Response to

Request for Additional Information No. 348 (4085, 4092), Revision 0

2/2/2010

U.S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 18 - Human Factors Engineering
Application Section: FSAR Chapter 18

QUESTIONS for Operating Licensing and Human Performance Branch
(AP1000/EPR Projects) (COLP)

Question 18-90:

Section 2.2.2 in the Human Factors Program Management Plan is titled "Assumptions". The subsections that follow are described as the operating philosophy of the plant. The Applicant states that these sections are subject to change based on analysis and evaluation during plant design. Therefore, staff does not perceive the descriptions in the following sections to represent a commitment to those features described. Staff requires information to clarify how and where changes to these assumptions will be documented. NUREG-0711, 2.4.1(2) discusses the identification of assumptions.

Response to Question 18-90:

The titles for Sections 2.2 and 2.2.2 will be changed for clarification. These assumptions may change based on analysis results from FRA/FA/TA. This is related to the response to Question 18-93.

The Human Factors Program Management Plan, Section 2.2 title will be changed as follows:

"2.2 Design Assumption and Constraints:

Changes made to these assumptions can be made throughout the entire HFE analysis and evaluations (FRA/FA/TA/HSI design/V&V). The HFE design process will be followed and changes documented throughout the design process elements."

The Human Factors Program Management Plan, Section 2.2.2 title and content will be changed as follows:

"2.2.2 Concept of Operations Assumptions:

The following sections address design assumptions for the U.S. EPR. These assumptions are made concerning the plant operation of the U.S. EPR and are subject to changes based on additional analyses and evaluations during detail design. . It is expected that significant changes to these assumptions will not occur. However, any changes made will be documented within the HFE design process."

The Step 2.2.2 statement above explains that the goal is to design the plant as close to these assumptions as possible. This goal will not change. The assumptions may need to be modified within the existing process framework. The deviation from these assumptions has not been determine at this time, but is expected to be minimal.

The schedule for providing the revised U.S. EPR HFE Program Management Plan is provided below:

Document Number	Commitment Date
U.S. EPR HFE Program Management Plan	5/7/2010

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-91:

Staff requires clarification on the scope of the HFE Program; are HSI associated with non-I&C systems included in the scope of the HFE Program plan?

Response to Question 18-91:

See the response to Question 18-96.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-92:

Section 3.2 of the Human Factors Program Management Plan and Figure 3-1 provide some discussion of the Organizational Placement and Authority for the HFE team. However, Figure 3-1 does not include information on authority of team members (per the caption). Staff requires more information on the authority of the team members, particularly the HFE EDL and the RTM for HFE and Control Rooms Design, as described in NUREG-0711, 2.4.2. Staff also inquires whether these generic positions represent individuals or whether a single individual may have more than one role.

Response to Question 18-92:

The figure will be changed to clarify roles and responsibilities. The Human Factors Program Management Plan, Figure 3-1 note describes the relationship between the Engineering Discipline Lead (EDL) and Responsible Technical Manager (RTM) only (see Figure 18-92-1). The note does not apply to the authority and responsibility of other personnel. Therefore, a general description of each organizational level will be added to explain personnel role relationships as follows:

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Figure 18-92-1—HFE Organization

[ ]

(1) Supervisory position may be held by more than one person.

Question 18-93:

1. The Applicant states that further assumptions and constraints are provided in Section 2.2 of Interim FSAR Rev 2.0 (Staff notes that Interim FSAR Rev 2.0 does not appear to have a Section 2.2. Therefore any further assumptions or constraints present in that reference are not clearly identified for review and do not influence this analysis. Staff request that any remaining assumptions or constraints not included in the HFE IP be clearly identified or indication that the assumptions and constraints provided in the HFE IP are complete as presented.
2. Staff also requires clarification of the extent to which the information provided between Sections 2.2 and 2.2.2 could change during the design process.

Response to RAI 18-93:

1. U.S. EPR FSAR Tier 2, Section 18.1.1.2 is the affected section. Section 2.2 and Section 2.2.2 refer to the Human Factors Program Management Plan (PMP). The assumptions stated within the Implementation Plan are complete as represented, and serve as a starting point for the design. This is stated in Section 2.2 of the PMP. The statement is not meant to imply that there are other undefined assumptions that may exist outside of those documented within this plan.
2. Section 2.2 and Section 2.2.2 are assumptions made within the Implementation Plan. See the response to Question 18-90.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-94:

Figure 2-1: FA3 MCR layout of the HFE IP is labeled in French; therefore, the constraints and assumptions provided in this figure are not clearly identified. Label the figure in English.

