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Subject: **Submittal of ESBWR Licensing Topical Report NEDO-33278,
ESBWR Human Factors Engineering Design Implementation Plan
(DI), Revision 3**

Licensing Topical Report (LTR) NEDO-33278, ESBWR Human Factors Engineering Design Implementation Plan, Revision 3, is being submitted for your review and use in accordance with the corresponding HFE program element identified in Reference 1.

Attachment 1 of this letter contains LTR NEDO-33278, Revision 3, dated May 2008.

If you have any questions or require additional information, please contact me.

Sincerely,

James C. Kinsey
Vice President, ESBWR Licensing

*DOUG
NRO*

Reference:

1. NUREG-0711, Revision 2, Human Factors Engineering Program Review Model, issued February 2004

Attachment:

1. MFN 08-267 – ESBWR Licensing Topical Report NEDO-33278, ESBWR Human Factors Engineering Design Implementation Plan (DI), Revision 3

cc: AE Cabbage USNRC (with enclosures)
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Attachment 1

**NEDO-33278
Revision 3**

**ESBWR Licensing Topical Report – *ESBWR Human
Factors Engineering Design Implementation Plan (DI),
Revision 3***



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NEDO-33278

Revision 3

Class I

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LICENSING TOPICAL REPORT

**ESBWR HUMAN FACTORS ENGINEERING
DESIGN IMPLEMENTATION PLAN**

PROPRIETARY INFORMATION NOTICE

This document NEDO-33278, Revision 3, contains no proprietary information.

IMPORTANT NOTICE REGARDING CONTENTS OF THIS REPORT

Please read carefully

The information contained in this document is furnished as reference to the NRC Staff for the purpose of obtaining NRC approval of the ESBWR Certification and implementation. The only undertakings of GE Hitachi Nuclear Energy (GEH) with respect to information in this document are contained in contracts between GEH and participating utilities, and nothing contained in this document shall be construed as changing those contracts. The use of this information by anyone other than that for which it is intended is not authorized; and with respect to any unauthorized use, GEH makes no representation or warranty, and assumes no liability as to the completeness, accuracy, or usefulness of the information contained in this document.

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1. OVERVIEW

The Design Implementation Plan, NEDO-33278, addresses the final “As-Built” implementation of the Human Factors Engineering (HFE) guidance into ESBWR standard plant design. The ESBWR overall HFE design process is depicted in Figure 1. The standard design includes standardized Human System Interfaces (HSIs), procedures, and training. The ESBWR fleet-wide owners’ group is responsible for maintaining the standard plant design and good human factors practice.

Figure 2 depicts the design implementation process described in this plan. The COL Holder, with the support of the fleet-wide owners’ group, is responsible for design implementation of new plants constructed using the ESBWR standard plant design. The implementing organizations execute their responsibilities under the plans described in the NEDO-33217 ESBWR Man-Machine Interface Systems and Human Factors Engineering Implementation Plan (MMIS and HFE Implementation Plan). The design implementation, startup, and operational duties of the COL Holders include aspects of these plans, which are transferred to the COL Holder under their license obligations to ensure the integrity of the HFE infrastructure is maintained throughout the life cycle of the plant.

The HFE aspects of the ESBWR standard plant including design of the HSIs, standard plant procedures, and standard plant training documentation, are verified and validated during the HFE Verification and Validation (HFE V&V) process. The Design Implementation as described in this plan is performed to assure that the “As-Built” HFE design conforms to the design that resulted from the ESBWR standard plant V&V efforts.

1.1 PURPOSE

The purpose of this document is to:

- (1) Confirm that the final HSIs, procedures, and training (“As-Built”) HFE design conforms to the ESBWR standard plant design resulting from the HFE design process and V&V activities. Any identified human engineering discrepancies (HEDs) are assessed and properly addressed.
- (2) Verify aspects of the design that may not have been evaluated previously in the V&V process. This includes any hardware/software, new or modified displays that were absent from the simulator-based integrated V&V process, and any physical or environment (e.g., noise, lighting, etc.) differences between those present at the V&V process and the “As-Built” Main Control Room (MCR).
- (3) Verify resolution of remaining HEDs and open items from the Human Factors Engineering Issue Tracking System (HFEITS)
- (4) Transfer responsibility for HFEITS to the COL Holder, with the support of the fleet-wide owners’ group

1.2 SCOPE

The “As-Built” confirmations, verifications, and validations described in this plan apply to the COL plants constructed from the ESBWR standard design. The COL Holder, with the support of the fleet-wide owners’ group, is responsible for:

- Regulatory obligations of design implementation
- Application of the “As-Built” confirmation to all stations, panels, components, and elements managed under the ESBWR HFE program

The ESBWR standard plant design against which the “As-Built” comparison is made is derived from the revised HSI design and the standard plant procedures and training documents. These include the corrections and improvements from the V&V process. The ESBWR standard plant design remains the intellectual property of GEH.

