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Subject: AP1000 Responses to Requests for Additional Information (SRP18)

Westinghouse is submitting responses to the NRC requests for additional information (RAIs) on SRP Section 18. These RAI responses are submitted in support of the AP1000 Design Certification Amendment Application (Docket No. 52-006). The information included in the responses is generic and is expected to apply to all COL applications referencing the AP1000 Design Certification and the AP1000 Design Certification Amendment Application.

Responses are provided for RAI-SRP18-COLP-01 through -05, as sent in emails from Dave Jaffe to Sam Adams and Bob Seelman dated April 2, 2008 and April 18, 2008 respectively. A response is also provided for RAI-SRP18.5-COLP-01, as sent in an email from Dave Jaffe to Bob Seelman dated April 30, 2008. These responses complete all requests received to date for SRP Section 18.

Questions or requests for additional information related to the content and preparation of these responses should be directed to Westinghouse. Please send copies of such questions or requests to the prospective applicants for combined licenses referencing the AP1000 Design Certification. A representative for each applicant is included on the cc: list of this letter.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Robert Sisk'.

Robert Sisk, Manager
Licensing and Customer Interface
Regulatory Affairs and Standardization

/Enclosure

1. Responses to Requests for Additional Information on SRP Section 18

cc: D. Jaffe - U.S. NRC 1E
E. McKenna - U.S. NRC 1E
P. Ray - TVA 1E
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C. Pierce - Southern Company 1E
E. Schmiech - Westinghouse 1E
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ENCLOSURE 1

Responses to Requests for Additional Information on SRP Section 18

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP18-COLP-01
Revision: 0

Question:

Section 2.4, "Design Plan" of TR-136 states: "It was determined that a graded application of the AP1000 HFE program would be sufficient to meet the intent of COL Information Item 18.2-2." Please provide additional information describing the above mentioned graded approach.

Westinghouse Response:

The method to determine the HFE analyses required for Westinghouse to support the TSC and EOF is detailed in APP-OCS-GGR-110 Section 3. In addition, the AP1000 Human Factors Engineering Program Plan (APP-OCS-GBH-001) Section 4.2.1 "Tailored Approach" describes the framework to establish the level of HFE involvement in the different areas or systems. In summary, the level of involvement, and hence the type of HFE analyses, is determined by, for example, the degree of human involvement, the nature of the tasks, task complexity, required speed of operator response and the potential safety and/or operational consequences of an operator error. It should be noted that the HFE analyses for the TSC and EOF is determined by the tailored approach (as described in APP-OCS-GBH-001) and takes into account the areas of responsibility (as described in APP-OCS-GGR-110).

References:

1. APP-OCS-GGR-110, AP1000 Technical Support Center and Emergency Operations Facility Workshop.
2. APP-OCS-GBH-001, AP1000 Human Factors Engineering Program Plan.

Design Control Document (DCD) Revision:

None.

PRA Revision:

None.

Technical Report (TR) Revision:

None.

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP18-COLP-02
Revision: 0

Question:

Section 3.3.1 of APP-OCS-GGR-110 states: "In summary, chapter 18 in tier 2 of the DCD does state that the TSC and the EOF are to be included in the HFE program. However, it does not specify whether all (or which) parts of the HFE program are to be applied. Tier 1 of the DCD excludes TSC and EOF from the HFE section. However, a number of human factors aspects related to TSC (and not EOF) are included in the section dealing with Emergency Response Facilities. Therefore, the scope of the HFE program as it relates to the TSC and EOF is subject to some degree of interpretation." Please provide additional information explaining how Westinghouse plans to apply the HFE program elements when designing the TSC and EOF.

Westinghouse Response:

It is assumed that the above question refers to the last paragraph in Section 3.1.1 of APP-OCS-GGR-110 (and not Section 3.3.1).

Section 3 of APP-OCS-GGR110 describes the detailed method by which the workshop participants determined the scope of the HFE program to support the design of the TSC and EOF. Information on how HFE is applied to the design of the TSC and EOF is detailed in Section 4 of APP-OCS-GGR-110. In summary, this comprises an operations experience review, task analysis, provision of data and display design and the application of HSI design guidelines. Further details on the methods can be found in the AP1000 Human Factors Engineering Program Plan (APP-OCS-GBH-001) and the documents supporting references.

