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Washington, D.C. 20555-0001

Subject: **Response to Portion of NRC Request for Additional Information  
Letter No. 97 –Auxiliary Systems– RAI Numbers 9.1-29 and 9.1-30**

Enclosure 1 contains GHNEA's response to the subject NRC RAIs transmitted via the Reference 1 letter.

If you have any questions or require additional information regarding the information provided here, please contact me.

Sincerely,



James C. Kinsey  
Project Manager, ESBWR Licensing



NRO

Reference:

1. MFN 07-292, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 97 Related to the ESBWR Design Certification Application*, May 10, 2007.

Enclosure:

1. MFN 07-339 – Response to Portion of NRC Request for Additional Information Letter No. 97 – RAI Numbers 9.1-29 and 9.1-30.

cc: AE Cabbage                    USNRC (with enclosure)  
BE Brown                        GHNEA/Wilmington (with enclosure)  
LE Fennern                       GHNEA/San Jose (with enclosure)  
GB Stramback                    GHNEA/San Jose (with enclosure)  
eDRF: 0000-0069-5278

**Enclosure 1**

**MFN 07-339**

**Response to Portion of NRC Request for  
Additional Information Letter No. 97  
Related to ESBWR Design Certification Application**

**Auxiliary Systems**

**RAI Numbers 9.1-29 and 9.1-30**

**NRC RAI 9.1-29**

*Please provide more a detailed description of the Spent Fuel Pool Cleanup System (e.g., type of demineralizer and filter to be used, capacity, system parameters, etc.). In addition, please provide the basis for the system parameters.*

**GHNEA Response**

Each train of the Fuel and Auxiliary Pool Cooling System (FAPCS) is equipped with pre-filters upstream of a deep bed demineralizer with mixed bead resin. The filter/demineralizer (F/D) units are designed for a minimum of 90 days between resin changes. The cooling portion of the FAPCS is designed for temperatures up to 100°C, however, the F/D units may be limited to a lower design temperature to preserve the integrity of the resin. An automatic bypass valve opens to reroute coolant flow around the F/D units if a high temperature set point is exceeded. The F/D units on both trains are flushed to a common backwash receiving tank which is drained to the Liquid Waste Management System.

The cleanup system reduces radioactive materials and other contaminants from the spent fuel pool, auxiliary pools, suppression pool, and GDCS pools. The capacity of the FAPCS is sufficient to achieve two water changes per day of all the pools served by the system. A separate single-train subsystem with its own pump and F/D unit provides cleaning to the IC/PCC pools. The water quality requirements vary depending on the pool, therefore the specific water quality requirements for the FAPCS F/D units are determined using guidance from several sources, including Regulatory Guide 1.13, SRP 9.1.3, and EPRI Advanced Light Water Reactor Utility Requirement Document Revision 8, Volume III, Section 2.2.3.2.

**DCD Impact**

No DCD changes will be made in response to this RAI.

**NRC RAI 9.1-30**

*Please provide a description of the provisions in place to preclude the inadvertent transfer of spent filter and demineralizer media to any place other than the radwaste facility.*

**GHNEA Response**

Each filter/demineralizer unit is equipped with a post strainer or resin trap that is designed to prevent the inadvertent transfer of contaminants to any location other than the intended radwaste system. Descriptions of these provisions can be found in DCD Tier 2 Subsections 5.4.8.1.2 (RWCU/SDC System), 9.1.3.2 (FAPCS), and 10.4.6.2.1 (CPS).

**DCD Impact**

No DCD changes will be made in response to this RAI.