1.3 DEFINITIONS AND ACRONYMS

1.3.1 Definitions

Construction Documents: The fabrication and installation documentation for the full scope of the HSI requirements.

HFE Issue Tracking System (HFEITS): An electronic database used to document human factors engineering issues not resolved through the normal HFE process and human engineering discrepancies (HEDs) from the design verification and validation activities. Additionally, the database is used to document the problem resolutions.

HSI Requirements: The validated HSIs and their characteristics that satisfy the task analysis information and control needs. This input is obtained from the Verified HSI Design resulting from HFE V&V.

Human Engineering Discrepancies (HED): design features that are incompatible with human capabilities.

Human System Interfaces (HSI): A human-system interface (HSI) is that part of the system through which personnel interact to perform their functions and tasks. In this document, “system” refers to a nuclear power plant. Major HSIs include alarms, information displays, and controls. Procedures are also HSIs, but are developed and treated in a separate activity plan, and are treated separately in this plan. Operator controls and information displays, however, for the purposes of displaying on-line procedures are HSIs in the context of this activity.

Procurement Documents: The GEH/COL and contractor ordering documents and specifications and their associated human factors guidance for the complement of the HSI requirements.

Standard Plant Procedures (“As-Built”): The latest revisions to the procedures (at the time of design verification) developed within the scope of NEDO-33274, ESBWR HFE Procedures Development Implementation Plan.

Standard Plant Procedures (V&V): The procedures developed within the scope of NEDO-33274, ESBWR HFE Procedures Development Implementation Plan, and resulting from the HFE Verification and Validation activity.

Standard Plant Training (“As-Built”): The latest revisions of the training documentation and aids (at the time of design implementation) developed within the scope of NEDO-33275, ESBWR HFE Training Development Implementation Plan.

Standard Plant Training (V&V): The training documentation and aids developed within the scope of NEDO-33275, ESBWR HFE Training Development Implementation Plan, and resulting from the HFE Verification and Validation activity.

1.3.2 Acronyms

The following is a list of acronyms used in this plan.

Acronym	Description
AOF	Allocation of Function
BRR	Baseline Review Record
COL	Combined Operating License
DCD	Design Control Document
D3	Defense-in-Depth and Diversity
FRA	Functional Requirements Analysis
GEH	GE Hitachi Nuclear Energy
HED	Human Engineering Discrepancies
HF	Human Factors
HFE	Human Factors Engineering
HFEITS	Human Factors Engineering Issue Tracking System
HRA	Human Reliability Analysis
HSI	Human-System Interface
HVAC	Heating, Ventilation, and Air Conditioning
MCR	Main Control Room
OER	Operating Experience Review
P&ID	Piping and Instrument Diagram
PRA	Probabilistic Risk Assessment
RE	Responsible Engineer
S&Q	Staffing and Qualifications
TA	Task Analysis
TL	Task Leader
V&V	Verification and Validation

2. APPLICABLE DOCUMENTS

Applicable documents include supporting documents, and supplemental documents. Codes and standards are also given in this section. Supporting documents provide the input requirements to this plan. Supplemental documents are used in conjunction with this plan. Codes and standards are applicable to this plan to the extent specified herein.

2.1 SUPPORTING AND SUPPLEMENTAL GEH DOCUMENTS

2.1.1 Supporting Documents

The following supporting documents were used as the controlling documents in the production of this plan. These documents form the design basis traceability for the requirements outlined in this plan.

- (1) ESBWR DCD, Chapter 18, Rev. 5 (26A6642BX)
- (2) NEDO-33217, Rev. 4, "ESBWR Man-Machine Interface Systems and Human Factors Engineering Implementation Plan"

2.1.2 Supplemental Documents

The following supplemental documents are used in conjunction with this document plan.