Response to RAI 18-94:

For clarification, Human Factors Engineering Implementation Plan, Figure 2-1 will be replaced with a figure annotated in English.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-95:

The Applicant's degree of commitment regarding the development of EOF is not clear. The first sentence of Section 2.3.2 of the HFE IP ["HFE design implementation for a new Emergency Operations Facility (EOF) and the Operational Support Center (OSC) or changes resulting from the addition of a U.S. EPR plant to an existing EOF and OSC."] is not clear. Please clarify and indicate what the COL scope is relative to "a new Emergency Operations Facility (EOF) and the Operational Support Center (OSC) or changes resulting from the addition of a U.S. EPRTM plant to an existing EOF and OSC."

In Section 2.3.1, the Applicant states the HFE Program applies to the design of the MCR, the TSC, the I&CSC, the RSS, and LCSs that provide computer-based HSI. The Applicant states that design of LCSs that provide non-computer based HSI (e.g., manual valves) will be accomplished concurrent with the applicable system and that a style guide developed by the HFE team provides HFE requirements for the design of the HSI portion of the LCS. Staff requests more information regarding the style guide that will be used to provide HFE requirements for the design of the LCS; specifically, staff requests to know which style guide will be used?

Response to RAI 18-95:

1. HFE Implementation Plan, Section 2.3.2 explains that EOF and OSC are the responsibility of the COL applicant. The portion of the sentence that states "to an existing EOF and OSC" refers to the existing facilities already associated with many COL applicants. The statement will be modified for clarification as follows:

   "HFE design implementation for a new Emergency Operations Facility (EOF) and the Operational Support Center (OSC) or changes to an existing EOF and OSC resulting from the addition of a U.S. EPR plant are part of the COL applicant's scope."

2. The HSI Style Guide was provided in the Response to RAI 319, Supplement 2, Question 18-37.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-96:

1. The Applicant states in Section 2.4 of the HFE Program Implementation Plan, that HSIs for non-I&C systems, such as manual valve operators, will follow guidelines established by the HFE team. Staff requires clarification on the scope of the HFE Program to clarify whether HSI associated with non-I&C systems are included in the scope of the plan.
2. Section 2.4 of the HFE Program Implementation Plan also states that design of manual valve operators will follow guidelines established by the HFE team. Staff request that a draft of these guidelines be provided for review.
3. Staff further request clarification on the distinction being made between HSI systems in Section 2.4. The distinction is worded as those HSI associated with I&C system and those associated with non-I&C systems; however, the examples given appear to distinguish between control room and non-control room. LCS may contain I&C systems. Therefore, staff request clarification of what is meant in this case by 'other LCS'.

Response to RAI 18-96:

1. The HFE program covers both I&C and non-I&C systems. Because these are different systems and must be considered with different physically operated contexts, separate guidance within the HFE program is provided.
2. HFE guidelines established for valve operators are available for NRC inspection at AREVA NP offices. Guidelines include information on valve positioning, placement, labeling, and maintenance and testing considerations.
3. The term "other LCSs" will be removed from HFE Program Implementation Plan, Section 2.4. The examples were meant to differentiate between I&C systems and non-I&C systems.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-97:

1. The commitment in section 2.5 refers to 10 CFR 55, which is labeled Reference 4, and is used to define licensed control room operators. However, Reference 4 of Section 7.0 is 10 CFR 50.55, "Conditions of construction permits, early site permits, combined licenses, and manufacturing licenses." Please correct the reference in Section 7.0.
2. Staff requests clarification of how personnel who perform tasks that impact plant safety beyond those categories defined will be identified, as indicated in Section 2.5.

Response to RAI 18-97:

1. HFE Program Implementation Plan, Section 2.5, Reference 4 will be changed to 10 CFR Part 55. "Operators' Licenses."
2. Personnel who affect safety will be listed in HFE Program Implementation Plan, Section 2.5. Statements about other personnel will be removed.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-98:

Figure 3-1 represents the organizational structure, communications and support linkages for HFE with respect to the other project divisions (I&C, LCS design, etc.). However, the caption to Figure 3-1 states that no authority is applied in the figure. Staff requests clarification of the relative authority and relationships of the HFE EDL and the RTM for HFE and Control Room Design.

