	MHI submitted the response to RAI 750-5675 Q 19-513 on 6/30/11 (UAP-HF-11201). The NRC indicated that the response is not acceptable.	MHI will revise the response to RAI 750-5675 Q 19-513 to address the NRC comments.	Jun. 2013
OI 19.1-LEVEL1-514	RAI 750-5675 Q 19-514	MHI submitted the response to RAI 750-5675 Q 19-514 on 6/30/11 (UAP-HF-11201). The NRC indicated that the response is not acceptable.	MHI will revise the response to RAI 750-5675 Q 19-514 to address the NRC comments.	Jun. 2013
OI 19.1-LEVEL1-515	RAI 750-5675 Q 19-515	MHI submitted the response to RAI 750-5675 Q 19-515 on 6/30/11 (UAP-HF-11201). The NRC indicated that the response is not acceptable.	MHI will revise the response to RAI 750-5675 Q 19-515 to address the NRC comments.	Jun. 2013
OI 19.1-LEVEL1-516	RAI 750-5675 Q 19-516	MHI submitted the response to RAI 750-5675 Q 19-516 on 6/30/11 (UAP-HF-11201). The NRC indicated that the response is not acceptable.	MHI will revise the response to RAI 750-5675 Q 19-516 to address the NRC comments.	Jun. 2013

Table 2-1 Chapter 19 SE Open Items				
Open Item No.	**Related RAIs**	**Current Status**	**MHI Action**	**Date**
OI 19.1-LPSD-546	RAI 783-5855 Q 19-546 RAI 983-6953 Q 19-579	MHI submitted the response to RAI 983-6953 Q 19-579 on 2/6/13 (UAP-HF-13024). The NRC indicated that the response is acceptable. The status is now confirmatory pending incorporation of DCD changes.	MHI will incorporate the DCD changes described in the response into DCD Revision 4.	Aug. 2013*
OI 19.1-LEVEL2-560	RAI 871-6121 Q 19-560	MHI submitted the response to RAI 871-6121 Q 19-560 on 6/27/12 (UAP-HF-12181). MHI provided a draft revised response on 2/12/13. The NRC indicated that the revised draft response is acceptable. MHI submitted the revised response on 4/25/13 (UAP-HF-13103).	None.	NA
OI 19.1-LPSD-565	RAI 899-6281 Q 19-565	MHI submitted the response to RAI 899-6281 Q 19-565 on 7/3/12 (UAP-HF-12188). The NRC indicated that a follow-up RAI may be required.	MHI has no action at this time but will respond to a follow-up RAI as necessary.	NA
OI 19.1-LPSD-566	RAI 899-6281 Q 19-566 RAI 1020-7081 Q 19-584	MHI submitted the response to RAI 899-6281 Q 19-566 on 11/28/12 (UAP-HF-12312). The NRC asked follow-up RAI 1020-7081 Q 19-584.	MHI will respond to RAI 1020-7081 Q 19-584.	Jun. 2013

Table 2-1 Chapter 19 SE Open Items				
Open Item No.	**Related RAIs**	**Current Status**	**MHI Action**	**Date**
OI 19.1-LPSD-567	RAI 899-6281 Q 19-567	MHI submitted the response to RAI 899-6281 Q 19-567 on 7/3/12 (UAP-HF-12188). The NRC indicated that the response is acceptable. The status is now resolved-closed.	None.	NA
OI 19.1-LPSD-568	RAI 924-6352 Q 19-568 RAI 1020-7081 Q 19-585	MHI submitted the response to RAI 924-6352 Q 19-568 on 8/23/13 (UAP-HF-12228). The NRC indicated that the response is not acceptable. MHI submitted a revised response to RAI 924-6352 Q 19-568 on 4/22/13 (UAP-HF-13099). The NRC asked follow-up RAI 1020-7081 Q 19-585.	MHI will respond to RAI 1020-7081 Q 19-585.	Jun. 2013
OI 19.1-LPSD-570	RAI 924-6352 Q 19-570 RAI 1020-7081 Q 19-584	MHI submitted the response to RAI 924-6352 Q 19-570 on 1/29/13 (UAP-HF-13011). The NRC asked follow-up RAI 1020-7081 Q 19-584.	MHI will respond to RAI 1020-7081 Q 19-584.	Jun. 2013

