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MFN 08-943 Supplement 1

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Subject: **Response to Portion of NRC Request for Additional Information Letter No. 306 Related to ESBWR Design Certification Application – RAI Number 14.3-436 S01**

Enclosure 1 contains the GE Hitachi Nuclear Energy (GEH) response to the subject NRC RAI originally transmitted via the Reference 1 letter. The original RAI was received via Reference 2 and responded to in Reference 3. Enclosure 2 contains DCD markups associated with this response.

Verified DCD changes associated with this RAI response are identified in the enclosed DCD markups by enclosing the text within a black box.

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

Sincerely,

Richard E. Kingston

Richard E. Kingston
Vice President, ESBWR Licensing

Reference:

1. MFN 09-146, Letter from the U.S. Nuclear Regulatory Commission to Robert E. Brown, Request for Additional Information Letter No. 306, Related To ESBWR Design Certification Application, dated February 19, 2009
2. MFN 08-746, Letter from the U.S. Nuclear Regulatory Commission to Robert E. Brown, Request for Additional Information Letter No 258, Related To ESBWR Design Certification Application, dated September 25, 2008
3. MFN 08-943, Response to a Portion of NRC Request for Additional Information (RAI) Letter 258 - Related to ESBWR Design Certification Application - Chapter 14.3 - RAI Number 14.3-436, dated December 16, 2008

Enclosures:

1. Response to Portion of NRC Request for Additional Information Letter No. 306, Related to ESBWR Design Certification Application – RAI Number 14.3-436 S01
2. Response to Portion of NRC Request for Additional Information Letter No. 306, Related to ESBWR Design Certification Application – RAI Number 14.3-436 S01 - DCD Markups

cc:

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Enclosure 1

MFN 08-943
Supplement 1

Response to Portion of NRC Request for

Additional Information Letter No. 306

Related to ESBWR Design Certification Application

RAI Number 14.3-436 S01

For historical purposes, the original text of RAI 14.3-436 and the GE response is included. This response does not include any attachments or DCD mark-ups.

NRC RAI 14.3-436:

Rev. 5, Tier 1, Section 3.3 states that "The ITAAC for the Human Factors Engineering process address the ESBWR systems safety-related described in Table 2.2.10-1 and their associated safety-related functions." Table 2.2.10-1 is titled "Systems and Functions Comprising the Q-DCIS." Each of the HFE element ITAAC items in Table 3.3-1 has had a similar statement added in Rev. 5 of Tier 1 that was not in Rev. 4. This apparent limitation of the HFE ITAAC to safety-related items from Table 2.2.10-1 is not appropriate and does not agree with the scope of HFE defined in the DCD Tier 2, Chapter 18, in the Tier 2 HFE implementation plans, and in regulatory guidance (SRP Chap. 18 & NUREG-0711). Revise DCD Tier 1, Rev. 5 to remove the limitation or apparent limitation to only safety-related items.*

GEH Response:

As addressed in NRC NUREG-0800, Section 14.3, “The type of information and the level of detail in Tier 1 are based on a graded approach commensurate with the safety significance of the structures, systems, and components (SSCs) for the design. The top-level information selected should include the principal performance characteristics and safety functions of the SSCs and should be verified appropriately by ITAAC. Design-specific and unique features of the facility should be considered carefully for inclusion in Tier 1.” It further explains that, “While the Tier 1 information must address the complete scope of the design to be certified, the amount of design information is proportional to the safety-significance of the structures and systems of the design.” In addition it states, “ITAAC are limited to the design features and requirements that must be verified prior to fuel loading.”

Tier 2, Section 14.3, also describes the graded approach and explains that the “Selection of specific technical material for the HFE design descriptions and ITAAC entries in the Tier 1 utilized the same selection criteria and methodology as described above for Tier 1, Section 2 system entries.” Section 14.3 does note that for certain nonsafety-related systems, there may be information in Design Descriptions but there would not be specific ITAAC.

The HFE process will be performed on both safety-related and nonsafety-related systems/functions. However, based on the above, the HFE Tier 1 ITAAC (including DAC ITAAC) will be commensurate with the safety function and will be limited to the safety-related systems and nonsafety-related functions requiring regulatory treatment.

DCD Impact:

DCD Tier #1, Section 3.3 will be revised in revision 6 as noted in the attached markup.

NRC RAI 14.3-436 S01:

Restriction of scope of HFE to safety-related items.