- (1) NEDO-33219, Rev. 3, "ESBWR Human Factors Engineering Functional Requirements Analysis Implementation Plan"
- (2) NEDO 33268, Rev. 3, "ESBWR HFE Human-System Interface Design Implementation Plan"
- (3) NEDO-33276, Rev. 2, "ESBWR HFE Verification and Validation Implementation Plan"
- (4) NEDO-33274, Rev. 3, "ESBWR HFE Procedures Development Implementation Plan"
- (5) NEDO-33275, Rev. 2, "ESBWR HFE Training Program Development Implementation Plan"

2.2 CODES AND STANDARDS

None.

2.3 REGULATORY GUIDELINES

- (1) NUREG-0711, Rev. 2, "Human Factors Engineering Program Review Model", 2004a
- (2) NUREG-0800, Rev. 1, Standard Review Plan, Chapter 18 – Human Factors Engineering, 2004b
- (3) NUREG-0700, Rev. 2, "Human System Interface Design Review Guidelines", 2002

2.4 DOD AND DOE DOCUMENTS

None.

2.5 INDUSTRY AND OTHER DOCUMENTS

None.

3. METHODS

3.1 HSI VERIFICATION (“AS-BUILT”)

3.1.1 Background

The Human-System Interfaces (HSIs) and their design characteristics are established in the HSI Design activity. The HSI adheres to applicable guidance. The HSIs are subsequently evaluated and confirmed in the HFE Verification and Validation. Following the HFE V&V, the standard plant HSI Requirements is revised and becomes the basis for the requirements and acceptance criteria for the fabrication/procurement of the equipment for the “As-Built” installation. The software that drives the HSI displays in the “As-Built” system will be the same as was used during the HFE V&V.

3.1.2 Goals

The goal of the “As-Built” verification for the HSIs is to confirm that the verified and validated HSIs are implemented.

3.1.3 Requirements

The final “As-Built” HSIs and their design characteristics are compared with the HSIs in the detailed standard plant design to verify that they conform to the design that resulted from the HFE design process and V&V activities (NRC, 2004a, Section 12.4.6 (2)). Comparing the “As-Built” HSI to the design as evaluated in the HFE V&V will ensure that any design changes that occur after HFE V&V will cause an HED to be generated to document and evaluate the change.

3.1.4 General Approach

To complete the approach, the following shall be confirmed:

- (1) Verification that the “As-Built” HSIs and their design characteristics correspond to the HSI Requirements. This verification will be accomplished by performing a physical “As-Built” of the MCR, panels and HSIs, and verification that the HSI screens are the same file/revision as was used for the HFE V&V.
- (2) An HED is written, if needed, to resolve the following issues:
 - a. If the “As-Built” verification indicates a variance from the HSI Requirements
 - b. If there is not sufficient documentation to confirm that the software installed in the “As-Built” HSI is the same as the software that was verified in the HFE V&V as documented in the HSI Requirements

3.2 PROCEDURES AND TRAINING CONFIRMATION (“AS-BUILT”)

3.2.1 Background

The standard plant procedures and training documentation are established in development activities using applicable guidance documents. The HFE V&V validates the adequacy of the HSIs and the standard plant procedures and training to support personnel performance.

Some changes to the standard plant procedures and training may result from the HFE V&V. If the nature of the changes is minor (e.g., confined to nomenclature and equipment numbering distinctions), the previous HFE validation remains applicable. If changes affect the sequence or content of procedures and training, these may impact the confidence of the validation results, and HEDs are written to resolve differences.

3.2.2 Goals

The goal of the “As-Built” confirmation for the procedures and training is to conduct an audit of the “As-Built” plant procedures and training, comparing the “As-Built” documents to the corresponding documents used in the HFE V&V, and assess any differences.

3.2.3 Requirements

The final “As-Built” procedures and training are compared with the standard plant procedures and documentation to verify that they conform to the design that resulted from the HFE design process and V&V activities (NRC, 2004a, Section 12.4.6 (2)).

