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MFN 07-376

Docket No. 52-010

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U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555-0001

Subject: **Response to Portion of NRC Request for Additional Information Letter No. 96 –Auxiliary Systems– RAI Number 9.1-27**

Enclosure 1 contains GEH'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,

Kathy Sedney for

James C. Kinsey
Project Manager, ESBWR Licensing

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NRO

Reference:

1. MFN 07-231, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, *Request for Additional Information Letter No. 96 Related to the ESBWR Design Certification Application*, April 14, 2007.

Enclosure:

1. MFN 07-376 - Response to Portion of NRC Request for Additional Information Letter No. 96 – RAI Number 9.1-27.

cc: AE Cubbage USNRC (with enclosure)
BE Brown GEH/Wilmington (with enclosure)
LE Fennern GEH/San Jose (with enclosure)
GB Stramback GEH/San Jose (with enclosure)
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Enclosure 1

MFN 07-376

Response to Portion of NRC Request for Additional Information Letter No. 96 Related to ESBWR Design Certification Application

Auxiliary Systems

RAI Number 9.1-27

NRC RAI 9.1-27

Sastre-Fuente E: Demonstrate that material compatibility is in accordance with Appendix B to Title 10 of the Code of Federal Regulations Part 50. Reference: Generic Letter 96-004, "Boraflex Degradation in Spent Fuel Pool Storage Racks. "Demonstrate the compatibility and chemical stability of the materials in the spent fuel pool racks that are wetted by the water in the spent fuel pool in accordance with Appendix B to Title 10 of the Code of Federal Regulations Part 50.

GEH Response

"As Boraflex is not used in fabrication of the ESBWR spent fuel racks, Generic Letter 96-004 is not applicable. However, degradation of neutron absorption material in spent fuel rack material, the underlying issue of Generic Letter 96-004, is considered in the selection of materials used in fabrication of ESBWR spent fuel racks.

Fabrication of the ESBWR spent fuel racks is limited to use of stainless steel materials. The ends are fabricated from Type 304L stainless steel, which conforms to ASTM A 240. The appropriate weld wire for the 304L components (E308L or ER308L) is utilized in the fabrication process. The interlocking panels that form the fuel element storage matrix are fabricated from Type 304B7 borated stainless steel, which conforms to ASTM A 887 (UNS Designation S30467, Grade B, 1.75-2.25% boron inclusion). There is no welding of the borated stainless steel. Fuel rack feet are fabricated from Type 630 (17-4PH) age-hardened stainless steel, which conforms to ASTM A 564. Spent fuel racks utililizing this combination of materials have been in service world-wide for more than 30 years with no evidence of degradation.

ESBWR spent fuel pool water chemistry requirements are such that presence of materials that induce corrosion and degradation in stainless steel are limited. The water treatment system includes demineralizing equipment for reducing soluble impurities such as chloride, sulfate, silica, iron, copper and other metals. Parameters such as conductivity, dissolved oxygen, and organic impurities are also controlled."

DCD Impact

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