Table 2-1 Chapter 19 SE Open Items				
Open Item No.	**Related RAIs**	**Current Status**	**MHI Action**	**Date**
OI 19.1-FIRE-573	RAI 967-6790 Q 19-573	MHI submitted the response to RAI 967-6790 Q 19-573 on 11/20/12 (UAP-HF-12299). The NRC indicated that the response is acceptable. The status is now confirmatory pending incorporation of DCD changes.	MHI will incorporate the DCD changes described in the response into DCD Revision 4.	Aug. 2013*
OI 19.1-LEVEL1-574	RAI 750-5675 Q 19-507 RAI 750-5675 Q 19-509 RAI 834-6035 Q 19-559 RAI 898-6275 Q 19-564 RAI 967-6790 Q 19-574 RAI 1022-7082 Q 19-591	MHI submitted the response to RAI 967-6790 Q 19-574 on 11/20/12 (UAP-HF-12299). The NRC asked follow-up RAI 1022-7082 Q 19-591.	MHI will respond to RAI 1022-7081 Q 19-591.	Jun. 2013
OI 19.1-LEVEL1-575	RAI 967-6790 Q 19-575	MHI submitted the response to RAI 967-6790 Q 19-575 on 11/20/12 (UAP-HF-12299). The NRC indicated that the response is not acceptable. MHI provided a draft revised response on 4/22/13 and is now waiting for additional NRC feedback.	MHI will revise the response to RAI 967-6790 Q 19-575 to address the NRC comments.	May 2013

Table 2-1 Chapter 19 SE Open Items				
Open Item No.	**Related RAIs**	**Current Status**	**MHI Action**	**Date**
OI 19.2-SE-569	RAI 924-6352 Q 19-569 RAI 983-6953 Q 19-580 RAI 1020-7081 Q 19-586	MHI submitted the response to RAI 983-6953 Q 19-580 on 3/8/13 (UAP-HF-13055). The NRC asked follow-up RAI 1020-7081 Q 19-586.	MHI will respond to RAI 1020-7081 Q 19-586.	Jun. 2013

* The date represents when DCD Revision 4 will be submitted.

Table 2-2 Chapter 19 SE Confirmatory Items				
Confirmatory Item No.	Related RAIs	Confirmatory Action To Be Completed By:		
		DCD Revision 4	MUAP-07030 Revision 4	Other
CI 19.1-LPSD-5	RAI 621-4947 Q 19.01-5	X		
CI 19.1-LPSD-10	RAI 668-5180 Q 19.01-10	X		
CI 19.1-LPSD-493	RAI 669-5219 Q 19-493	X	X	
CI 19.1-LPSD-498	RAI 681-5257 Q 19-498			X (Already resolved-closed)
CI 19.1-LEVEL1-503	RAI 744-5668 Q 19-503	X	X	
CI 19.1-LEVEL1-508	RAI 750-5675 Q 19-508	X		
CI 19.1-LEVEL1-510	RAI 750-5675 Q 19-510	X		
CI 19.1-LEVEL1-511	RAI 750-5675 Q 19-511	X		
CI 19.1-EXT-518	RAI 750-5675 Q 19-518	X		
CI 19.1-LEVEL2-521	RAI 92-1237 Q 19-165 RAI 480-3711 Q 19-435 RAI 627-4926 Q 19-448 RAI 752-5614 Q 19-521			X (Audit – see Section 6 of this closure plan)
CI 19.1-LPSD-547	RAI 783-5855 Q 19-547	X		
CI 19.1-LPSD-549	RAI 823-5933 Q 19-549	X	X	
CI 19.1-LPSD-551	RAI 832-6034 Q 19-551	X		
CI 19.1-FLOOD-552	RAI 834-6035 Q 19-552	X		
CI 19.1-FIRE-553	RAI 834-6035 Q 19-553	X		
CI 19.1-FIRE-554	RAI 834-6035 Q 19-554	X		

Table 2-2 Chapter 19 SE Confirmatory Items				
Confirmatory Item No.	Related RAIs	Confirmatory Action To Be Completed By:		
		DCD Revision 4	MUAP-07030 Revision 4	Other
CI 19.1-FIRE-556	RAI 834-6035 Q 19-556	X		
CI 19.1-FIRE-557	RAI 834-6035 Q 19-557	X		
CI 19.1-FLOOD-557	RAI 834-6035 Q 19-557	X		
CI 19.1-LEVEL2-561	RAI 627-4926 Q 19-450 RAI 752-5614 Q 19-523 RAI 872-6144 Q 10-561	X	X	
CI 19.1-LEVEL2-562	RAI 872-6144 Q 19-562		X	
CI 19.1-LEVEL1-564	RAI 898-6275 Q 19-564	X		
CI 19.2-SE-1	RAI 707-5556 Q 19-499	X		
CI 19.2-SE-2	RAI 803-5891 Q 06.02.05-45	X		