3.2.4 General Approach

The procedures and training confirmation consists of:

- (1) Auditing the “As-Built” plant procedures and training. The audit results are compared to the corresponding standard plant procedures and training documents resulting from the HFE V&V.
- (2) Writing an HED to resolve any deviations or changes

3.3 FINAL HFE DESIGN VERIFICATION NOT PERFORMED IN THE SIMULATED HFE V&V ACTIVITY

3.3.1 Background

Some HFE design aspects may not be able to be addressed in the simulated HFE V&V. These would include:

- (1) Designs and features that are modifications to the standard design
- (2) HFE aspects that are not feasible to perform in the simulated environment

The items represented in category one above are documented in HEDs, due to the fact that they deviate from the standard plant design. These items will be addressed individually (see Section 4.4) according to the context and criteria established in the HED. Items in category two are itemized in the recommendations from the HFE V&V Results Summary Report. Below are some examples of items in category two that may need to be reviewed in the actual MCR environment:

- Communication equipment interfaces (phones, radios, intercoms, etc.)
- Lighting (normal and emergency)
- Habitability systems (HVAC, noise mitigation features, etc.)
- Use of plant-specific training manuals and procedures

- Data and video interfaces with the TSC and equipment to duplicate or link the EOF to the plant process database
- Procedure/P&ID drawing laydown area

3.3.2 Goals

The goal of this activity is to verify aspects of the design not previously verified in the HFE V&V.

3.3.3 Requirements

Aspects of the design that are not addressed in the V&V Implementation Plan NEDO-33276 are evaluated during design implementation using appropriate V&V methodologies (NRC, 2004a, Section 12.4.6 (1)).

3.3.4 General Approach

Following the recommendations from the HFE V&V Results Summary Report, the list of items to be verified is developed and confirmed. The applicable evaluation criteria are established from the Human Factors Style Guide, other guidance documents established or adopted during the design process, or applicable sections from NUREG-0700 (NRC, 2002). The HFE V&V team conducts the verification of the list.

3.4 RESOLUTION OF REMAINING HEDS AND OPEN ISSUES AND TRANSFER OF HFEITS

3.4.1 Background

The HFE V&V of the standard plant design addresses the bulk of the HEDs and issues from the HFE design and development. Following acceptance of the standard plant design, the responsibility for HFEITS is transferred to the fleet-wide owners' group. During and after design implementation, for each plant built based on the standard plant design, issues and HEDs continue to be entered into, and resolved in, the HFEITS under the responsibility of the 'COL Holder and fleet-wide owners' group.

3.4.2 Goals

The goal of this activity is to evaluate the remaining HEDs and open issues in HFEITS from the ESBWR standard plant design for impact to the safe operation of the plant. The HFEITS process is described in Appendix A of NEDO-33217, MMIS and HFE Implementation Plan.

3.4.3 Requirements

Remaining HEDs and open issues in HFEITS are verified as adequately addressed (NRC, 2004a, Section 12.4.6 (3)).

3.4.4 General Approach

The design implementation resolves the HEDs and issues from the MMIS and HFE Implementation Process by closing remaining items, and transferring responsibility to maintain the HFEITS (or equivalent) to the fleet-wide owners' group.

4. IMPLEMENTATION

4.1 VERIFICATION OF FINAL “AS-BUILT” HSI REQUIREMENTS

The “As-Built” verification of HSI requirements is to ensure that the installed HSIs are the same as those derived from the HFE design process and verified during the HFE V&V.

4.1.1 Inputs

- (1) HSI Requirements (See Definitions)
- (2) Procurement Documents (See Definitions)
- (3) Construction Documents (See Definitions)
- (4) HFEITS

4.1.2 Process

4.1.2.1 Acceptance Criteria

- (1) “As-Built” HSIs and their design characteristics correspond to the HSI Requirements
- (2) Differences/modifications to the “As-Built” HSIs from what was documented in the HSI Requirements are identified in the form of HEDs and entered in the HFEITS database
- (3) Task reports and summary report documentation are completed

4.1.2.2 Resources

- (1) Data resources
 - HFE standard plant database files
 - HFE Results Summary Report
 - HFEITS
 - Plant procurement, construction, and contract documentation
- (2) Staffing resources
 - Design implementation task leader (TL)
 - HFE responsible engineer (RE)

4.1.2.3 Actions/Tasks

- (1) Establish detailed plan and schedule and brief team (TL)
- (2) Conduct an “As-Built” verification of the MCR using the design that resulted from the HFE V&V. This “As-Built” is to ensure that any critical dimensions or physical attributes that may effect the operators interaction with the HSI are the same as was tested in the HFE V&V. (RE)
- (3) Conduct a review of the HSI screen files to verify that the file name and revision are the same as was used for the HFE V&V (RE)

