



General Electric Company
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April 8, 1992

MFN No. 086
Docket No. STN 52-001
SLK-9252

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

Attention: Robert C. Pierson, Director
Standardization and Non-Power Reactor Project Directorate

Subject: Section 4 of Tier 1 Design Certification Material for the GE
ABWR Design, Stage 2 Submittal

Reference: Letter, P. W. Marriott to Robert C. Pierson, "Tier 1 Design
Certification Material for the GE ABWR Design, Stage 2
Submittal," Docket No. STN 52-001 dated April 6, 1992.

Enclosed are thirty-four (34) copies of the Section 4 of the Tier 1 Design
Certification material for the GE ABWR design, Stage 2 submittal. Section
4 was inadvertently omitted from the submittal transmitted by the
referenced letter. Please insert the enclosed Section 4 into the material
transmitted by the referenced letter.

GE regrets any inconvenience caused as a result of this omission.

Sincerely,

P. W. Marriott, Manager
Regulatory and Analysis Services
M/C 444, (408) 925-6948

Enclosure

cc: F. A. Ross - DOE
N. D. Fletcher - DOE
C. Poslusny, Jr. - NRC
R. C. Berglund - GE
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4.0 Interface Tier 1 Material

10 CFR Part 52 addresses the issue of interface requirements that must be met by those portions of the plant for which the design certification applicant does not seek certification. Part 52 stipulates that these requirements must be sufficiently detailed to allow completion of the final safety analysis as well as the design-specific probabilistic risk assessment called for by the regulations. In addition, the certification application must include conceptual design of the interfacing facility features that has sufficient detail to support review of the application. 10 CFR Part 52.47(a)(1)(viii) requires justification that interface requirements are verifiable through inspections, tests or analyses and that the method to be used for this verification be included as part of the ITAAC required by Paragraph (a)(1)(vi) of Part 52. The purpose of this section is to provide the necessary Tier 1 material for interface items. No Tier 1 treatment is proposed for the conceptual designs of portions of the plant not within the scope of design certification.

4.1 Ultimate Heat Sink

Design Description

The ultimate heat sink (UHS) is not within the scope of the certified design. It is intended that a specific UHS will be selected and designed for any facility which has adopted the certified design. This plant specific UHS will meet the interface requirements defined below.

Interface Requirements

The UHS provides sufficient cooling water to the Reactor Service Water (RSW) system to permit safe shutdown and cooldown of the unit and maintain the unit in a safe shutdown condition. The UHS is sized so that makeup water is not required for at least 30 days following an accident. During this period design basis temperature and water chemistry limits are not exceeded.

During normal plant operation, the UHS removes the heat load of the RSW system during all phases of plant operation.

The UHS can withstand the most severe natural phenomena or site-related event (e. g., SSE tornado, hurricane, flood, freezing, spraying, pipe whip, jet forces, missiles, fire, flooding as a result of pipe failures or transportation accident) and reasonably probable combinations of less severe phenomena and/or events, without impairing its safety function.

The safety related portions of the UHS can perform their required cooling function assuming a single active failure in any mechanical or electrical system. The safety related portions of the UHS are mechanically and electrically separated. The UHS can withstand any credible single failure of man-made structural features without impairing its safety function. The UHS and any pumps, valves, structures or other components that remove heat from safety systems shall be designed to Seismic Category I and ASME Code, Section III, Class 3, Quality Group C and applicable IEEE requirements.

Inspection, Test, Analyses and Acceptance Criteria

Table 4.1 provides a definition of the inspections, tests, and/or analyses together with the associated acceptance criteria which will be used to verify that the UHS meets interface requirements.

Table 4.1: Ultimate Heat Sink System

Inspections, Tests, Analyses and Acceptance Criteria

| Certified Design Commitment | Inspections, Tests, Analyses | Acceptance Criteria |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 1. UHS can remove sufficient heat to permit safe shutdown and cooldown of the unit and maintain the unit in a safe shutdown condition. | 1. The heat removal capability will be determined by a review of design and procurement documents. | 1. Sufficient heat removal capacity provided. |
| 2. Makeup water will not be required for at least 30 days following an accident. | 2. The makeup requirements of the as-built facility will be evaluated by analysis and review of design documentation. | 2. Makeup water is not required for at least 30 days following an accident. |
| 3. UHS can remove the heat load of the RSW system during all phases of normal plant operation. | 3. Heat removal capability of the as-built facility will be evaluated and compared to requirements. | 3. Sufficient heat removal capacity provided. |
| 4. UHS can withstand the most severe natural phenomena or site-related event and reasonably probable combinations of less severe phenomena and/or events without impairing its safety function. | 4. A review of the as-built facility will be conducted. | 4. Ability to withstand phenomena or events is confirmed. |
| 5. Safety related portions of UHS are mechanically and electrically separated and can perform their safety related function assuming a single active failure in any mechanical or electrical system. | 5. Separation features of the facility will be reviewed by inspection and analysis. Ability to function after any single active failure will be determined by analysis of the installed system. | 5. Separation and ability to function after any single active failure confirmed. |
| 6. UHS and any pumps, valves, structures, or other components that remove heat from safety systems are designed to codes and standards in the Design Description. | 6. Adherence to codes and standards is determined by inspection of as-built equipment documentation. | 6. Adherence to codes and standards confirmed. |

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