Response for RAI 18-98:

Clarification for authority relationships and communication paths that exist between the Engineering Discipline Lead (EDL) and Responsible Technical Manager (RTM) are shown in Figure 3-1. The "no authority applied" statement refers only to the dotted line within the figure between the EDL and RTM. This will be clarified in the modified Figure 3-1. The statement describing the relationship between the EDL and RTM will be included in the text (see the response to Question 18-92 or 18-99):

". . . The solid lines represent organizational responsibility and the dashed lines represent functional responsibility. The dotted line represents a communication link.

The RTM and EDL communicate but do not have functional or organizational authority over one another."

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-99:

More information is required to understand the job descriptions and assignments of team members with respect to team member skills and qualifications and assignment to the various HFE element activities. Please link team member qualifications to job descriptions and assignments of the HFE elements.

Response to RAI 18-99:

The HFE Organization figure was amended to show the hierarchical relationships from the manager level down to the responsible engineer level (see Figure 18-99-1), which is the same as Figure 3.1 in the PMP. The text in Program Management Plan, Section 3.2 was amended to describe the relationships. Individual job assignments associated with sections of the individual implementation plans are held with each plan.

"The diversity of the HFE team is shown in Figure 3-2. The composition of the team is designed to confirm that each individual task within the various implementation plans can be accomplished. The qualifications of the personnel assigned to each task are described within the various individual implementation plans."

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Figure 18-99-1—HFE Organizational Chart

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(1) Supervisory position may be held by more than one person.

Question 18-100:

Staff requests information to clarify how work plans that determine design changes are input and tracked via the HED system (Section 4.1 of the HFE IP).

Response to RAI 18-100:

Work plans that determine design changes are not input into the human engineering discrepancy (HED) system. Engineering deficiencies that are determined during the verification and validation (V&V) process are input into this process.

Refer to RAI 328, Question 18-54 for a description of the audit process in relation to the HED process.

Refer to RAI 328, Question 18-63.7 for a description of the HED process, which references V&V plan, Section 3.9.3.5.

Refer to RAI 328, Question 18-64 for a description of the V&V team and their use of the HED process.

Refer to RAI 328, Question 18-68 for a description of how the HEDs address HSI deficiencies.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-101:

1. Staff notes that with respect to the relationship between HFE program design documentation and general design documentation, Interim FSAR Rev 2 references Section 2.0 the HFE Program Management Plan, but then cites Interim FSAR Rev 2.0 (as noted in Letter, Sandra M. Sloan (AREVA NP Inc.) to Document Control Desk (NRC), "Response to U.S. EPR Design Certification Application RAI No. 240, Supplement 1," NRC:09:080, July 31, 2009). Staff request clarification and removal of this circular reference.
2. In Section 4.3 of the HFE IP, the Applicant states that it will use system interface documents, produced by system discipline engineers, to coordinate between disciplines for systems, structures and components whose requirements cross multiple engineering disciplines. The Applicant states that the HFE team integrates the I&C system designs with control room layout and design. Staff requests information to clarify how the HFE team incorporates information from I&C, as well as other engineering disciplines. Staff requests more information regarding the cross discipline reviews; specifically staff request clarification of how the HFE team insures that its requirements are met.
3. The relative schedule in this figure illustrates "V&V interim checks" are used at multiple stages to check design, that documentation of various aspects such as PICS/SICS, control room design documentation, and HSI Design are revised during the process. Staff notes that 'iterative V&V' is not a NUREG concept. Its use in Figure 18.1-1 is more consistent with "man in the loop" testing or "testing phase". As used by Staff, V&V is an endpoint and final validation of the system design. Staff request clarification and definition of the term 'V&V interim check."