- (4) Compile results, update HFEITS and other documentation, and prepare task reports (RE)
- (5) Review output documentation for compliance to acceptance criteria (TL)
- (6) Summarize findings for incorporation into Design Implementation Results Summary Report (TL)

4.1.3 Outputs

- (1) Confirmation signature of the TL documenting compliance to acceptance criteria
- (2) HEDs for deviations from ESBWR standard plant HSIs
- (3) Task Results Summary Report
- (4) Summary of findings for incorporation into Design Implementation Results Summary Report

4.2 CONFIRMATION OF STANDARD PLANT PROCEDURES AND TRAINING

An audit of the “As-Built” plant procedures and training is conducted. The auditor compares the “As-Built” documents with the corresponding standard plant documents resulting from the HFE V&V to identify adapted (changed or revised) sections (if any) and assesses the nature of the modifications. If modifications other than equipment nomenclature are observed, HEDs are written to assess and address the deviation.

4.2.1 Inputs

- (1) Standard plant procedures (“As-Built”) (See Definitions)
- (2) Standard plant training (“As-Built”) (See Definitions)
- (3) Standard plant procedures (V&V) (See Definitions)
- (4) Standard plant training (V&V) (See Definitions)

4.2.2 Process

The Design Implementation TL conducts a pre-job briefing with assigned staff, directs the performance of the activity, and verifies that results comply with the acceptance criteria. One or more members from the HFE team are assigned as REs to conduct the audit, complete documentation, and submit task reports.

4.2.2.1 Acceptance Criteria

The confirmation of “As-Built” plant procedures and training is considered sufficient when the Design Implementation TL determines that the following criteria have been completed:

- (1) An audit of the “As-Built” plant procedures and training is completed identifying adapted sections (if any) from the standard plant documentation validated in the HFE V&V activity
- (2) Differences/modifications found in the audit, that go beyond the category of equipment nomenclature, are identified in the form of HEDs and entered in the HFEITS database
- (3) Task reports and summary report documentation are completed

4.2.2.2 Resources

- (1) Data resources
 - HFE standard plant database files
 - HFEITS
- (2) Staffing resources
 - Design Implementation Task Leader (TL)
 - HFE Responsible Engineer (RE)
 - Additional HFE team members

4.2.2.3 Actions/Tasks

- (1) Establish detailed plan and schedule and brief team. The plan should include the audit strategy (methods to identify procedure and training modifications), and forms to document audit results. (TL)
- (2) Conduct audit of the “As-Built” plant procedures and training documents. Identify adapted sections (if any) using the audit strategy. If adapted sections are observed, assess if the changes are other than equipment nomenclature. Prepare HEDs as needed and document the results of the audit on the task forms. (RE)
- (3) Compile results, update HFEITS and other documentation, and prepare task reports (RE)
- (4) Review output documentation for compliance to acceptance criteria (TL)
- (5) Summarize findings for incorporation into Design Implementation Results Summary Report (TL)

4.2.3 Outputs

- (1) Confirmation signature of the TL documenting compliance to acceptance criteria
- (2) HEDs entered in HFEITS for deviations from ESBWR standard plant procedures and training
- (3) Task Results Summary Report
- (4) Summary of results including data collection forms for incorporation into Design Implementation Results Summary Report

4.3 VERIFICATION OF HFE DESIGN NOT PERFORMED IN THE SIMULATED HFE V&V ACTIVITY

The purpose of this effort is to verify HFE design aspects not addressed in the HFE V&V activity. Recommendations from the HFE V&V Results Summary Report contain the listing of items to address. Additional items may be added to the list to address related HEDs or HFE issues contained in HFEITS. In this effort, the list of items for verification is compiled, verification criteria and means are established, and the verifications are performed and documented.

4.3.1 Inputs

- (1) Recommendations from the HFE V&V Results Summary Report
- (2) HEDs and issues from HFEITS that may be addressed in the “As-Built” design verification
- (3) Sources for verification criteria including the ESBWR HFE Style Guide

4.3.2 Process

The Design Implementation TL conducts a pre-job briefing with assigned staff, directs the performance of the activity, and verifies that results comply with the acceptance criteria. One or more members from the HFE team are assigned as RE to compile the list of verification items, research and prepare verification criteria and forms, conduct the verifications, complete documentation, and submit task reports.