Reference:

1. APP-OCS-GBH-001, AP1000 Human Factors Engineering Program Plan.

Design Control Document (DCD) Revision:

None.

PRA Revision:

None.

Technical Report (TR) Revision:

None.

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Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP18-COLP-03
Revision: 0

Question:

The NRC staff noted a well structured and disciplined assessment of the HFE requirements applicable to the EOF and TSC. The following examples demonstrate how the HFE program plan and appropriate regulation were used to identify EOF/TSC HFE design requirements:

- Westinghouse and utility personnel worked together to identify the functional requirements for the TSC/EOF. The diverse experience in this group supported a thorough evaluation
- Specific requirements were extracted from the AP1000 DCD, the HFE program Plan, NUREG -0711 rev 2 (Human Factors Engineering Program Review Model), NUREG-0696 (Functional Criteria for Emergency Response Facilities), and NUREG-0654 rev 1 (Criteria for Emergency Response Facilities). These documents served as the basis for identifying the EOF/TSC functional requirements. Identification of functional requirements is one of the basic steps required in the HFE program plan and NUREG-0711. Document APP-OCS-GGR-110-P provides complete documentation of how applicable functions were identified.
- An operating experience review will be conducted. Application of lessons learned from operating experience is one of the basic steps required in the HFE program plan and NUREG-0711.
- A task analysis will be conducted. In TR-136, the applicant states the requirement for this task analysis will be captured in the Operational Sequence Analysis -2 (OSA-2) implementation plan. A task analysis is one of the basic steps required in the HFE program plan and NUREG-0711 and the OSA-2 incorporates accepted methods for performing task analyses.
- In TR-136 section 2.4.4, the applicant indicates Westinghouse will identify applicable HSI design guidelines from the AP1000 HSI Design Guidelines (APP-OCS-J1-002 rev 0) to promote the human factors design adequacy of the TSC/EOF design. This implements appropriate elements of HSI design and design implementation required in the HFE program plan and NUREG-0711.

Based on the activities outlined above the applicant determined that the HFE program for the TSC/EOF will be a graded application of the AP1000 HFE program with specific focus on the provision of data and display design.

The staff requests the following additional information on specific elements of the process to assist in its evaluation of changes proposed for COL Action Item 18.2-2

1. NUREG-0800 states, "The applicant has an HFE design team with the responsibility, authority, placement within the organization, and composition to ensure that the design commitment to HFE is achieved." The first bullet in the paragraph above addresses how the majority of these attributes are met. Additional information is requested on team

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Response to Request For Additional Information (RAI)

composition. Specifically, for each team member participating in the analysis of EOF/TSC functions, describe the experience that directly relates to EOF/TSC HFE program analysis. The following areas are of particular interest: HFE experience, TSC experience, EOF experience, and Operational Experience.

2. The Task Analysis described in TR-136 section 2.4.2 states, "This task analysis will cover all of the identified areas where the data and display **available in the main control room** may be utilized in TSC and/or EOF functions." A subsequent sentence in the same section states that for completeness all task steps will be documented but those not associated with the display or provision of plant data will not be considered.

APS-OCS-GGR-110-P section 3.3, 4th paragraph states, "The development [by Westinghouse?] of additional displays is restricted to those that are required or useful in the MCR. If a potential display is deemed to be only required or useful in the TSC and/or EOF, the HFE scope is restricted to ensuring the data is made available to the TSC and EOF, and it **does not include the display design.**"

Subsequent sentences state the COL applicant is best able to design these indications.

Please clarify the intent of these paragraphs. **Q1** Are they only meant to define responsibilities between Westinghouse and the license applicant? **Q2** Will the HFE program plan still be applied to indications that are not available in the control room? **Q3** If not, please explain specifically why a task identified via the task analysis would not receive such treatment. (note: bolded words are key points of confusion)

3. Section 2.4.2 states that the task analysis will be based on "**available existing** TSC and EOF procedures? Please describe what measures will be taken to ensure there are sufficient procedures available so all pertinent tasks are identified.
4. APP-OCS-GGR-110 rev 1 section 3.2.2 states, "Compliance to the guidelines will be checked as part of the design verification assessment of the MCR, although the TSC and EOF presentation is not within the scope of Westinghouse design verification assessment."

How will this V&V be accomplished? Who has responsibility for performing it?