Response to Question 18-101:

1. U.S. EPR FSAR Tier 2, Chapter 18 references the U.S. EPR Human Factors Engineering (HFE) Program management Plan and the other referenced HFE implementation plans in accordance with the Response to RAI 322, Question 18-52.
2. The engineering interface documents are known as the system description documents (SDD). These documents compile information of any one system for each of the disciplines (e.g., civil/structural, I&C, electrical, mechanical). SDDs require interdisciplinary review. Each design is finalized through design review boards. The SDD writers guide specifies the information required to be documented within each SDD to confirm that the requirements are included.
3. Using the term V&V for anything other than the final check creates confusion. U.S. EPR FSAR Tier 2, Figure 18.1-1 does not show "V&V Interim Checks." The figure correctly shows the HFE V&V in relation to the design process. Intermediate design verifications and validations are referred to as design evaluations and remain within their respective implementation plans.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-102:

1. The Applicant states that reviews of the subcontractor QAP will occur during the pre-award evaluation, prior to placement of the subcontractor on the Approved Suppliers List. It is not clear from the text whether subcontractors will be reviewed periodically after this initial assessment. Please summarize how often subcontractors will be assessed with respect to HFE requirements after being placed on the ASL.
2. The Applicant states that reviews of the vendor program are performed in accordance with Regulatory Guides 1.28 and 1.144. Staff notes that Regulatory Guide 1.144, has been withdrawn and replaced. Please clarify to what guidance will be used to perform vendor reviews.

Response to RAI 18-102:

1. Program Management Plan, Section 4.6 contains the requested information. AREVA NP contractors are subject to the quality assurance (QA) program prior to being placed on the approved supplier list (ASL). The QA process is described in U.S. EPR FSAR Tier 2, Chapter 17. This program follows the AREVA QA program which complies with RG 1.28:

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2. The reference for RG 1.144 has been removed because this guidance has been withdrawn. RG 1.28 will remain in place.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-103:

The HFE Tracking Database will be used throughout the development cycle to identify and track outstanding HFE issues. Issues that 'meet or exceed' the threshold established by the design team are entered into the HFE Tracking Database. Deviations from the standard design are 'escalated' to a design review and issue resolution process.

1. Staff requests clarification of what is meant by 'escalation' of the design review process.
2. Staff also request definition of the threshold for entry of an issue into the HFE Issue Tracking Database.

Response to RAI 18-103:

1. Any deviation from human factors guidance is entered in the human engineering discrepancy (HED) and/or HFE Issue Tracking System (HITS) that reside in the human factors database. Each item, noncompliant or questionable is reviewed by a human factors specialist. The verification and validation (V&V) implementation plan delineates variables and parameters associated with documenting an item entered. There are prioritization criteria applied to each item or issue. The item is prioritized and the level of treatment, resolution, documentation, and justification are dictated by the nature and characteristics of the item or issue. The word "escalated" may have been misconstrued as having greater significance than was intended.

   AREVA is clear about capturing HEDs, HITS items, and those issues or items that require a "holding place" until startup or operation. There is no implication that something is awry or is even negative. Sometimes non-compliant in this context may mean that the item cannot be evaluated or assessed until actual operating conditions (e.g., control room lighting). To write an HED or enter control room lighting in the HITS database does not imply that the lighting is wrong; it is holding a place to revisit lighting when conditions are real or actual.

   Non-compliant state does not necessarily imply something is terribly wrong, but rather an opportunity to present the trade-off decisions made by the HFE specialists that optimized design, but it could fall outside of the strictest interpretation of a guidance item.

   Finally, there may be items that require change or modification because they were found to be unacceptable and the deviation from compliance is too great to accept. In these cases (e.g., the item, the issue) they are placed in the HED/HITS database(s). The term "escalated" may be a misnomer, however, the reality is that the item is identified, steps are followed, and documented to show the issue and its resolution. Therefore, the item is acknowledged and addressed in accordance with the process. As a result, the HFE specialists and any other disciplines can evaluate, prioritize, and document the item and take the requisite steps to resolution. The words "escalate to a..." will be changed to "placed in the..."
2. Every design item that is questionable is clearly non-compliant or needs documented. It is entered into the HED and/or HITS database(s). Anyone at any time can raise an issue, become aware of non-compliance, or require documentation until it is addressed by HFE specialists and is dispensed for resolution. No non-compliant item is exempt; they are all entered, tracked, and resolved. The accountability for these items is not lenient. Thus, the threshold is essentially 100 percent compliance. The threshold is zero (0) deviation.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-104:

Section 4.5.6 of the HFE IP discusses the use of design analyses to assess OER, FA/FRA, Task Analysis (including staffing and qualifications), and HRA. The data generated by these analyses will be maintained in data structures. Descriptions of the analyses and evaluations used to address each programmatic element are included and reviewed as appropriate in each element's Implementation plan.

Staff requests specification (name) of the data structure where data from the OER, FA/FRA, Task Analysis and HRA will be stored. Staff requests information on who and how this data will be maintained.