4.3.2.1 Acceptance Criteria

The Verification of HFE Design Not Performed in the HFE V&V Activity is sufficient when the TL determines that the following criteria have been completed:

- (1) It is confirmed that all items from the HFE V&V Results Summary Report recommendation list are in the verification list
- (2) HEDs and issues in HFEITS are reviewed and related issues considered for addition to the verification list
- (3) A review of verification criteria is completed concluding that criteria are appropriate and complete
- (4) All verifications are addressed and verification forms completed in accordance with review criteria, task plans, and task briefing
- (5) HEDs are written for items that deviate from their established verification criteria
- (6) Task reports and summary report documentation are prepared

4.3.2.2 Resources

- (1) Data resources
 - HFE “As-Built” plant database files
 - HFEITS
 - COL control room and/or full-scope simulator
- (2) Staffing resources
 - Design implementation (TL)
 - HFE (RE)
 - Additional HFE team members if necessary

4.3.2.3 Actions/Tasks

- (1) Establish detailed plan and schedule and brief team. The plan should include verification strategy and sources of verification criteria (e.g., Human Factors Style Guide) for items on the list and sample forms to collect and document verification results. (TL)
- (2) Compile and confirm the list of verification items, establish evaluation criteria, and prepare verification forms (RE)
- (3) Review the verification criteria to be complete and appropriate to address the sources and context of the issues. Direct modifications/additions to verification criteria. (TL)
- (4) Perform V&V of HFE design for items not previously verified. Identify discrepancies (if any) to established criteria in the form of HEDs documented in HFEITS. Document the results of the verifications on the task forms. (RE)
- (5) Compile results, update HFEITS and other documentation, and prepare task reports (RE)
- (6) Review output documentation for compliance to acceptance criteria (TL)
- (7) Summarize findings for incorporation into Design Implementation Results Summary Report (TL)

4.3.3 Outputs

- (1) Documented compliance to acceptance criteria
- (2) HEDs listed in HFEITS for items that deviate from established verification criteria
- (3) Task Results Summary Report
- (4) Summary of results including data collection forms for incorporation into Design Implementation Results Summary Report

4.4 RESOLUTION OF HEDS AND OPEN ISSUES IN HFEITS

The resolution of HEDs and open issues is an ongoing activity throughout the design, construction, and testing phases of development. The goal of this activity is to bring closure to the resolution process at some time following the Design Implementation activity. Any long lead or ongoing resolutions to HEDs and open issues may be resolved by reference to the COL Holder's tracking programs that bring satisfactory resolution to the item.

4.4.1 Inputs

- (1) HEDs and open issues from HFEITS
- (2) Task reports from other Design Implementation activities

4.4.2 Process

The Design Implementation TL conducts a pre-job briefing with assigned staff, directs the performance of the activity, and verifies that results comply with the acceptance criteria. One or more members from the HFE team are assigned as REs to conduct the audit, complete documentation, and submit task reports.

4.4.2.1 Acceptance Criteria

HEDs and open issues are resolved when the TL determines that the following criteria have been met:

- (1) HEDs written and documented in the HFEITS are satisfactorily resolved for the “As-Built” plant
- (2) Open issues are written and documented in the HFEITS and are satisfactorily resolved for the “As-Built” plant
- (3) Other Design Implementation activities are successfully completed
- (4) Long-term, outstanding issue(s) not addressed are turned over to the COL Holder and fleet-wide owners’ group for action, tracking, and final disposition

4.4.2.2 Resources

- (1) Data resources
 - HFE “As-Built” plant database files
 - HFEITS
- (2) Staffing resources
 - Design Implementation (TL)
 - HFE (RE)

4.4.2.3 Actions/Tasks

- (1) Establish detailed plan and schedule and brief team. The plan should include verification strategy and sources of verification criteria (e.g., Human Factors Style Guide) for items on the list and sample forms to collect and document verification results. (TL)
- (2) Initiate review of status of HEDs and open issues following completion of design implementation activities (TL)
- (3) Conduct review of status of HEDs and open issues in HFEITS (RE)
- (4) Prepare task report providing review results stating that all HEDs and open issues in HFEITS are resolved or are being tracked to completion (RE)
- (5) Review output documentation for compliance to acceptance criteria (TL)
- (6) Summarize findings for incorporation into design implementation Results Summary Report (TL)

