

REQUEST FOR ADDITIONAL INFORMATION 263-2072 REVISION 1

3/5/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 06.02.02 - Containment Heat Removal Systems

Application Section: 6.2.2

QUESTIONS for Component Integrity, Performance, and Testing Branch 1 (AP1000/EPR Projects)
(CIB1)

06.02.02-12

Background

RAI 45-1145 Item e) requested the following:

Because the DCD specifies that all coatings inside containment will be DBA-qualified, what recommendations can MHI make to the COL applicants to ensure that vendor-supplied components, such as pump and valve bodies, actuators, etc. are supplied with DBA-qualified coatings? Should the possibility of a certain amount of unqualified coatings be accounted for in the chemical effects testing or the head loss evaluation, since it may be difficult for the COL holders to procure all components with DBA-qualified coatings?

The applicant's response stated, "If the COL applicant cannot procure components with qualified coatings from supplier, it is recommended that the components shall be procured without coating and apply a qualified coating system, or remove the unqualified coating and repaint with a qualified coating system."

The staff finds this response acceptable, since if the recommendation is implemented by the COL holder, this would ensure that all components have DBA-qualified coatings. However, since the recommendation addresses actions that would be implemented by the COL holder, it is the staff's opinion that the applicant should identify this recommendation as a COL information item and included in a future revision of the DCD.

Requested information:

Please discuss your plans concerning whether the recommendation to the COL from the response to RAI 45-1145, Item e) should become a COL information item and included in the next revision of the DCD.

06.02.02-13

Question contains proprietary information.

REQUEST FOR ADDITIONAL INFORMATION 263-2072 REVISION 1

06.02.02-14

Background

MHI provided the NRC staff with results of chemical effects testing to support the containment sump strainer performance evaluation in Reference 1. The autoclave tests were intended to represent the first 100 hours after a loss-of-coolant accident (LOCA) when the temperature and pH conditions are changing rapidly, while the recirculation test represents the entire 30-day mission time after a LOCA. The different autoclave test runs (Reference 1 Table 3.3-3b) were conducted at three different pH levels. However, the pH of each test run (other than the acidic condition test) is constant. Further, autoclave test runs A-2, A-3, and A-7 were conducted at a constant temperature of 65°C (149°F). Based on Appendix C of Reference 2, the results from the constant temperature autoclave tests were used as a baseline to determine the additional concentration of dissolved elements that can be attributed to the higher temperatures during the transient conditions. However, the results for tests A-2, A-3, and A-7, in terms of dissolved elemental concentrations, were not provided in the test results report. Further, it is not clear to the staff why the applicant did not use the elemental concentrations measured after the first 100 hours of the recirculation test as the baseline for the concentration increase from the temperature transient. Finally, it is not clear how the acidic and alkaline condition autoclave tests (temperature transient and constant temperature) were used in predicting the amount of precipitate that will form, if at all.

Requested Information:

- a) Provide the results (using the same format as Tables A.1.2-1, A.1.2-2 and A.1.2-3 of Reference 1) for the constant temperature autoclave tests.
- b) Why were the results from the first 100 hours of the recirculation test not used as a baseline for determining the increase in the concentration of dissolved elements that can be attributed to the temperature transient condition?
- c) Describe how the results of the acidic and alkaline autoclave tests (both temperature transient and constant temperature) are used in the prediction of the amount of precipitates to form.

References

1. MUAP-08011-P(R0), US-APWR Sump Debris Chemical Effects Test Results, November 2008, Mitsubishi Heavy Industries, Inc.
2. US -APWR Sump Strainer Performance, MUAP-080001-P (R2), December 2008

06.02.02-15

Question contains proprietary information.