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MFN 07-024
Supplement 1

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Subject: **Response to Portion of NRC Request for Additional Information Letter No. 77 Related to ESBWR Design Certification Application – Technical Specifications – RAI Number 16.2-94, Supplement 1**

Enclosure 1 contains GE's response to the subject NRC RAIs transmitted via the Reference 1 letter. GE's original response was provided in the Reference 2 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 06-391, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 77 Related to ESBWR Design Certification Application*, October 11, 2006
2. MFN 07-024, Letter from Jim Kinsey to U.S. Nuclear Regulatory Commission, *Response to Portion of NRC Request for Additional Information Letter No. 77 Related to ESBWR Design Certification Application - Technical Specifications - RAI Numbers 16.2-33, 16.2-52, 16.2-75, 16.2-90 through 16.2-94, and 16.2- 97 through 16.2-109*, January 18, 2007

Enclosures:

1. Response to Portion of NRC Request for Additional Information Letter No. 77 Related to ESBWR Design Certification Application - Technical Specifications - RAI Number 16.2-94 S01

cc: AE Cubbage USNRC (with enclosures)
GB Stramback GE/San Jose (with enclosures)
RE Brown GE/Wilmington (with enclosures)
eDRF 0000-0068-2701

Enclosure 1

MFN 07-024, Supplement 1

Response to Portion of NRC Request for

Additional Information Letter No. 77

Related to ESBWR Design Certification Application

- Technical Specifications -

RAI Number 16.2-94 S01

NRC RAI 16.2-94

SR 3.5.2.1, Confirm that the Gravity-Driven Cooling System (GDCS) pool level of 21.65 ft specified for each pool is equivalent to the minimum total drainable inventory of 62,150 ft3 as given in DCD Tier 2, Revision 1, Table 6.3-2.

GE Response

Consistent with the response to RAI 6.3-17 (General Electric Letter MFN 06-241, dated July 28, 2006), Design Control Document (DCD) Tier 2, Revision 1, Table 6.3-2, "GDCS Design Basis Information," has been revised to specify that the minimum total drainable inventory (for 3 GDCS Pools) at the GDCS pool low water level of 6.5 meters is 1746 m3 (61,659 ft3).

DCD Tier 2, Chapter 16, "Technical Specifications," LCO 3.5.2, "Gravity-Driven Cooling System (GDCS) – Operating," has been revised to be consistent with revision 2 of DCD, Table 6.3-2. Surveillance Requirement 3.5.2.1 will require periodic verification that the water level in each GDCS pool is $\geq$ 6.5 meters (21.3 feet).

DCD Impact

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

NRC RAI 16.2-94, Supplement 1

Summary of Question:

RAI 16.2-94 requested confirmation that the GDCS pool level of 21.65 ft specified for each pool is equivalent to the minimum total drainable inventory of 62,150 ft3 given in DCD Tier 2, Revision 1, Table 6.3-2.

Summary of Response:

Response from GE (MFN 07-024 dated January 18, 2007; ML070320107) stated that DCD Tier 2, Revision 1, Table 6.3-2, "GDCS Design Basis Information," was revised to specify that the minimum total drainable inventory (for three GDCS Pools) at the GDCS low level of 6.5 meters is 1746 m3 (61,659 ft3). Note: DCD Tier 2, Revision 3, Table 6.3-2, was subsequently revised to reflect a new minimum total drainable volume (for three3 GDCS pools) at GDCS pool low water level of 6.5 meters of 1661 m3 (58,658 ft3). There were no specific details provided as to why this volume had been changed.

Comment on Response:

DCD Tier 2, Revision 3, Table 6.2-3 specifies that the total water volume per pool (for pools at 90 and 270 degrees) at normal water level is 560 m3 (i.e., 1120 m3 combined) and the total water volume (for pool at 180 degrees) at normal water level is 739 m3. Table 6.2-3 also provides the non-drainable water volume for each GDCS pool, and those values are 91 m3 and 78 m3, respectively. Therefore, at normal water level, the total usable GDCS pool inventory is [(560 - 91) + (560 - 91) + (739 - 78)] m3 or 1599 m3.

This usable volume of 1599 m3 at normal pool water level (from Table 6.2-3) is less than the minimum total drainable inventory of 1661 m3 at pool low water level (from Table 6.3-2).

Requested Response:

Please explain the apparent discrepancy between the usable volume described in Table 6.2-3 (1599 m3 at normal pool level) and Table 6.3-2 (1661 m3 minimum total drainable inventory at pool low water level).

GE Response

Minor changes to the GDCS pool configuration have resulted in changes to the calculated value of the non-drainable volume of the GDCS pools. GE has reviewed the GDCS pool configuration and the supporting calculations to ensure that GDCS pool volumes have been properly incorporated into DCD Table 6.2-3, "Containment Major Configuration Data," and Table 6.3-2, "GDCS Design Basis Parameters." A revision to DCD Table 6.2-3 and Table 6.3-2 will include the following changes:

Table 6.2-3

Containment Major Configuration Data

GDCS Pools	
Total Water Volume (per pool for pools at 90 and 270 degrees) at Normal water level (~6.6 meters)	560 m3 (19776 ft^3)
Non-Drainable Water Volume (per pool for pools at 90 and 270 degrees)	58.1 m^3 (2051.8 ft^3)
Non-Drainable Water Volume (for pool at 180 degrees)	77.8 m^3 (2747.5 ft^3)

Table 6.3-2

GDCS Design Basis Parameters

Parameter	Value
Minimum total drainable inventory for (3 GDCS pools) at low water level of 6.5 meters	1636 m^3 (57775 ft^3)

There is no change to the original response in that SR 3.5.2.1 continues to require periodic verification that the water level in each GDCS pool is $\geq$ 6.5 meters (21.3 feet).

In conjunction with this change, DCD Tier 2, Chapter 16, "Technical Specifications," LCO 3.5.3, "Gravity-Driven Cooling System (GDCS) – Shutdown," Required Action B.1, and SR 3.5.3.1, will be revised to remove the brackets and specify the required GDCS volume as 986.8 m^3 (34,848 ft^3). This volume corresponds to the minimum drainable volume of the two smaller GDCS pools at a GDCS pool water level of 6.5 meters.

DCD Impact

Tier 2, DCD Chapter 6, Table 6.2-3 and Table 6.3-2, Chapter 16, LCO 3.5.3, will be revised to include the changes described above.