



GE Energy

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MFN 06-154
Supplement 1

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U.S. Nuclear Regulatory Commission
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Subject: **Response to NRC Request for Additional Information Letter No. 23
Related to ESBWR Design Certification Application – Steam and
Power Conversion System – RAI Number 10.4-6 – Supplement 1**

Enclosure 1 contains a revised response to the subject RAI based on a NRC/GE conference call held on September 11, 2006. There are no changes to any of the remaining RAI responses contained in the Reference 1 letter.

If you have any questions about the information provided here, please let me know.

Sincerely,

A handwritten signature in cursive script that reads "Kathy Sedney for".

David H. Hinds
Manager, ESBWR

Reference:

1. MFN 06-154, Letter from David Hinds to U.S. Nuclear Regulatory Commission, *Response to NRC Request for Additional Information Letter No. 23 Related to ESBWR Design Certification Application – Steam and Power Conversion System – RAI Numbers 10.2-1 through 10.2-19 and 10.4-2 through 10.4-9*, June 12, 2006

Enclosure:

1. MFN 06-154, Supplement 1 – Response to NRC Request for Additional Information Letter No. 23 Related to ESBWR Design Certification Application – Steam and Power Conversion System – RAI Number 10.4-6 – Supplement 1

cc: AE Cubbage USNRC (with enclosures)
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ENCLOSURE 1

MFN 06-154

Supplement 1

**Response to NRC Request for
Additional Information Letter No. 23
Related to ESBWR Design Certification Application
Steam and Power Conversion System
RAI Number 10.4-6 – Supplement 1**

NRC RAI 10.4-6

Provide ITAAC in DCD Tier 1 for the TGSS or the rationale for not providing.

Response to RAI 10.4-6, Revision 1

Because of the numerous turbine vendors available, the choice of a turbine and the design of its associated TGSS (if any) is COL applicant scope. Plus, some turbines do not need or have a TGSS. However, assuming that ESBWR turbines may have a TGSS, and based on the content of Tier 2 Subsection 10.4.3, Tier 1 Subsection 2.11.5 has been updated, as shown in the included update to Tier 1.

2.11.5 Turbine Gland Seal System

The following is only applicable to a plant, if that plant's turbine needs a Turbine Gland Seal System (TGSS) to meet GDC 60.

Design Description

The TGSS prevents the escape of radioactive steam from the turbine shaft/casing penetrations and valve stems and prevents air in-leakage through sub-atmospheric turbine glands. Specifically, the TGSS

- (1) Prevents atmospheric air leakage into the turbine casings and prevents radioactive steam leakage out of the casings of the turbine-generator;
- (2) Returns the condensed steam to the condenser and exhausts the non-condensable gases to the plant vent system; and
- (3) Has enough capacity to handle steam and air flows resulting from greater than normal packing clearances.

The TGSS has main control room monitors and/or alarms for gland steam condenser exhaust suction pressure, water level in the gland steam condenser drain leg, and continuous radiation monitoring of its effluents.

Inspections, Tests, Analyses and Acceptance Criteria

Table 2.11.5-1 provides a definition of the inspections, tests, and/or analyses, together with associated acceptance criteria, which will be undertaken for the TGSS.

Table 2.11.5-1
Turbine Gland Seal System ITAAC

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. The basic functions for the TGSS are as described in Subsection 2.11.5.	1. Inspections of the as-built system will be conducted.	1. The as-built system conforms with Subsection 2.11.5.
2. Control room instrumentation for the TGSS are as described in Subsection 2.11.5.	2. Inspections of the as-built control room TGSS instrumentation will be conducted.	2. The as-built control room instrumentation conforms with Subsection 2.11.5.