

Request for Additional Information No. 32, Revision 0

7/29/2008

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 06.03 - Emergency Core Cooling System
Application Section: 6.3
SRSB Branch

QUESTIONS

06.03-1

One valve was identified from the Medium Head Safety Injection System on the P&ID schematic which was not included in Table 2.2.3-1 and/or Figure 2.2.3-1. The valve should be part of ITAAC because the valve is in the primary flow path or support the safety-related functionality of the MHSI system. The valve as identified is 30JND*0 AA001 (where * = trains 1 through 4).

Please provide the justification to exclude the valve from the ITAAC program (Table 2.2.3-3); if not, include the valve in Table 2.2.3-1 and Figure 2.2.3-1.

06.03-2

Two valves were identified from the In-containment Refueling Water Storage System on the P&ID schematic which were not included in Table 2.2.3-1 and Figure 2.2.3-1. The valves should be part of ITAAC because they are in the primary flow or support the functionality of the system. The valves identified are 30JNK*0 AA001 & 30JNK*1AA010 (where * = trains 1 through 4).

Please provide the justification to exclude the two valves from the ITAAC program (Table 2.2.3-3); if not, include the valves in Table 2.2.3-1 and/or Figure 2.2.3-1.

06.03-3

ANP-10293 references material which had been published prior to September 13, 2004. Since that time, substantial experimental and analytical work has been performed to address the resolution of GSI-191. This work has been documented in reports listed in Attachment 1 to this RAI.

Please explain how the work performed after September 2004, and presented in the reports listed in Attachment 1, was considered in preparing ANP-10293 and/or the EPR FSAR.

06.03-4

ANP-10293 Appendix B provides U.S. EPR sump recirculation information in response to requested information outlined in GL 2004-02. Two of the entries listed in Table B-1 of Appendix B refer to resolutions "based on results of industry consensus regarding confirmation of downstream effects." See entries 2. (d)(v) and 2. (d)(vi) in Table B-1 of Appendix B.

Please provide the resolution of these two entries, the bases of the resolutions and their impact if any on ANP-10293 and/or the EPR FSAR.

Attachment 1

(ECCS System Reliability)

Staff- and Contractor-Prepared NUREG-Series Reports and Letter Reports Prepared for the Resolution of Generic Safety Issue (GSI) 191

1. NUREG/CR-6868, "Small-Scale Experiments: Effects of Chemical Reactions on Debris-Bed Head-Loss," prepared by Los Alamos National Laboratory for the U.S. Nuclear Regulatory Commission, Washington, DC, March 2005.
2. NUREG/CR-6873, "Corrosion Rate Measurements and Chemical Speciation of Corrosion Products Using Thermodynamic Modeling of Debris Components to Support GSI -191," prepared by the Center for Nuclear Waste Regulatory Analyses for the U.S. Nuclear Regulatory Commission, Washington, DC, April 2005.
3. NUREG/CR-6874, "GSI-191: Experimental Studies of Loss-of-Coolant-Accident-Generated Debris Accumulation and Head Loss with Emphasis on the Effects of Calcium Silicate Insulation," prepared by Los Alamos National Laboratory for the U.S. Nuclear Regulatory Commission, Washington, DC, May 2005.
4. NUREG/CR-6877, "Characterization and Head-Loss Testing of Latent Debris from Pressurized-Water-Reactor Containment Buildings," prepared by Los Alamos National Laboratory for the U.S. Nuclear Regulatory Commission, Washington, DC, July 2005.
5. NUREG/CR-6885, "Screen Penetration Test Report," prepared by Los Alamos National Laboratory for the U.S. Nuclear Regulatory Commission, Washington, DC, October 2005.
6. NUREG/CR-6902, "Effects of Insulation Debris on Throttle-Valve Flow Performance," prepared by Los Alamos National Laboratory for the U.S. Nuclear Regulatory Commission, Washington, DC, March 2006.
- 7a. NUREG/CR-6914, Volume 1, "Integrated Chemical Effects Test Project: Consolidated Data Report," prepared by Los Alamos National Laboratory for the U.S. Nuclear Regulatory Commission, Washington, DC, September 2006.
- 7b. NUREG/CR-6914, Volume 2, "Integrated Chemical Effects Test Project: Test #1 Data Report," prepared by Los Alamos National Laboratory for the U.S. Nuclear Regulatory Commission, Washington, DC, September 2006.
- 7c. NUREG/CR-6914, Volume 3, "Integrated Chemical Effects Test Project: Test #2 Data Report," prepared by Los Alamos National Laboratory for the U.S. Nuclear Regulatory Commission, Washington, DC, September 2006.
- 7d. NUREG/CR-6914, Volume 4, "Integrated Chemical Effects Test Project: Test #3 Data Report," prepared by Los Alamos National Laboratory for the U.S. Nuclear Regulatory Commission, Washington, DC, September 2006.

- 7e. NUREG/CR-6914, Volume 5, "Integrated Chemical Effects Test Project: Test #4 Data Report," prepared by Los Alamos National Laboratory for the U.S. Nuclear Regulatory Commission, Washington, DC, September 2006.
- 7f. NUREG/CR-6914, Volume 6, "Integrated Chemical Effects Test Project: Test #5 Data Report," prepared by Los Alamos National Laboratory for the U.S. Nuclear Regulatory Commission, Washington, DC, September 2006.
8. NUREG/CR-6915, "Aluminum Chemistry in a Prototypical Post-Loss-of-Coolant-Accident, Pressurized-Water-Reactor Containment Environment," prepared by Los Alamos National Laboratory for the U.S. Nuclear Regulatory Commission, Washington, DC, December 2006.
9. NUREG/CR-6913, "Chemical Effects Head-Loss Research in Support of Generic Safety Issue 191," prepared by Argonne National Laboratory for the U.S. Nuclear Regulatory Commission, Washington, DC, December 2006.
10. NUREG/CR-6912, "GSI-191 PWR Sump Screen Blockage Chemical Effects Tests: Thermodynamic Simulations," prepared by the Center for Nuclear Waste Regulatory Analyses for the U.S. Nuclear Regulatory Commission, Washington, DC, December 2006.
11. NUREG-1862, "Development of Pressure Drop Calculation Method for Debris-Covered Sump Screens in Support of Generic Safety Issue 191," U.S. Nuclear Regulatory Commission, Washington, DC, January 2007.
12. NUREG/CR-6917, "Experimental Measurements of Pressure Drop Across Sump Screen Debris Beds in Support of Generic Safety Issue 191," prepared by Pacific Northwest National Laboratory for the U.S. Nuclear Regulatory Commission, Washington, DC, January 2007.
13. NUREG/CR-6916, "Hydraulic Transport of Coating Debris," prepared by the Naval Surface Warfare Center for the U.S. Nuclear Regulatory Commission, Washington, DC, December 2006.
14. NUREG-1861, "Peer Review of GSI-191 Chemical Effects Research Program," U.S. Nuclear Regulatory Commission, Washington, DC, December 2006.
15. "Survey on Leaching of Coatings Used in Nuclear Power Plants: Letter Report," Argonne National Laboratory, Argonne, IL, August 2006.
16. Technical Letter Report: "Supplementary Leaching Tests of Insulation and Concrete for GSI-191 Chemical Effects Program," Center for Nuclear Waste Regulatory Analyses, San Antonio, TX, November 2006.
17. "Technical Letter Report on Follow-On Studies in Chemical Effects Head-Loss Research: Studies on WCAP Surrogates and Sodium Tetraborate Solutions," Argonne National Laboratory, Argonne, IL, February 2007.