5. APP-OCS-GGR-110 section 3.3 lists design activities that must be accomplished by the COL applicant. TR-134 section 18.2.6.2 appears contradictory in that it deletes the phrase, "COL applicants...are responsible for designing the emergency operations facility."

Please provide additional basis for why this change should be included in the DCD revision 16 given the additional work required by the COL applicant.

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Westinghouse Response:

The numbering of these responses is in accordance with the numbering used in the Question section above.

1. It is assumed that the question is referring to the team that undertakes the HFE analysis, and not the team that participated in the TSC and EOF Workshop. A complete listing of the workshop participants is provided in Appendix A of APP-OCS-GGR-110.

The HFE analyses for the TSC and EOF has recently been initiated. Due to overall schedule demands, priorities, and the need to effectively utilize resources and expertise, it is not prudent to identify specific HFE Specialists (because the personnel may change). However, it can be assured that the HFE Program Plan (APP-OCS-GBH-001) is being implemented as intended. Section 4.1.1.2 'Human Factors Engineering Function' details the roles and responsibilities of the HFE team, project organization, the responsibilities of the HFE Lead and the responsibilities, qualifications and experience of the HFE Specialists. Organizationally, the HFE Specialists work alongside the system engineers and display developers.

The HFE Specialists do not currently possess extensive TSC and EOF experience. However, other groups within Westinghouse do have personnel with TSC and EOF experience. For example, the Nuclear Power Plant (NPP) group includes personnel with qualifications in plant operations, and they are responsible for the development of procedures, training programs and emergency planning. Westinghouse has good and open communications policy between different groups based on the overall objective of ensuring that AP1000 is a safe and successful plant. Furthermore, the HFE Specialists have developed a good working relationship with the license applicants. For HFE matters, this comprises the utilities (license applicants) listed in Section 1 of APP-OCS-GGR-001. This readily enables the HFE Specialists to obtain and incorporate the required and valued TSC, EOF and operations input.

2. **Q1** The scope of work described in the 4th paragraph of Section 3.3 of APP-OCS-GGR-110 is to define the display development work for the TSC and EOF that falls within the AP1000 HFE Program Plan. It does not attempt to define divisions of responsibility.

Q2 In defining the scope of the HFE Program Plan for the TSC and EOF, a review of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants", was undertaken. The purpose of this was to identify the tasks/functions that need to be included in the AP1000 HFE Program Plan. The displays and data for the tasks/functions common to the MCR, TSC and EOF (per NUREG-0654) were considered as being appropriate for inclusion in the AP1000 HFE Program Plan.

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Q3 As stated in Section 2.4.2 of TR-136, it was concluded that only the display functions common to the MCR, TSC and EOF are within the scope of the AP1000 HFE Program Plan. Tasks identified in the task analysis that are not common to the MCR, TSC and EOF will be noted for completeness, but the task analysis will not provide detailed information on, for example, the equipment to be used, displays, actions, feedback and communications.

In addition, it is recognized that the TSC and EOF functions and tasks that are not within the scope of the AP1000 HFE Program Plan will be subject to HFE principles and practice as described in NUREG-0737.

3. An action was placed on the utility representatives that participated in the workshop to provide Westinghouse with the TSC and EOF procedures associated with the tasks identified in Section 4.2 of APP-OCS-GGR-110. This Action is recorded in APP-OCS-GGR-110. Appendix B, Action number 3. This Action has been completed. All of the utilities provided copies of the requested procedures.

The task analysis has yet to be conducted. Therefore, it is not possible to confirm that all of the procedures, identifying all of the pertinent tasks, are on hand. During the task analysis process, the HFE Specialist will confirm that these procedure documents adequately address the tasks identified in Section 4.2 of APP-OCS-GGR-110. If further information is required, the HFE Specialist will work with the utilities to ensure that the task analysis is complete and sufficiently detailed.

4. It is confirmed that the license applicants possess the responsibility for the design verification of the presentation of displays outside of the MCR. This will cover the displays that are within the scope of the AP1000 HFE Program Plan (as identified in Section 3.2.2 of APP-OCS-GGR-110).
5. The change in the DCD (as described in Section 2.5 in APP-GW-GLR-136) does not mean that additional work is required by the COL applicant. The rewording was primarily to clarify the AP1000 HFE Program Plan scope of work for the TSC and EOF.

