

# REQUEST FOR ADDITIONAL INFORMATION 203-1962 REVISION 0

2/25/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 09.02.01 - Station Service Water System

Application Section: 9.2.9 Non-Essential Service Water

## QUESTIONS for Balance of Plant Branch 1 (AP1000/EPR Projects) (SBPA)

### 09.02.01-1

General Design Criteria (GDC) 60 requires nuclear power unit designs to include means to control the release of radioactive materials in gaseous and liquid effluents produced during normal reactor operation, including anticipated operational occurrences. Means must also be provided for monitoring effluent discharge paths and the plant environs for radioactivity that may be released in accordance with GDC 64 requirements. Additionally, 10 CFR 52.47(a)(6) and 10 CFR 20.1406 require applicants for standard plant design certifications to describe how facility design and procedures for operation will minimize contamination of the facility and the environment. In order for the staff to confirm compliance with these requirements, the design control document (DCD) needs to be revised to explain how the non-essential service water system satisfies the requirements specified by 10 CFR 20.1406, "Minimization of Contamination."

### 09.02.01-2

10CFR52.47, Content of application; technical information states that "the description shall be sufficient to permit understanding of the system design and their relationship to the safety evaluation". The staff determined that the information provided in design control document (DCD) Tier 2, Section 9.2.9 is incomplete and does not fully satisfy this requirement. This information should be added to Tier 2, DCD Section 9.2.9 or Figure 9.2.9-1.

1. The service water strainers air operated backwash valves and instrument air system are not shown on the flow diagram which are described in Tier 2, DCD 9.2.9.2.2.5.
2. Describe if the non-ESW pumps required any support system such as cooling water for the seals/motors.
3. Tier 2, DCD Section 9.2.9.2.1 states that "the temperatures in the system are moderate and the fluid pressure in the system is kept higher than the above saturation conditions at all locations in the system. This along with the control of valves and other design features of the system arrangement minimizes the potential for transient water hammer". Describe in detail those design features and determine if Tier 1 verification is required under Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC). In addition explain how control of valves and other design features water hammer is minimized. For example, during a loss of power, and before the system is returned to service, describe the operator actions that will have to occur before the system can be started and

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- describe if the non-ESW pumps auto start on low pressure during restoration from the loss of power condition.
4. Describe all of the interlocks required between circulating water system and non-ESW. Describe how many circulation water system (CWS) pumps have to be running before this system can be started due to net positive suction head concerns.
  5. Describe the heat exchanger back flow/flush design and determine if three non-ESW pumps need to be running for this flush. Describe if the strainers or heat exchangers are designed for higher system flow condition where three pumps may be operating during pump swaps or heat exchanger flushing.
  6. Describe the non-ESW strainer mesh size since plate heat exchangers are being utilized.
  7. Describe if one single isolation valve on the each CWS header is needed for complete non-ESW isolation.