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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. 70 – Related to ESBWR Design Certification Application – RAI Number 14.2-53 S01**

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,

Kathy Sedney for

James C. Kinsey
Project Manager, ESBWR Licensing

D068

LRO

Reference:

1. MFN 06-382, Letter from U.S. Nuclear Regulatory Commission to David Hinds, *Request for Additional Information Letter No. 70 Related to the ESBWR Design Certification Application*, October 10, 2006

Enclosures:

1. MFN 07-061 Supplement 1 – Response to Portion of NRC Request for Additional Information Letter No. 70 – Related to ESBWR Design Certification Application –RAI Number 14.2-53S01
2. MFN 07-061 Supplement 1 – Response to Portion of NRC Request for Additional Information Letter No. 70 – Related to ESBWR Design Certification Application –RAI Number 14.2-53S01 – Tier 2 DCD Markup Pages

cc:

AE Cubbage	USNRC (with enclosures)
DH Hinds	GHNEA Wilmington (with enclosures)
BE Brown	GHNEA Wilmington (with enclosures)
eDRF	0000-0069-6887

Enclosure 1

MFN 07-061 Supplement 1

Response to Portion of NRC Request for

Additional Information Letter No. 70

Related to ESBWR Design Certification Application

RAI Number 14.2-53 S01

NRC RAI 14.2-53 S01

3/20/07 e-mail from Amy Cubbage

Request for supplemental RAI response: The response and DCD revision that was incorporated into DCD revision 3 Section 14.2.8.1.59 are not accurate since the proposed ESBWR overspeed trip system does not include a mechanical trip device. Please revise the response and provide a proposed DCD revision to exclude the mechanical overspeed trip.

GE Response

After discussion with the Lead Chapter Engineer for ESBWR DCD Tier 2 Chapter 10 and a review of the response to RAI 10.2-18 S01, it is clear that the ESBWR main turbine will NOT have a mechanical overspeed trip device. Therefore, deletion of this description from Subsection 14.2.8.1.59 is required.

DCD Impact

DCD Tier 2, Subsection 14.2.8.1.59 will be revised as noted in the attached markup.

Enclosure 2

MFN 07-061 Supplement 1

Response to Portion of NRC Request for

Additional Information Letter No. 70

Related to ESBWR Design Certification Application

RAI Number 14.2-53 S01

Tier 2 DCD Markup Pages

Performance shall be observed and recorded during a series of individual component and integrated system tests to demonstrate the following:

- Proper operation of instrumentation and equipment in all combinations of logic and instrument channel trip including turbine trip;
- Proper functioning of instrumentation and alarms used to monitor system operation and status;
- Proper operation of system valves and actuators (including isolation and nonreturn check valves) under expected operating conditions;
- Proper operation of interlocks and equipment protective devices; and
- Proper operation of moisture separator drain pathways.

14.2.8.1.59 Main Turbine and Auxiliaries Preoperational Test

Purpose

The objective of this test is to verify that the operation of the main turbine and its auxiliary systems, including the gland sealing system, lube oil system, turning gear, supervisory instrumentation, and turbine protection system (including overspeed protection), is as specified. Testing of the turbine valves and associated control systems is included.

Prerequisites

The construction tests have been successfully completed and the SCG has reviewed the test procedure and approved the initiation of testing. Appropriate power sources that supply power to the control circuits and instrumentation are available to support testing. Required interfacing systems shall be available, as needed, to support the specified testing and the corresponding system configurations.

General Test Methods and Acceptance Criteria

Performance shall be observed and recorded during a series of individual component, subsystem and integrated system tests (to the extent possible) to demonstrate the following, with regard to both the turbine and its auxiliaries:

- Proper operation of instrumentation and equipment in all combinations of logic and instrument channel trip;
- Proper functioning of instrumentation and alarms used to monitor system operation and availability, including the turbine supervisory instrumentation;
- Proper operation of system pumps and valves in all design operating modes;
- Proper system flow paths, flow rates, temperatures and pressures (particularly with regard to the lube oil and gland sealing steam systems);
- Proper operation of valve auxiliaries such as hydraulic fluid systems, including pumps and accumulators, and power supplies;
- Verification that automatic starting of motor driven lube oil pumps, the alarm functions of lube oil level and the pressure drop of lube oil filters;

- Proper operation of interlocks and equipment protective devices in various turbine, pump, and valve controls; and
- Proper operation of the turbine turning gear including proper turning gear engagement and disengagement functions.
- Proper operation of the turbine overspeed protection system to provide ~~mechanical overspeed trip and electrical backup~~ Primary and Emergency electrical overspeed trips as specified in subsection 10.2.2.4 and the manufacturer's technical instruction manual. (During the preoperational test phase, simulated speed signals will be used for these tests.)

14.2.8.1.60 Main Generator and Auxiliary Systems Preoperational Test

Purpose

The objective of this test is to verify that the operation of the main generator and its auxiliary systems, including the generator hydrogen system and its associated seal oil and cooling systems, those subsystems and/or components that provide cooling to the generator exciter, stator, circuit breakers and isophase bus duct, and the generator protection system, is as specified.

Prerequisites

The construction tests have been successfully completed and the SCG has reviewed the test procedure(s) and approved the initiation of testing. Appropriate power sources that supply power to the control circuits and instrumentation are available to support testing. The generator instruction manual shall be reviewed in detail in order that precautions relative to generator operation are followed. Required interfacing systems shall be available, as needed, to support the specified testing and the corresponding system configurations.

General Test Methods and Acceptance Criteria

Performance shall be observed and recorded during a series of individual component, subsystem and integrated system tests (to the extent possible) to demonstrate the following, with regard to both the generator and its auxiliaries:

- Proper operation of instrumentation and equipment in all combinations of logic and instrument channel trip;
- Proper functioning of instrumentation and alarms used to monitor system operation and availability;
- Proper operation of system pumps, valves, fans, and piping or ducting in all design operating modes;
- Proper system flow paths, flow rates and pressures (particularly with regard to the generator hydrogen system and its associated seal oil and cooling systems);
- Proper operation of the generator purge system;
- Proper operation of interlocks and equipment protective devices in the various generator and auxiliary system controls; and
- Proper operation of the field excitation.