Reference:

1. APP-OCS-GBH-001, AP1000 Human Factors Engineering Program Plan.

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Design Control Document (DCD) Revision:

None.

PRA Revision:

None.

Technical Report (TR) Revision:

None.

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Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP18-COLP-04
Revision: 0

Question:

NUREG-0711 sections 8.4.2 through 8.4.4 provide HFE design control guidance. DCD section 8.8.1 translates these requirements into the HFE Implementation Plan. AP1000 DCD figure 18.2-3 illustrates the process flow path. TR-82 provides an update on design information that has been produced using this process flow path as evidence that the process is being executed and documented in accordance with the DCD. The staff review encountered two minor points of confusion:

Figure 18.2-3 indicates the "Operation & Control Centers Functional Design" is composed of 3 elements: OCS system **Specification Document**, OCS performance Requirements, and OCS **Functional Requirements**. For the OCS, are these documents separate and distinct from those developed under the "HSI resource Functional Design" block and the "Design Specification" block?

Also section 3.5, second sentence, indicates, "The HSI design guidelines were integrated into the development of the functional requirements documents..." which appears backwards from how the staff interprets the process flow.

Please verify the included table accurately reflects the completed documents relative to the process description outlined by Figure 18.2-3. Also please clarify the sentence quoted above relative to the process description. This information is requested to verify the staff properly understands the relationship between the process and products.

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DCD process block from Figure 18.2-3	Documentation completed	Purpose	Staff comments
Operation and Control Center Functional Design (DCD sect. 18.8.1.1)	APP-OCS-J7-001 (AP1000 operation and Control Centers System Specification)	Captures the generic, safety and non-safety-related HFE requirements.	TBD
HSI Resource Functional Design (DCD sect. 18.8.1.1)	APP-OCS-GJR-002 rev4 (Concept of Operations)	Defines each operation condition and the operations that will be performed at each operating location. Identifies the HSI resources provided at each location	TBD
	APP-OCS-J1-009 rev 5 (AP1000 Operations and Control Centers System Functional Requirements)	Specifies general functional requirements of the control areas	TBD
	APP-OCS-J1-001 (AP1000 Alarm System Functional Requirements)	Specifies alarm system specific functional requirements	TBD
	APP-OCS-J1-020 (Computerized Procedures System Functional Requirements)	Specifies Computerized Procedures system specific functional requirements	TBD
	APP-OCS-J1-010 (AP1000 Display Functional Requirements)	Specifies AP1000 Display system specific functional requirements	TBD
	APP-OCS-J1-007 (Wall Panel Information System Functional requirements)	Specifies Wall Panel Information system specific functional requirements	TBD
	APP-PMS-J4-001 (Post Accident Monitoring System Functional requirements)	Specifies Post Accident Monitoring system specific functional requirements	TBD

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Design Guideline documents (DCD sect. 18.8.1.2)	APP-OCS-J1-002 (AP1000 Human System Interface Design Guidelines)	Provides assurance that the AP1000 design complies with applicable Human Factors design principles similar to those in NUREG 0700	Staff reviews have determined these design guidelines are structured and formatted to facilitate their use by HSI implementing personnel. Following actions needed: Confirm specific technical guidance is IAW 0700. Review against other specific 0711 requirements
Design Specifications (DCD sect. 18.8.1.3)	APP-DDS-J4V-001 rev15 (AP1000 Display Design Specification)	TBD	TBD
	APP-DDS-J4V-002 (AP1000 Specification of Static and Dynamic Symbols)	TBD	TBD
Man-in-the-Loop Testing (DCD sect. 18.8.1.4)	APP-OCS-T2R-020 (AP1000 Engineering Test Phase I Test Report)	TBD	TBD
	APP-OCS-T2R-022 (AP1000 Engineering Test Phase II Test Report)	TBD	TBD

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Westinghouse Response:

Yes, the elements under “Operation & Control Centers Functional Design” are separate and distinct from those developed under “HSI Resource Functional Design” and “Design Specification.” The ‘OCS Performance Requirements’ are not a stand alone document but are incorporated into multiple documents.

As you have documented in the purpose column of the table below, the documents that fall under “Operation & Control Center Functional Design” capture the generic description and functional requirements across all aspects of the OCS. The documents that fall under “HSI Resource Functional Design” contain requirements that are specific to the individual HSI resources that make up the OCS. (ie. Alarms, Displays, CPS, WPIS, etc.) This is correctly stated in your table. The documents under “Design Specification” are the results of applying the HSI design guidelines to the functional design as stated in section 18.8.1.3 of the DCD.

