

REQUEST FOR ADDITIONAL INFORMATION 451-3588 REVISION 0

9/1/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 06.02.04 - Containment Isolation System

Application Section: 6.2.4

QUESTIONS for Containment and Ventilation Branch 1 (AP1000/EPR Projects) (SPCV)

06.02.04-51

RAI 6.2.4-51:

Clarify use of Low Volume Purge System for cooling or heating containment.

The staff requested in RAI 6.2.4-50 that the applicant clarify the use of the Low Volume Purge system for cooling and heating the containment.

In a letter dated June 16, 22, 2009, Mitsubishi responded to RAI 6.2.4-50 that

- 1) The low volume purge system is not used for containment cooling or heating.
- 2) TS Bases section 3.6.3 will be revised to remove the description of the LV purge system HVAC function.
- 3) Tier 2 Table 9.4-1, "Area Design Temperature and Relative Humidity will be revised to remove the tilde (~)" in front of the value for the maximum containment temperature under normal conditions for containment. ("~120°F").
- 4) DCD Tier 2 Table 14.3-1 will be revised to include the containment air temperature as key design feature with appropriate ITAAC.

The staff has reviewed the response and has identified that the following needs to be addressed by the applicant:

1) In addition to your proposed DCD changes described in RAI-6.2.4-50 response, further clarify Tier 2 table 9.4-1, which still lists the Low volume purge system as a HVAC service system for Containment. The table still seems to communicate the intention of the use of the low volume purge system as a HVAC system for containment during normal operation.

The intent of use of LV purge as a HVAC system during normal operation is not in agreement with Branch Technical Position 6-4 guidance. The revised table should clearly state (via a footnote or other revision) the modes at which the Low Volume purge system is permitted to be used as a containment HVAC service system.

REQUEST FOR ADDITIONAL INFORMATION 451-3588 REVISION 0

06.02.04-52

RAI 6.2.4-52:

Clarify test, vent and drain connections on figure 6.2.4-1 such that an evaluation can be made if each connection can be leak rate tested in accordance with RG-1.163.

The staff requested in RAI 6.2.4-31 and RAIs 6.2.6-4,5,7,8 that the applicant clarify Figure 6.2.4-1 and associated Piping and instrumentation Diagrams to show the required test, vent and drain connections needed to perform containment isolation valve local leak rate testing in accordance with RG 1.163.

Subsequently the applicant issued DCD Tracking report Revision 3, which included an updated Figure 6.2.4-1.

The NRC staff has reviewed a small sample of sheets from the revised figure in tracking report and in a phone conversation held on 8/19/2009, discussed the results of the review. The following information is still needed:

- 1) There is some new notation for the added connections: namely, TC and TV. TC is defined on the Symbols page (sheet 1, page 6.2-276) as a test connection. Is there a difference between T.C and TC, as both are used on the Figure sheets? TV is not defined but in the 8/19 phone call, MHI stated that it is a test vent. Please add this to the notes on Sheet 1 of 51.
- 2) During the call MHI stated that the line size of the TC and TV connections was $\frac{3}{4}$ ". Please add this to the notes on Sheet 1 of 51.
- 3) The drain connections are still not clearly identified or discussed. During the 8/19 phone call, MHI stated that system valves, not shown on Figure 6.4.2-1, would be used to drain the piping for normal maintenance and also for leak rate testing. Please add such a statement to Chapter 6, either with Figure 6.4.2-1 or in Section 6.2.6 and clarify that system piping design will allow full draining of fluids from the CIV valve seats.
- 4) The staff noted that the P&IDs have not yet been updated to show the test, vent and drain (TVD) connections. During the call MHI stated that would take a longer time and would not be part of Rev. 3 to the DCD. When will this be done?
- 5) The staff noted that one P&ID was checked for a test boundary valve for the leak testing of the inboard CIV (CVS-AOV-005) for penetration 277, sheet 5 of 51, CVCS. MHI stated that there was no one boundary valve and that the large portion of the CVCS system shown on DCD Figure 9.3.4-1 would be pressurized as part of the Type C leak rate test. It was stated that this would probably be the case for other penetrations as well. This raises questions as to the practicality of this approach:
 - Are there problems with pressurizing such a large portion of the system with air, including HX tubes and relief valves?
 - Will multiple valves, 5 in this example, be sufficiently leak tight to allow the test of the CIV to be completed effectively?

REQUEST FOR ADDITIONAL INFORMATION 451-3588 REVISION 0

- Will the program count leakage out of these 5 boundary valves as part of the leakage for valve CVS-AOV-005 and the Type C test total for Tech Spec purposes?