Response to RAI 18-104:

This xml based tool is customized to fit the process. Currently an HFE team member is maintaining this data. This is not a qualified tool. Outputs will be verified through applicable AREVA NP QA process.

The data structure is available for demonstration at AREVA NP offices.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-105:

1. Interim FSAR Rev 2 (as noted in Letter, Sandra M. Sloan (AREVA NP Inc.) to Document Control Desk (NRC), "Response to U.S. EPR Design Certification Application RAI No. 240, Supplement 1," NRC:09:080, July 31, 2009) states that the U.S. EPR program is described in Section 18.1, Section 2.0 of the U.S. HFE Program Plan, which is indicated as Reference 2. However, Reference 2 is Interim FSAR Rev 2. Staff requests that this circular reference and other circular citations to Interim FSAR Rev 2 occurring in other sections be removed and corrected.
2. In Section 6.2 of the HFE IP, the Applicant states that HFE requirements will be documented in implementation plans, SDRD, and HFE guidelines such as the HSI style Guide. This section also provides the high level HFE guidance for the HSI design. Source information for these guidelines is not provided. Sections 6.2.1 thru 6.2.9 provide the high level HFE guidance for environmental aspects of the design (e.g., Mechanical Properties and Dimensions of the Work Environment). With the exception of Section 6.2.4 (Ambient Conditions in the Control Rooms) which cites ASHRAE guidance, sources and standards are not listed for these guidelines. Please provide standards and sources of HFE requirements.

Response to RAI 18-105:

1. References to the U.S. EPR Human Factors Engineering (HFE) Program management Plan and other referenced HFE Implementation Plans will be incorporated into U.S. EPR FSAR Tier 2, Chapter 18 (refer to the Response to RAI 322, Question 18-52).
2. The ASHRAE reference will be removed. The guidance for these categories is provided in the individual System Description Documents (SDD).

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-106:

1. Staff note that the distinction between prototypes (paper based) and mockups (virtual or computer aided drawings) provided in the HFE IP do not appear to be consistent with their use in the V&V IP. Staff further requests that clarification be made between prototypes and mockups to resolve this inconsistency between plans.
2. Staff request information regarding facilities, techniques, and equipment beyond simulation, mockups, and prototypes to be used in the HFE program.

Response to RAI 18-106:

1. The HFE Program Management Plan, Section 6.3 will be changed to reflect common usage of terminology throughout the various IPs. This change reflects changes made to the V&V IP and the HSI design implementation plan (see 18-65 (RAI 328), 18-66 (RAI 328)). HSI IP, Section 7.0 delineates the types of evaluations, including mockup through full-scope simulator.

   HFE Program Management Plan, Section 6.3 has been changed as follows:

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FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-107:

Interim FSAR Tier 2, Revision 2 (as noted in Letter, Sandra M. Sloan (AREVA NP Inc.) to Document Control Desk (NRC), "Response to U.S. EPR Design Certification Application RAI No. 240, Supplement 1," NRC:09:080, July 31, 2009), Section 18.1, "Human Factors Engineering Program Management Implementation Plan" describes the Human Factors Program. In addition, AREVA submitted the "Human Factors Engineering Implementation Plan" (document No. 118 - 9110637 - 000). However, the FSAR does not reference the Human Factors Engineering Program Management (HSI) Implementation Plan, specifically. Reconcile the inconsistency between the FSAR and the HSI Plan.

Response to Question 18-107:

References to the U.S. EPR Human Factors Engineering (HFE) Program Management Plan and other referenced HFE implementation plans will be incorporated into U.S. EPR FSAR Tier 2, Chapter 18 as part of the Response to RAI 322, Question 18-52).

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-108:

Section 6.3 of NUREG-0711 "Applicant Submittals" states:

The applicant should provide for staff review an implementation plan for staffing and qualification analysis.

AREVA submitted Technical Document 117-9015723-001, "Initial Staffing Assumptions for the U.S. EPR," and document number 117-9039988-001, "Concept of Operations: Design of the U.S. EPR Control Rooms." Both documents contain information associated with the Staffing and Qualifications assessments. However, neither the Concept of Operations document, nor the Initial Staffing Assumptions document are referenced in the U.S. EPR FSAR or included on the docket. The Staff is using these documents to assess the applicant's approach to staffing and qualifications program development and make a safety determination. Provide a reference to each document in the next revision of the FSAR.