3. ACRS Action Items

During the ACRS meeting on February 21-22, 2013 (Reference 8-4), the ACRS members asked questions or made comments. In some cases, MHI provided a response to the ACRS during the February meeting and no additional MHI action is required. In other cases, MHI committed to address the question or comment in the future. Some of these remaining ACRS comments or questions were discussed again in the ACRS meeting on April 11, 2013 (Reference 8-6). This section provides the action items that MHI took from the ACRS meetings. Table 3-1 below provides a list of the ACRS action items, the action that MHI will take, and the date by which MHI will complete the action. Note that in some cases, the ACRS comment or question has been followed-up with by an RAI from the NRC. The follow-up RAIs are also indicated in Table 3-1.

Table 3-1 ACRS Action Items			
No.	**ACRS Comment/Question**	**MHI Action**	**Date**
1	The ACRS asked for a comparison of the MAAP code to other design basis accident codes.	MHI explained to the NRC in the March meeting that MAAP has been compared to other codes in DCD Table 19.1-15 as well as in EPRI TR-100741. The NRC has now asked for additional information in RAI 1021-7085 Q 19-587. MHI will respond to the RAI.	Jun. 2013
2	The ACRS commented that it was not clear whether MSDVs or MSRVs were used for secondary depressurization and the capacities may be different.	MHI explained to the ACRS at the February meeting that the valve capacities are the same. However, the terminology used in MUAP-07030 is inconsistent. MHI will correct the terminology in MUAP-07030 Revision 4.	May 2014*
3	The ACRS commented that the human reliability analysis (HRA) numbers used in the PRA did not appear to add up.	MHI explained to the ACRS at the February meeting that the values may not add up due to cross-products. MHI will verify the values and make any corrections, if necessary, in MUAP-07030 Revision 4.	May 2014*
4	The ACRS commented that some numbers in the interfacing LOCA calculation in the PRA report appear incorrect. The ACRS also commented about the pipe failure data that was used.	MHI will revise the calculation description in MUAP-07030 Revision 4 and confirm whether the pipe failure data is appropriate.	May 2014*
5	The ACRS commented that MHI's assumption for train failure in loss of AC (LOAC) and loss of DC (LODC) may not be the most conservative assumptions possible.	MHI will verify the assumptions and make any corrections, if necessary, in MUAP-07030 Revision 4.	May 2014*

Table 3-1 ACRS Action Items			
No.	**ACRS Comment/Question**	**MHI Action**	**Date**
6	The ACRS commented that the fire PRA included a sequence where the turbine bypass valves (TBVs) open due to the fire and then the MSIVs don't close, but this was not included as a general transient.	MHI will evaluate the assumptions and make any corrections, if necessary, in MUAP-07030 Revision 4. The NRC has now asked for additional information in RAI 1022-7082 Q 19-588. MHI will respond to the RAI.	Jun. 2013
7	The ACRS commented that it was not clear what the fire-induced damages analyzed in the fire PRA for the turbine building fires.	The NRC has now asked for this information in RAI 1022-7082 Q 19-589. MHI will respond to the RAI.	Jun. 2013

* The action may be completed earlier, but since there may be impact on the PRA, the date represents when MUAP-07030 Revision 4 will be submitted.

4. Other Chapter 19 RAIs

All of the Chapter 19 RAIs fall into one of the following categories:

1) RAIs related to the SE Open Items – Discussed in Section 2 in this closure plan
2) RAIs related to the ACRS action items – Discussed in Section 3 of this closure plan
3) RAIs on the Sections 19.1.5.1 and 19.2.4 – Outside the scope of this closure plan
4) Other RAIs

The purpose of this section is to provide the closure plan for the other RAIs (category 4 above). Table 4-1 below lists the RAIs, the current status, MHI's next required action, and the date by which MHI will perform that action.