In response to RAI 14.3-436, GEH indicates they will retain the ITAAC limitations. The basis provided for this decision is derived from NUREG-0800, Section 14.3, which states in part "The type of information and the level of detail in Tier 1 are based on a graded approach commensurate with the safety significance of the structures, systems, and components (SSCs) for the design. The top-level information selected should include the principal performance characteristics and safety functions of the SSCs and should be verified appropriately by ITAAC. Design-specific and unique features of the facility should be considered carefully for inclusion in Tier 1." It further explains that, "While the Tier 1 information must address the complete scope of the design to be certified, the amount of design information is proportional to the safety-significance of the structures and systems of the design." In addition it states. "ITAAC are limited to the design features and requirements that must be verified prior to fuel loading."

The staff applies the material quoted in the response as one of the generic principles guiding the content and level of detail contained in the Tier 1 DCD. While ITAACs are expected to verify the top-level information contained in Tier 1, Tier 1 does not define the complete ITMC scope. With respect to HFE, NUREG-0711 outlines the goals and scope which provide necessary definition and scope to ITAACs. Criterion (1) and (3) quoted below are particularly applicable to our position that the current ITAAC limitation in DCD revision 5 are not appropriate.

NUREG-0711, Section 2.4.1 General HFE Program Goals and Scope

(1) HFE Program Goals - The general objectives of the program should be stated in "human centered" terms, which, as the HFE program develops, should be defined and used as a basis for HFE test and evaluation activities. Generic "human-centered" HFE design goals include the following:

- *personnel tasks can be accomplished within time and performance criteria the HSIs, procedures. staffing/qualifications, training and management and organizational support will support a high degree of operating crew situation awareness*
- *the plant design and allocation of functions will maintain operation vigilance and provide acceptable workload levels Le., to minimize periods of operator underload and overload*
- *the operator interfaces will minimize operator error and will provide for error detection and recovery capability*

(3) Applicable Facilities - The HFE program should address the main control room, remote shutdown facility, technical support center (TSC), emergency operations facility (EOF), and local control stations (LCSs).

First Criterion (3) defines the applicable facility. The focus is on operating locations, NOT safety verses non safety related systems. Criterion (1) reinforces this perspective by stating human performance goals that are not associated with SSC safety

classification. The staff uses this as their basis for conducting an integrated Main Control Room HFE design evaluation. Omitting any subset of SSCs located in the control room introduces the potential that the HFE program goals listed in criterion (1) will not be accurately assessed. ITAACs in turn must be structured to verify the complete main control room design, not a subset of SSCs. This is consistent with 1OCFR50.34(f)(2)(iii) which requires a control room with state-of-art HFE.

The staff believes the RAI response has not fully addressed the staffs concern and requests that GEH revise Tier 1, Section 3, to remove the limitation of HFE scope to SR and selected non-SR items, and make the scope for HFE the same as in Tier 2,Chapter 18, and in the HFE implementation plans that have been reviewed.

GEH Response:

GEH will revise Tier 1, Section 3, to remove the limitation of HFE scope to SR and selected non-SR items, and make the scope for HFE the same as in Tier 2, Chapter 18, and the HFE implementation plans. The attached markup provides the revised Tier 1, Section 3 that will be incorporated in DCD Revision 6.

DCD Impact:

DCD Tier 1, Section 3.3 will be revised in revision 6 as noted in the attached markup, as shown in Enclosure 2.

Enclosure 2

MFN 08-943
Supplement 1

Response to Portion of NRC Request for

Additional Information Letter No. 306

Related to ESBWR Design Certification Application

RAI Number 14.3-436 S01
DCD Markups

Verified DCD changes associated with this RAI response are identified in the enclosed DCD markups by enclosing the text within a black box.

3.3 HUMAN FACTORS ENGINEERING

Design Description

The Human Factors Engineering (HFE) design process represents a comprehensive, synergistic, iterative design approach for the development of human-centered control and information infrastructure for the ESBWR.

~~*HFE Program Goals* –~~The general objectives of the program can be stated in "human-centered" terms, which, as the HFE program develops, is refined and used as a basis for HFE planning, test and evaluation activities. HFE design goals include ensuring that:

- Personnel tasks can be accomplished within time and performance criteria;
- Human-System Interfaces (HSIs), procedures, staffing/qualifications, training and management and organizational variables support a high degree of operating crew situation awareness;
- Allocation of functions accommodates human capabilities and limitations;
- Operator vigilance is maintained;
- Acceptable operator workload is met;
- Operator interfaces contribute to an error free environment; and
- Error detection and recovery capabilities are provided.