4.4.3 Outputs

- (1) Documented compliance to acceptance criteria
- (2) Task Results Summary Report
- (3) Summary of results including data collection forms for incorporation into Design Implementation Results Summary Report

5. RESULTS

5.1 DESIGN IMPLEMENTATION RESULTS SUMMARY REPORT

The results of the Design Implementation activities are summarized in a Results Summary Report (RSR). This report is the main source of information used to demonstrate that efforts conducted in accordance with the implementation plan satisfy the applicable review criteria of NUREG-0800. The report contains the following:

The report encompasses:

- (1) Final "As-Built" HSI verification
- (2) Confirmation of Procedures and Training design implementation
- (3) Verification of HFE design not performed in the HFE V&V
- (4) Resolution to HEDs and open issues in HFEITS
- (5) Turn over to COL Holder and fleet-wide owners' group for tracking of the remaining long-term open HED/HFEITS issues.

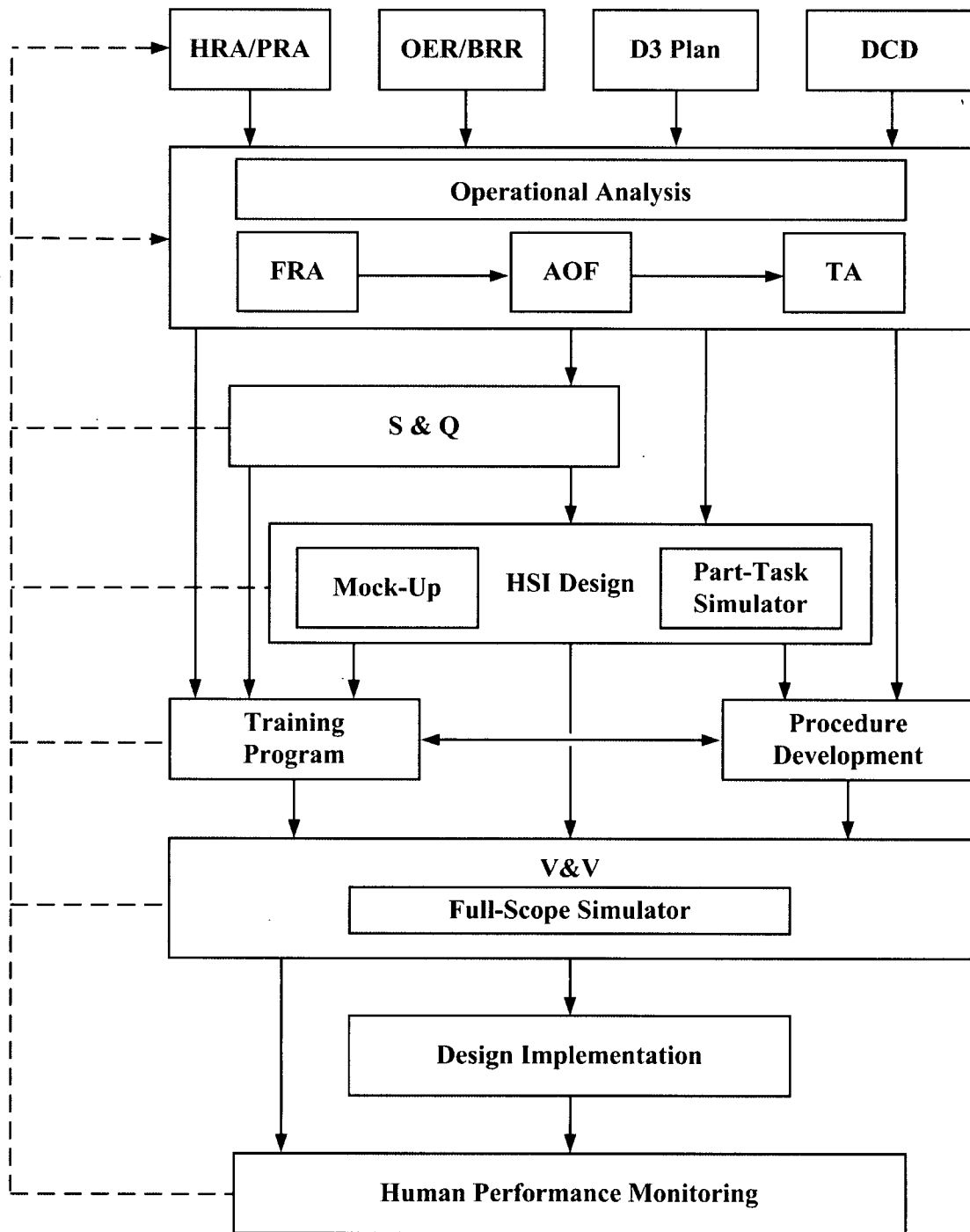


Figure 1. HFE Implementation Process

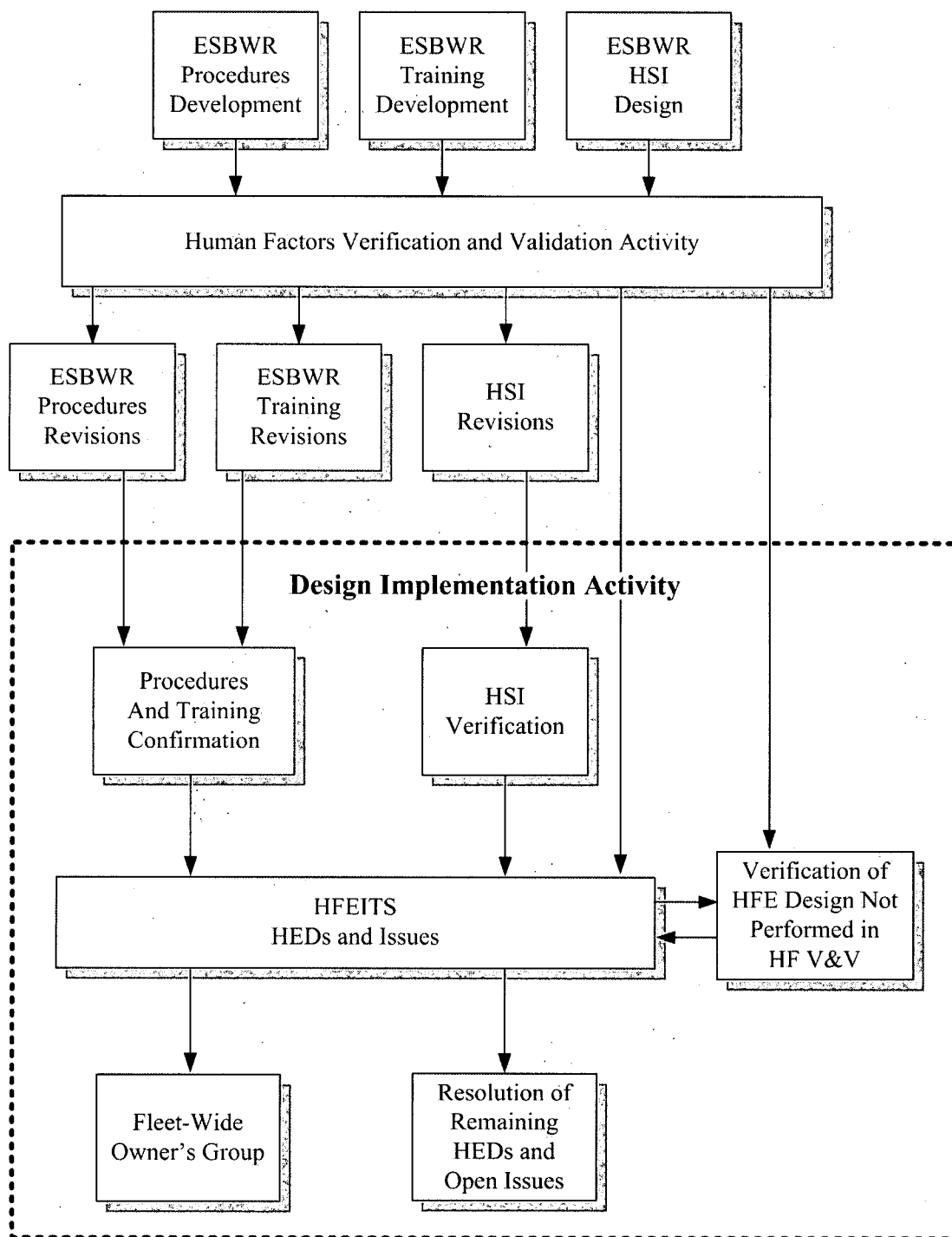


Figure 2. Design Implementation Plan