Table 4-1 Other Chapter 19 RAIs			
RAI	**Current Status**	**MHI Action**	**Date**
RAI 1022-7082 Q 19-590	RAI 1022-7082 Q 19-590 has been issued.	MHI will respond to the RAI.	Jun. 2013

5. DCD Impacts

Impacts on the DCD as a result of RAI responses are typically provided by MHI as attachments to the RAI responses. Since all of the Open Items and Confirmatory Items identified in Section 2 of this closure plan have associated RAI responses, the DCD impacts for those items will be provided as part of the resolution of those items. The purpose of this section is to identify other potential DCD impacts (i.e. those not related to RAI responses). Table 5-1 below shows the potential impacts on the DCD, the cause of the potential change, and provides the date by which MHI can provide the DCD markups to the NRC.

Table 5-1 Impacts on DCD					
DCD Affected Chapter	**Summary of Potential Changes**	**Cause of Change**			**DCD Markup Date to NRC**
		RAI	**PRA Report Rev. 4**	**Other**	
1	*Table 1.6-2 – Material Referenced as Technical Reports* The table will be revised to update the revision number and date of the PRA Technical Report.		X		May 2014
3	*Table 3.2-2 – Classification of Mechanical and Fluid Systems, Components, and Equipment* The table will be revised for consistency with DCD Table 17.4-1 (see Chapter 17 item below).		X		May 2014
6	*Section 6.2.9 – References* The list of references will be revised to update the revision number and date of the PRA Technical Report.		X		May 2014
7	*Section 7.1.6 – References, Section 7.5.5 – References* The list of references will be revised to update the revision number and date of the PRA Technical Report.		X		May 2014
17	*Section 17.4.10 – References* The list of references will be revised to update the revision number and date of the PRA Technical Report.		X		May 2014

Table 5-1 Impacts on DCD					
DCD Affected Chapter	Summary of Potential Changes	Cause of Change			DCD Markup Date to NRC
		RAI	PRA Report Rev. 4	Other	
17	*Table 17.4-1 – Risk-significant SSCs* The risk-significant SSCs will be updated based on the results of the revised PRA.		X		May 2014
18	*Section 18.1.7 – References* The list of references will be revised to include the PRA Technical Report.		X		May 2014
19 19B*	Chapter 19 and Appendix 19B* will be updated to reflect the results of the revised PRA.		X		May 2014
19	*Section 19.0.1 – References, Section 19.1.9 – References, Section 19.2.7 – References* The list of references will be revised to update the revision number and date of the PRA Technical Report.		X		May 2014

* Appendix 19B will be added to the DCD as part of DCD Revision 4 in August 2013 as previously discussed with the NRC.

6. Audits

During the March 28, 2013 meeting (Reference 8-5), the NRC indicated that some audits may be needed. The potential audits are listed below in Table 6-1. The actual audit date will be provided by the NRC. However, MHI may have to prepare material in order to support the audit. Therefore, Table 6-1 provides the date by which MHI would be able to support the potential audit.

Table 6-1 Potential Audits			
No.	**Audit Topic**	**MHI Action**	**Date**
1	The response to RAI 752-5614 Q 19-521 included finite-element structural analyses for the RCS pipes and reactor cavity. The NRC indicated that the RAI response acceptable pending the NRC's verification of these analyses by means of an audit. (This is a Confirmatory Item in Table 2-2.)	MHI will prepare the necessary documentation of the finite-element analyses and make these analyses available for NRC audit.	Oct. 2013
2	Risk-significant structures, systems, and components (SSCs) are identified in DCD Table 17.4-1, referred to as the D-RAP list. The NRC indicated that an audit of the process used to generate the D-RAP list is necessary.	MHI will prepare the necessary documentation for the process used to generate the D-RAP list and make this documentation available for NRC audit.	Sep. 2013
3	The PRA Technical Report, MUAP-07030, Revision 4 will be submitted in May 2014 (see Section 7 of this closure plan). The NRC indicated that an audit may be necessary to verify that the required design changes are included in the PRA (i.e. that the PRA reflects the latest design). The NRC indicated that this could be audited by providing a list of the relevant design changes since DCD Revision 3 and the criteria used for determining whether those design changes are included in the PRA.	MHI will prepare the necessary documentation listing the design changes and providing the criteria for including in the PRA and make this documentation available for NRC audit.	Aug. 2014

7. Technical Report MUAP-07030 Revision

As described in Section 1, the US-APWR PRA is documented in the Technical Report MUAP-07030. Revision 3 of MUAP-07030 was submitted on June 29, 2011 (Reference 8-2). MHI is planning to update the PRA and submit the revised Technical Report to the NRC as MUAP-07030 Revision 4 in May 2014.

