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Subject: **Response to Portion of NRC Request for Additional Information
Letter No. 70 Related to ESBWR Design Certification Application –
RC&IS ITAAC– RAI Number 14.3-81**

Enclosure 1 contains GE's response to the subject NRC RAI transmitted via the
Reference 1 letter.

If you have any questions or require additional information regarding the information
provided here, please contact me.

Sincerely,



James C. Kinsey
Project Manager, ESBWR Licensing

DOGB

WFO

Reference:

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

Enclosure:

1. MFN 07-329, Response to a Portion of NRC Request for Additional Information Letter No. 70, Related to ESBWR Design Certification Application, RC&IS ITAAC, RAI Number 14.3-81

cc: AE Cabbage USNRC (with enclosures)
DH Hinds GE (with enclosures)
RE Brown GE (w/o enclosures)
eDRF 0000-0068-6269

ENCLOSURE 1

MFN 07-329

**Response to a Portion of NRC Request for,
Additional Information Letter No. 70,
Related to ESBWR Design Certification Application,
RC&IS ITAAC,
RAI Number 14.3-81**

NRC RAI 14.3-81

The Design Description of the RC&IS should provide a listing of the plant input signals, and output signals, to the RC&IS. Provide an ITAAC to verify each signal is present when confirming channel redundancy, channel protective action independence and two channel agreement during RC&IS operations.

GE Response

The Design Description of the RC&IS in DCD Tier 1 Subsection 2.2.1 states that

“The RC&IS does not perform or ensure any safety related function, and thus, is non-seismic, nonsafety-related system”. However, according to the response provided to NRC against RAI 19.1.0-2 (Ref: MFN 07 - 066, dated January 30, 2007, Docket No. 52-010), for ATWS prevention/mitigation, ESBWR provides an Alternate Rod Insertion (ARI) system with sensors and logic that are diverse and independent of the RPS. In addition, the ESBWR design uses an electrical insertion of Fine Motion Control Rod Drives (FMCRDs) for ATWS mitigation. These fall under Criterion A for RTNSS consideration.

ARI functional requirement is listed under DCD Tier 1 Subsection 2.2.1 and associated ITAAC are listed in Table 2.2.1-1 (Specifically ITAAC items 6 through 10). However, “Acceptance Criteria” for ITAAC items 6 through 12 “The certified design commitment is met” will be rewritten for clarity as shown below. ITAAC Table 2.2.1-1 addresses adequately the required ITAAC for RC&IS and no additional ITAAC are deemed necessary. DCD Tier 2 Subsection 7.7.2 provides the RC&IS detail description.

FMCRD is described in DCD Tier 1 Subsection 2.2.2 “Control Rod Drive System” Design Description.

DCD Impact

DCD Tier 1 Table 2.2.1-1 for items 6 through 12 “Acceptance Criteria” will be revised as shown below for clarity.

Table 2.2.1-1
ITAAC For Rod Control and Information System

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6. On receipt of Selected Control Rod Run In (SCRRI) signals from the N-DCIS, RC&IS automatically inserts a predetermined number of control rods to a predetermined position for each control rod.	6. Tests of RC&IS will be conducted using simulated SCRRI signals	6. Test report(s) exist(s) and conclude(s) that on receipt of Selected Control Rod Run In (SCRRI) signals from the N-DCIS, RC&IS automatically inserts a predetermined number of control rods to a predetermined position for each control rod.
7. On receipt of Scram Follow signals from Reactor Protection System (RPS), RC&IS automatically initiates motor-driven run-in of the FMCRDs to their full-in position.	7. Tests of RC&IS will be conducted using simulated Scram Follow signals from RPS.	7. Test report(s) exist(s) and conclude(s) that on receipt of Scram Follow signals from Reactor Protection System (RPS), RC&IS automatically initiates motor-driven run-in of the FMCRDs to their full-in position.
8. RC&IS, on receipt of an Alternate Rod Insertion (ARI) signals from the N-DCIS, automatically initiates motor-driven run-in of the FMCRDs to their full-in position.	8. Tests of RC&IS will be conducted using simulated ARI signals from N-DCIS.	8. Test report(s) exist(s) and conclude(s) that RC&IS, on receipt of an Alternate Rod Insertion (ARI) signals from the N-DCIS, automatically initiates motor-driven run-in of the FMCRDs to their full-in position.
9. RC&IS transmits control rod position and status data to the N-DCIS and Neutron Monitoring System	9. Tests of RC&IS will be conducted to output control rods coordinates, positions, and status to the N-DCIS and Neutron Monitoring System.	9. Test report(s) exist(s) and conclude(s) that RC&IS transmits control rod position and status data to the N-DCIS and Neutron Monitoring System.

Table 2.2.1-1

ITAAC For Rod Control and Information System

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
10. RC&IS enforces control rod withdrawal blocks as required by RPS, CRDS, and NMS.	10. Tests of RC&IS will be conducted using simulated inputs from RPS, CRDS, and NMS.	10. Test report(s) exist(s) and conclude(s) that RC&IS enforces control rod withdrawal blocks as required by RPS, CRDS, and NMS.
11. The Induction Motor Controller Cabinets (IMCCs), Rod Brake Controller Cabinets (RBCCs) and Emergency Rod Insertion Panels (ERIPs) of RC&IS are powered from the Low Voltage Distribution System.	11. A test of the Low Voltage Distribution System availability to the IMCCs, RBCCs and ERIPs of RC&IS will be conducted.	11. Test report(s) exist(s) and conclude(s) that the Induction Motor Controller Cabinets (IMCCs), Rod Brake Controller Cabinets (RBCCs) and Emergency Rod Insertion Panels (ERIPs) of RC&IS are powered from the Low Voltage Distribution System.
12. Rod Action Control Cabinets (RACCs), Remote Communication Cabinets (RCCs) and the DOI of RC&IS are powered from two independent nonsafety-related power sources, with at least one of the independent sources being a nonsafety-related uninterruptible power source.	12. A test of the nonsafety-related redundant power source availability to the RACCs, RCCs and DOI of RC&IS will be conducted.	12. Test report(s) exist(s) and conclude(s) that Rod Action Control Cabinets (RACCs), Remote Communication Cabinets (RCCs) and the DOI of RC&IS are powered from two independent nonsafety-related power sources, with at least one of the independent sources being a nonsafety-related uninterruptible power source.