~~A minimum inventory of HSI comprising the human system interfaces (i.e., alarms, controls, and displays) needed to implement the plant's emergency operating procedures, bring the plant to a safe condition, and to carry out those human actions shown to be important from the probabilistic risk assessment is established and verified in the HFE program.~~

The elements of the ESBWR HFE Program Management are provided in the plan entitled "Man-Machine Interface System and Human Factors Engineering Implementation Plan (MMIS and HFE Implementation Plan). In the plan the following are described:

- HFE goals/objectives
- A technical program to accomplish the objectives
- The system to track HFE issues
- The HFE design team
- Management and organizational structure for the technical program

The proposed methodologies for the conducts of the HFE activities are described in separate implementation plans. The results and outcomes of the activities are summarized in individual results summary reports.

The MMIS and HFE Implementation Plan and supporting HFE activity implementation plans are submitted for NRC staff review in the pre-design project phase. ~~The results summary reports address the ESBWR safety-related systems described in Table 2.2.10-1 and their associated safety-related functions defined in the Task Analysis~~. The results summary reports are available

for the NRC staff review, and are included in the list of items for Inspections, Tests, Analyses, and Acceptance Criteria.

The following are the HFE elements and their associated implementation plans:

(1) Operating Experience Review (OER) is performed in accordance with the ESBWR HFE Operating Experience Review Implementation Plan.

(2) Functional Requirements Analysis (FRA) is performed in accordance with the ESBWR HFE Functional Requirements Analysis Implementation Plan and Allocation of Functions (AOF) is performed in accordance with the ESBWR HFE Allocation of Functions Implementation Plan.

(3) Task Analysis is performed in accordance with the ESBWR HFE Task Analysis Implementation Plan.

(4) Staffing and Qualifications (S&Q) is performed in accordance with the ESBWR HFE Staffing and Qualifications Implementation Plan.

(5) Human Reliability Analysis (HRA) is performed in accordance with the ESBWR HFE Human Reliability Analysis Implementation Plan.

(6) Human System Interface (HSI) Design is performed in accordance with the ESBWR HFE Human System Interface Design Implementation Plan.

(7) Procedure Development is performed in accordance with the ESBWR HFE Procedure Development Implementation Plan.

(8) Training Development is performed in accordance with the ESBWR HFE Training Development Implementation Plan.

(9) Human Factors Verification and Validation (HF V&V)is performed in accordance with the ESBWR HFE Verification and Validation Implementation Plan.

(10) Design Implementation is performed in accordance with the ESBWR HFE Design Implementation Plan.

(11) The strategy for the Human Performance Monitoring (HPM) process is developed in accordance with the ESBWR HFE Human Performance Monitoring Implementation Plan.

A minimum inventory of human system interfaces (alarms, displays, and controls) needed to implement the plant's emergency operating procedures, carry out those human actions shown to be important from the probabilistic risk assessment, and to bring the plant to a safe condition were developed using a detailed and comprehensive task analysis process.

To identify tasks that support implementing the emergency operating procedures, the strategies and actions of the BWROG EPG/SAG, Revision 2 were compared with the ESBWR design. This comparison is a functional analysis; linking the strategy and task guidance contained in the BWROG document with the design specifics and system capabilities of the ESBWR.

Tasks that support the completion of risk important human actions were identified through PRA analysis of design basis accidents and the resulting event strategies, sequences, and actions. Any human action included in these sequences was analyzed in the context of the ESBWR plant and

systems design and operating strategies to determine error probabilities and consequences. Using ranking methodologies, risk important human actions and tasks were identified.

Analysis of plant manipulations necessary for achieving and maintaining safe, stable shutdown following design basis main control room (MCR) evacuation identified tasks that must be completed at the remote shutdown system (RSS).

These groups of tasks were then analyzed through task analysis to identify the alarms, displays, and controls that are needed to ensure their successful completion by ESBWR operators. The resulting list of HSIs is the ESBWR minimum inventory of alarms, displays, and controls.

The results for the MCR HSIs are contained in Table 3.3-1a and the RSS HSIs are contained in Table 3.3-1b.