The PRA will be revised to address the following:

- Incorporation of changes to the design since DCD Revision 3
  Design changes, previously made as part of RAI responses and DCD Tracking Reports, will be included in DCD Revision 4. Some notable examples include seismic-related changes and design changes made in the Technical Report MUAP-13002, "US-APWR Evaluation and Design Enhancement to Incorporate Lessons Learned from TEPCO's Fukushima Dai-Ichi Nuclear Power Station Accident" (Reference 8-7). The PRA will be updated to be consistent with these design changes.
- Changes to the PRA committed to in RAI responses since MUAP-07030 Revision 3
  As part of each RAI response, MHI includes a section to indicate whether the RAI response has any impact on the PRA. Any PRA impact from an RAI response that was not included in MUAP-07030 Revision 3 will be included in MUAP-07030 Revision 4. Several of these PRA impacts are tracked as Confirmatory Items in the SE. Those items are indicated in Table 2-2 of this closure plan. Other RAI responses that impact the PRA but were not identified as Confirmatory Items in the SE are listed below:
  - RAI 891-6268 Q 17.04-66
  - RAI 891-6268 Q 17.04-67
  - RAI 423-2710 Q 19-377
  - RAI 744-5668 Q 19-504
  - RAI 750-5675 Q 19-517
- Incorporation of changes to address ACRS action items
  During the ACRS meeting on February 21-22, 2013 (Reference 8-4), the ACRS provided questions/comments on the PRA. In some cases, MHI took action to revise the PRA as necessary (see Section 4 of this closure plan for more details).
- Incorporation of RCP seal LOCA model sensitivity studies
  The RCP seal LOCA model in MUAP-07030 Revision 3 assumes no seal leakage for 1 hour after a loss of RCP cooling. After 1 hour, a leakage rate of 480 gpm per RCP is assumed. MHI has performed extensive RCP seal testing, documented in the Technical Report

MUAP-13003, "US-APWR Reactor Coolant Pump No. 2 Seal Test Report" (Reference 8-7). The RCP seal LOCA model will not be revised in MUAP-07030 Revision 4. However, MHI will document sensitivity studies related to the RCP seal LOCA model in MUAP-07030 Revision 4. MHI can provide the draft sensitivity study results to the NRC for review by February 2014.

8. References

1) MHI Letter UAP-HF-11078, "Submittal of US-APWR Design Control Document Revision 3 in Support of Mitsubishi Heavy Industries, Ltd.'s Application for Design Certification of the US-APWR Standard Plant Design", dated March 31, 2011. (ML110980238)
2) MHI Letter UAP-HF-11194, "Transmittal of Revision 3 of the Technical Report 'US-APWR Probabilistic Risk Assessment' for the US-APWR", dated June 29, 2011. (ML11186A922)
3) Letter from J. Ciocco to Y. Ogata, "UNITED STATES - ADVANCED PRESSURIZED WATER REACTOR DESIGN CERTIFICATION APPLICATION - SAFETY EVALUATION WITH OPEN ITEMS FOR CHAPTER 19, 'PROBABILISTIC RISK ASSESSMENT AND SEVERE ACCIDENT EVALUATION'", dated January 17, 2013. (ML13014A627)
4) ACRS Meeting of the US-APWR Subcommittee, "Chapter 17, 'Quality Assurance and Reliability Assurance,' and Chapter 19, 'Probabilistic Risk Assessment and Severe Accident Evaluation' of the US-APWR Design Certification and the Comanche Peak COLA; Chapter 16 'Technical Specifications' and Loss of large Areas (LOLA) of the Plant due to Explosions or Fires of the Comanche Peak COLA", February 21-22, 2013.
5) Memorandum from R. Reyes to H. Hamzehee, "NOTICE OF FORTHCOMING PUBLIC AND CLOSED MEETING WITH MITSUBISHI HEAVY INDUSTRIES, LTD. TO DISCUSS REMAINING ISSUES IN CHAPTER 19, 'PROBABILISTIC RISK ASSESSMENT AND SEVERE ACCIDENT EVALUATION,' AND SECTION 17.4, 'RELIABILITY ASSURANCE PROGRAM'", dated March 18, 2013. (ML13073A560)
6) ACRS Meeting No. 603, April 11-12, 2013.
7) MHI Letter UAP-HF-13052, "Transmittal of Technical Reports and DCD Mark-ups Related to the US-APWR Fukushima Evaluation", dated March 4, 2013. (ML13084A170)