The table below includes some minor changes:

- APP-OCS-J1-009 has been moved from the “HSI Resource Functional Design” section to the “Operation and Control Center Functional Design” section.
- APP-PMS-J4-001 has been moved from the “HSI Resource Functional Design” section to the “Design Specifications” section.
- APP-OCS-GJR-002 has been moved from the “HSI Resource Functional Design” section to the “Operation and Control Center Functional Design” section.

DCD process block from Figure 18.2-3	Documentation completed	Purpose	Staff comments
Operation and Control Center Functional Design (DCD sect. 18.8.1.1)	APP-OCS-J7-001 (AP1000 Operations and Control Centers System Specification)	Captures the generic, safety and non-safety-related HFE requirements.	TBD
	APP-OCS-J1-009 (Operations and Control Centers System Functional Requirements)	Specifies general functional requirements of the control areas	TBD
	APP-OCS-GJR-002 (Concept of Operation)	Defines each operation condition and the operations that will be performed at each operating location. Identifies the HSI resources provided at each location	TBD

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DCD process block from Figure 18.2-3	Documentation completed	Purpose	Staff comments
HSI Resource Functional Design (DCD sect. 18.8.1.1)	APP-OCS-J1-001 (Alarm Presentation System Functional Requirements)	Specifies alarm system specific functional requirements	TBD
	APP-OCS-J1-020 (Computerized Procedures System Functional Requirements)	Specifies Computerized Procedures system specific functional requirements	TBD
	APP-OCS-J1-010 (AP1000 Display System Functional Requirements)	Specifies AP1000 Display system specific functional requirements	TBD
	APP-OCS-J1-007 (Wall Panel Information System Functional Requirements)	Specifies Wall Panel Information system specific functional requirements	TBD
Design Guideline documents (DCD sect. 18.8.1.2)	APP-OCS-J1-002 (AP1000 Human System Interface Design Guidelines)	Provides assurance that the AP1000 design complies with applicable Human Factors design principles similar to those in NUREG 0700	Staff reviews have determined these design guidelines are structured and formatted to facilitate their use by HSI implementing personnel. Following actions needed: Confirm specific technical guidance is IAW 0700. Review against other specific 0711' requirements
Design Specifications (DCD sect. 18.8.1.3)	APP-DDS-J4V-001 (AP1000 Display Design Specification)	TBD	TBD
	APP-DDS-J4V-002 (AP1000 Specification of Static and Dynamic Elements for Displays)	TBD	TBD
	APP-PMS-J4-001 (Post Accident Monitoring System Functional Specification)	Specifies Post Accident Monitoring system specific functional requirements	TBD

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DCD process block from Figure 18.2-3	Documentation completed	Purpose	Staff comments
Man-in-the-Loop Testing (DCD sect. 18.8.1.4)	APP-OCS-T2R-020 (AP1000 Engineering Test Phase I Test Report)	TBD	TBD
	APP-OCS-T2R-022 (AP1000 Engineering Test Phase II Test Report)	TBD	TBD

Figure 18.2-3 in the DCD is correct, however, it should be noted that it provides an **overview** of the HFE process. Westinghouse recognizes that the HFE design process includes many design feedback and feed-forward processes. If these were to be included in Figure 18.2-3, the figure would be overly complicated and difficult to understand. Therefore the details of the HFE design process are not fully represented in Figure 18.2-3.

The statement in Section 3.5 of TR82 (i.e., "The HSI design guidelines were integrated into the development of the functional requirements documents and are employed by the engineers in the development of the HSI resources design specification documents") does describe the actual implementation of the HSI Design Guidelines.

The HSI Design Guidelines covers a large number of HFE areas and is utilized by the engineers in the early stages of design through to the end of the detailed design stage. Therefore, the HSI Design Guidelines provides the guidance that is appropriately incorporated into the early design stage. For example, the guidance addresses the content of VDU display pages, the purpose of the WPIS, the need to prioritize alarms and the level of automation. Such guidance is incorporated into the development of the function requirements documents. Likewise, the HSI Design Guidelines contains specific detailed guidance that is appropriately incorporated into the later stages of design and is therefore included in the comparatively more detailed design specification documents. This includes, for example, the format of presentation, text size, color coding systems, position of labels, and so on.