Inspections, Tests, Analyses and Acceptance Criteria

~~Because the HSI technology is continually advancing, details of the HFE design will not be complete before the NRC issuance of a design certification. Therefore the portions needed to complete the acceptance criteria of the certification review are marked as {{Design Acceptance Criteria}}.~~

~~The inspections, tests, analyses, and acceptance criteria for the Human Factors Engineering process address the ESBWR safety-related systems described in Table 2.2.10-1 and their associated safety-related functions.~~ Table 3.3-~~1~~ 22 provides a definition of the inspections, test and/or analyses, together with associated acceptance criteria for Human Factors Engineering.

Table 3.3-1a

Minimum Inventory of MCR Alarms, Displays, and Controls

Description	Alarm	Display	Control
Reactor Power	X	X	
Reactor Pressure	X	X	
Reactor Water Level	X	X	
Containment Water Level		X	
Suppression Pool Level	X	X	
Average Drywell Temperature	X	X	
Suppression Pool Bulk Average Temperature	X	X	
Drywell Pressure	X	X	
Wetwell Pressure		X	
Containment Isolation Valves		X	X
Containment Radiation		X	
Drywell Hydrogen Concentration	X	X	
Wetwell Hydrogen Concentration	X	X	
Drywell Oxygen Concentration	X	X	
Wetwell Oxygen Concentration	X	X	
Isolation Condenser Valves		X	X
Isolation Condenser Pool Level	X	X	
Shutdown Cooling Initiation			X
Passive Containment Cooling Pool Level	X	X	
Gravity Driven Cooling Pool Level		X	
Gravity Driven Cooling Injection Valves		X	X
Gravity Driven Cooling Equalization Valves		X	X
Reactor Scram	X	X	X
Main Steam Isolation	X	X	X
Main Steam Relief Valves		X	X
Standby Liquid Control Accumulator Level		X	
Standby Liquid Control Initiation			X
Standby Liquid Control Accumulator Isolation Valves	X	X	X
Automatic Depressurization System Inhibit	X		X
Depressurization Valves (DPV)		X	X
Containment High Pressure Nitrogen Status	X		
Reactor Building Area Temperature High	X		

Table 3.3-1a

Minimum Inventory of MCR Alarms, Displays, and Controls

Description	Alarm	Display	Control
Reactor Building Ventilation Exhaust Radiation High	X	X	
Reactor Building Area Radiation High	X		
Reactor Building Area Water Level High	X		
Reactor Building Ventilation Isolation		X	X

Table 3.3-1b

Minimum Inventory of RSS Alarms, Displays, and Controls

Description	Alarm	Display	Control
Reactor Pressure	X	X	
Reactor Water Level	X	X	
Isolation Condenser System	X	X	X
Isolation Condenser Pool Level	X	X	
Main Steam Isolation	X	X	X

Table 3.3-~~1~~ 2

ITAAC For Human Factors Engineering

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. Operating Experience Review (OER) is performed in accordance with the ESBWR HFE Operating Experience Review Implementation Plan.	An inspection is performed on the OER results summary report(s). **{{Design Acceptance Criteria}}**	A results summary report(s) exists that concludes that the OER activity was conducted in accordance with the implementation plan and contains: • The scope of the OER. • The list of sources of operating experience reviewed and summary of documented results. • List of risk-important Human Actions and their resolutions from predecessor plants. • A description of the process for issue analysis, tracking, and review. **{{Design Acceptance Criteria}}** ~~The inspections, tests, analyses, and acceptance criteria for the Human Factors Engineering process address the ESBWR safety-related systems as defined in Table 2.2.10-1 and their associated safety-related functions.~~

Table 3.3-~~1~~ 2

ITAAC For Human Factors Engineering

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
2. Functional Requirements Analysis (FRA) is performed in accordance with the ESBWR HFE Functional Requirements Analysis Implementation Plan and Allocation of Functions (AOF) is performed in accordance with the ESBWR HFE Allocation of Functions Implementation Plan.	An inspection is performed on the FRA and AOF results summary report(s). **{{Design Acceptance Criteria}}**	A results summary report(s) exists that concludes that the FRA and AOF activities were conducted in accordance with the implementation plans and contains: • Scope of the FRA. • Functional hierarchy for plant safety functions including the identification of Critical Safety Functions. • Plant systems and configurations that support safety functions. • Definition of high-level plant functions, their support needs, and monitoring parameters. • Scope of AOF. • Safety function allocations. **{{Design Acceptance Criteria}}** ~~The inspections, tests, analyses, and acceptance criteria for the Human Factors Engineering process address the ESBWR safety-related systems as defined in Table 2.2.10-1 and their associated safety-related functions.~~