Response to 18-108:

The changes to initial staffing and qualification assumptions are done through the Task Analysis process. The U.S. EPR Task Analysis Implementation Plan provides justification based on analysis of each task to allow for staffing and qualification adjustments.

Technical Documents 117-9015723-001, "Initial Staffing Assumptions for the U.S. EPR," and 117-9039988-001, "Concept of Operations: Design of the U.S. EPR Control Rooms" are referenced in the TA IP. Therefore, no change will be made to the U.S. EPR FSAR.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-109:

Criterion 3 of NUREG-0711, section 6.4 states:

The Staffing analysis should be iterative; that is, initial staffing goals should be reviewed and modified as the analyses associated with other elements are complete.

In Section 18.5.1 of the U.S. EPR FSAR, and the "Initial Staffing Assumptions for the U.S. EPR" (technical document 117-9015723-001) information is provided that describes the iterative process, however, it is not clear how changes based on the analyses of the other elements will be addressed. Describe the process that will be used to address changes to staffing and qualifications based on the iterations of the staffing analysis.

Response to 18-109:

The changes to initial staffing and qualification assumptions are done through the Task Analysis process. The U.S. EPR Task Analysis Implementation Plan provides the justification based on analysis of each task to allow for staffing and qualification adjustments. As noted in the TA IP, there is no separate staffing and qualification implementation plan.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-110:

NUREG-0711, Section 6.4 Criterion 2, states "The Staffing analysis should determine the number and background of personnel for the full range of plant conditions and tasks including operational tasks (normal, abnormal and emergency) plant maintenance, and plant surveillance and testing. The scope of personnel that should be considered is identified in the HFE Program Management element. (Section 2.4.1, Criterion 5)"

To help address this criterion, AREVA has submitted Technical Document 117-9015723-001, "Initial Staffing Assumptions for the U.S. EPR." In section 2.0, the document lists several documents that should be used as guidance when addressing staffing issues. Included in this document list is Regulatory Guide 1.8, "Qualifications and Training of Personnel for Nuclear Power Plants," Rev.3, (May 2000). In addition, "Concept of Operations: Design of the U.S. EPR Control Rooms," references ANSI/ANS-3.1-1999, "Selection, Qualification, and Training of Personnel for Nuclear Power Plants." Clarify for the staff the intended use of these guidance documents when addressing staffing issues.

Response to RAI 18-110:

The guidance documents were referenced when writing the Concept of Operations: Design of the U.S. EPR Control Rooms document. Concept of Operations: Design of the U.S. EPR Control Rooms, Section 2.1 describes the design goal for the U.S. EPR staffing and qualification. These documents are not used for addressing staffing and qualification issues. The U.S. EPR Task Analysis Implementation Plan provides analysis of the initial staffing plan in relation to the certified design. Adjustments made to the initial staffing assumptions are documented through this TA workload assessment process.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 18-111:

NUREG-0711 Section 18.6, Criterion 4, states "The basis for staffing and qualifications should be modified to address these issues:

- Operating Experience Review
- Functional Requirements Analysis and Function Allocation
- Task Analysis
- Human Reliability Analysis
- HSI Design
- Procedures Development
- Training Program Development."

Section 18.5.1 of the U.S. EPR FSAR references the operating experience review in section 18.2 which identifies staffing level related aspects of operating plants with similar designs under various conditions and operating modes. The Staff reviewed section 18.2 of the FSAR and found that it does not provide any additional information into staffing levels for the U.S. EPR design. Additionally, AREVA submitted the initial staffing assumptions document which says that the "objective of the OER is to identify and analyze HSI design-related problems and the HFE issues associate with previous plant instrumentation and control (I&C) designs that are similar to the U.S. EPR." Further, "the results of the OER are used as a direct input to the design process to ensure that the HSI design is keeping with the MCR staffing goals". However, it is unclear to the staff how the OER data will actually be used as input into the staffing analysis.

Provide information describing how the OER data will be used as input to the staffing and qualifications analysis.

Response to RAI 18-111:

OER data will be used as input to the staffing and qualifications analysis by utilizing the Task Analysis plan, which incorporates HRA, OER, and FRA/FA into the Staffing Analysis. TA IP, Section 3.1.1.1 states that the OER is reviewed with respect to the staffing levels necessary for operation. The OER is combined within the TA process. This is described within the TA Implementation Plan starting in Section 4.0.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.