The functional requirements documents do feed information into the HSI Design Guidelines in that as the design develops, the HSI Design Guidelines document can be modified in order to more specifically address the HFE aspects of the functions as identified in the functional requirements documents. This enables the HSI Design Guidelines to remain focused on the AP1000 OCS and HSI resources and to provide the detailed information as needed by the engineers responsible for the development of the design specification documents.

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In summary, Figure 18.2-2 of the DCD may be considered a little simplistic, and the use of the HSI Design Guidelines is more accurately described in TR-82. The HSI Design Guidelines feed into both the functional requirements documents and the design specification documents.

Design Control Document (DCD) Revision:

None.

PRA Revision:

None.

Technical Report (TR) Revision:

None.

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Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP18-COLP-05

Revision: 0

Question:

AP1000 DCD Tier 1, ITAAC Table 3.2, Design Commitment 3 was changed to delete 4 of the 5 documents listed in the acceptance criteria section. Deletion was based on completion of the reports specified by the acceptance criteria. TR-82 (Execution and Documentation of the Human System Interface Design Implementation Plan) described completed design documents and was used by the staff to validate that the list of finished documents addressed the ITAAC acceptance criteria list of documents

The staff comparison did not find one for one correlation between the TR-82 list of completed documents and the AP1000 DCD Tier 1, ITAAC Table 3.2, Design Commitment 3 acceptance criteria. Design documents were not identified for the following areas;

1. Functional requirements and design basis documents for the plant information system.
2. Functional requirements and design basis documents for controls (soft and dedicated)
3. Functional requirements and design basis documents for the qualified data processing subsystems

Please explain the status of work in these areas. If work is complete please provide direction as to where the information can be found.

Westinghouse Response:

As stated in Section 5.4.4.1 of APP-OCS-GBH-001, "Human Factors Engineering Program Plan," the term 'Plant Information System' is no longer commonly used and has been replaced with more appropriate terms of 'DCIS' or 'non-safety control systems'. Likewise, 'soft controls' were referred to as a system of their own and are now, with current terminology, considered an integral part of the DCIS. Therefore, the functional requirements and design basis information for the plant information system and controls are captured in APP-OCS-J1-010, "Display System Functional Requirements," which is Reference 8 in TR-82.

The Qualified Data Processing System (QDPS) functional requirements and design basis information can be found in APP-OCS-J1-010 and APP-PMS-J4-001, "Post-Accident Monitoring System Functional Specification," which are Reference 8 and Reference 10, respectively, in TR-82.

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References:

1. APP-OCS-GBH-001, AP1000 Human Factors Engineering Program Plan
2. APP-OCS-J1-010, Display System Functional Requirements
3. APP-PMS-J4-001, Post-Accident Monitoring System Functional Specification

Design Control Document (DCD) Revision:

None.

PRA Revision:

None.

Technical Report (TR) Revision:

None.

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Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP18.5-COLP-01
Revision: 0

Question:

In NUREG-1793, the NRC identified 3 COL Action Items in Section 5 of Chapter 18 of the DCD. Each was uniquely numbered. The DCD numbering assigned the same number twice. We suspect that the second COL action item was not addressed because of the numbering duplication. Accordingly, for COL Action Item 18.5.3-2 ("The COL applicant will utilize the AP1000 Specific Task Analysis in the development of procedures and training programs."), please describe how AP1000-specific task analysis information will be used in the development of procedures and training programs.

Westinghouse Response:

Sections 5.6 and 5.7 of the AP1000 HFE Program Plan (APP-OCS-GBH-001) describe two documents, 'The Incorporation of Human Factors Engineering into the Development of the AP1000 Plant Procedures' (APP-OCS-GER-031) and 'The Incorporation of Human Factors Engineering into the Development of the AP1000 Plant Training Program' (APP-OCS-GER-041). The purpose of these documents is to capture the operator training and procedure information that is identified in the task analyses (and other HFE analyses, such as the operating experience review, engineering tests and verification and validation). These reports ensure that training and procedure related information is identified, recorded and communicated to those responsible for the development of the training programs

References:

1. APP-OCS-GBH-001, AP1000 Human Factors Engineering Program Plan.

Design Control Document (DCD) Revision:

None.

PRA Revision:

None.

Technical Report (TR) Revision:

None.