Table 3.3-~~1~~ 2

ITAAC For Human Factors Engineering

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
3. Task Analysis is performed in accordance with the ESBWR HFE Task Analysis Implementation Plan.	An inspection is performed on the Task Analysis results summary report(s). **{{Design Acceptance Criteria}}**	A results summary report(s) exists that concludes that the Task Analysis activity was conducted in accordance with the implementation plan and contains: • The scope of the Task Analysis. • A list of Task descriptions. • A description of the process for documenting and retaining task analysis results. • Examples of detailed task analysis results. ~~• List of minimum inventory of alarms, displays and controls.~~ **{{Design Acceptance Criteria}}** ~~The inspections, tests, analyses, and acceptance criteria for the Human Factors Engineering process address the ESBWR safety-related systems as defined in Table 2.2.10-1 and their associated safety-related functions.~~

Table 3.3-~~1~~ 2

ITAAC For Human Factors Engineering

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
4. Staffing and Qualifications (S&Q) is performed in accordance with the ESBWR HFE Staffing and Qualifications Implementation Plan.	i. An inspection is performed on the S&Q results summary report(s). **{{Design Acceptance Criteria}}**	i. A results summary report(s) exists that concludes that the S&Q design activity was conducted in accordance with the implementation plan and contains: • The scope of the S&Q activity. • A summary of design requirements and inputs to the S&Q. **{{Design Acceptance Criteria}}** ~~The inspections, tests, analyses, and acceptance criteria for the Human Factors Engineering process address the ESBWR safety-related systems as defined in Table 2.2.10-1 and their associated safety-related functions.~~

Table 3.3-~~1~~ 2

ITAAC For Human Factors Engineering

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
	ii. An inspection is performed on the final S&Q results summary report(s).	ii. A final results summary report(s) exists that concludes that the S&Q process was conducted in accordance with the implementation plan and contains: • Final staffing levels and qualifications. • The basis for the S&Q concluding that issues and concerns raised in other HFE activities are addressed. ~~The inspections, tests, analyses, and acceptance criteria for the Human Factors Engineering process address the ESBWR safety-related systems as defined in Table 2.2.10-1 and their associated safety-related functions.~~

Table 3.3-~~1~~ 2

ITAAC For Human Factors Engineering

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
5. Human Reliability Analysis (HRA) is performed in accordance with the ESBWR HFE Human Reliability Analysis Implementation Plan.	i. An inspection is performed on the HRA results summary report(s). **{{Design Acceptance Criteria}}**	i. A results summary report(s) exists that concludes that the HRA design was conducted in accordance with the implementation plan and contains: • The scope of the HRA. • A list of risk-important human actions input to Human Factors activities. **{{Design Acceptance Criteria}}** ~~The inspections, tests, analyses, and acceptance criteria for the Human Factors Engineering process address the ESBWR safety-related systems as defined in Table 2.2.10-1 and their associated safety-related functions.~~

Table 3.3-~~1~~ 2

ITAAC For Human Factors Engineering

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6. Human System Interface (HSI) Design is performed in accordance with the ESBWR HFE Human System Interface Design Implementation Plan.	i. An inspection is performed on the HSI Design results summary report(s). **{{Design Acceptance Criteria}}**	i. A results summary report(s) exists that concludes that the HSI Design specification was conducted in accordance with the implementation plan and contains: • The scope of the HSI Design. • A description of the concept of operations for HSI Design. • A list of HFE standards and guideline documents used in the activity. • Descriptions of the Style Guide and design specifications for HSI design. • A list of accident monitoring instruments ~~comprising the minimum inventory of HSI and~~ that comply~~ies~~ with RG 1.97 and supporting analysis. • A description of the functional requirement specification for HSIs. **{{Design Acceptance Criteria}}** ~~The inspections, tests, analyses, and acceptance criteria for the Human Factors Engineering process address the ESBWR safety-related systems as defined in Table~~

Table 3.3-~~1~~ 2

ITAAC For Human Factors Engineering

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
7. Procedure Development is performed in accordance with the ESBWR HFE Procedure Development Implementation Plan.	i. An inspection is performed on the Procedure Development results summary report(s). **{{Design Acceptance Criteria}}** .	i. A results summary report(s) exists that concludes that the Procedure Development design was conducted in accordance with the implementation plan and contains: • The scope of the procedures development process. • A list of writer's guides for procedure development. • A summary of design requirements and inputs to procedure development. **{{Design Acceptance Criteria}}** ~~The inspections, tests, analyses, and acceptance criteria for the Human Factors Engineering process address the ESBWR safety-related systems as defined in Table 2.2.10-1 and their associated safety-related functions.~~
	ii. An inspection is performed on the final Procedure Development results	ii. A final results summary report(s) exists that concludes that the Procedure

Table 3.3-~~1~~ 2

ITAAC For Human Factors Engineering

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
		~~functions.~~
8. Training Development is performed in accordance with the ESBWR HFE Training Development Implementation Plan.	i. An inspection is performed on the Training Development results summary report(s). **{{Design Acceptance Criteria}}**	i. A results summary report(s) exists that concludes that the Training Development design was conducted in accordance with the implementation plan and contains: • The purpose and scope of the Training Development. • The roles of organizations involved and the facilities and resources needed to satisfy the needs of the training. • A summary of design requirements and inputs to Training Development. **{{Design Acceptance Criteria}}** ~~The inspections, tests, analyses, and acceptance criteria for the Human Factors Engineering process address the ESBWR safety-related systems as defined in Table 2.2.10-1 and their associated safety-related functions.~~
	ii. An inspection is performed on the final Training Development results summary report(s).	ii. A final results summary report(s) exists that concludes that the Training Development process was conducted in

Table 3.3-~~1~~ 2

ITAAC For Human Factors Engineering

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
		accordance with the implementation plan and contains: • A description of the organization and content of the Training Program. • A description of the process for developing learning objectives. • A description of the methods for verifying the accuracy and completeness of training course materials, concluding that the training course materials are accurate and complete. • A description of the process for refining and updating the content and conduct of training. • A description of the plan for periodic retraining of personnel. ~~The inspections, tests, analyses, and acceptance criteria for the Human Factors Engineering process address the ESBWR safety-related systems as defined in Table 2.2.10-1 and their associated safety-related functions.~~
9. Human Factors Verification and	An inspection is performed on the HF	A results summary report(s) exists that

Table 3.3-~~1~~ 2

ITAAC For Human Factors Engineering

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
Validation (HF V&V) is performed in accordance with the ESBWR HFE Human Factors Verification and Validation Implementation Plan.	V&V results summary report(s).	concludes that the HF V&V activity was conducted in accordance with the implementation plan and contains: • The scope of the HF V&V. • Major conclusions and their basis. • A description of the process for documenting and retaining the detailed HF V&V results. • A summary of the following activities: - Operational conditions used for the HF V&V. - HSI inventory and characterization. - HSI task support verification. - HFE design verification. - Integrated system validation. - Human Engineering Discrepancy resolution. ~~The inspections, tests, analyses, and acceptance criteria for the Human Factors Engineering process address the ESBWR safety-related systems as defined in Table~~

Table 3.3-~~1~~ 2

ITAAC For Human Factors Engineering

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
		~~2.2.10-1 and their associated safety-related functions.~~
10. Design Implementation is performed in accordance with the ESBWR HFE Design Implementation Plan.	An inspection is performed on the Design Implementation results summary report(s).	A results summary report(s) exist~~s~~ that concludes that the Design Implementation activity was conducted in accordance with the implementation plan and contains: • The results of the final (as-built) HSI Verification concluding that the "As-Built" HSIs and their design characteristics correspond to the HSI Requirements and that Human Engineering Discrepancies (if any) resulting from non-conformance are resolved. • The results of the confirmation of the "As-Built" procedures and training design implementation concluding that Human Engineering Discrepancies resulting from adapted sections (if any) are resolved. • The results of the verification of HFE design not performed in the HF V&V concluding that items in the

Table 3.3-~~1~~ 2

ITAAC For Human Factors Engineering

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
		verification list meet verification criteria and Human Engineering Discrepancies (if any) resulting from non-conformance are resolved. • A description of the resolution to Human Engineering Discrepancies and Open issues in the issue tracking system (HFEITS). • A summary of turnover of remaining Human Engineering Discrepancies/HFEITS issues. ~~The inspections, tests, analyses, and acceptance criteria for the Human Factors Engineering process address the ESBWR safety-related systems as defined in Table 2.2.10-1 and their associated safety-related functions.~~
11 The strategy for the Human Performance Monitoring (HPM) process is developed in accordance with the ESBWR HFE Human Performance Monitoring Implementation Plan.	An inspection is performed on the HPM results summary report(s).	A results summary report(s) exists that concludes that the HPM strategy was developed in accordance with the implementation plan and contains: • A description of the HPM strategy including the scope, structure, and provisions for specific cause