



Westinghouse Electric Company
Nuclear Power Plants
P.O. Box 355
Pittsburgh, Pennsylvania 15230-0355
USA

U.S. Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, D.C. 20555

Direct tel: 412-374-6206
Direct fax: 412-374-5005
e-mail: sisk1rb@westinghouse.com

Your.ref: Docket No. 52-006
Our ref: DCP/NRC2217

August 4, 2008

Subject: AP1000 Response to Request for Additional Information (SRP18)

Westinghouse is submitting a response to the NRC request for additional information (RAI) on SRP Section 18. This RAI response is 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.

A response is provided for RAI-SRP18-COLP-07 and -10 through -15, as sent in an email from Dave Jaffe to Sam Adams dated June 26, 2008. This response completes fourteen of fifteen requests received to date for SRP Section 18. A response for RAI-SRP18-COLP-06 was submitted under letter DCP/NRC2201 dated July 14, 2008. A response for RAI-SRP18-COLP-01 through -05 was submitted under letter DCP/NRC2141 dated May 28, 2008.

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. Response to Request for Additional Information on SRP Section 18

cc: D. Jaffe - U.S. NRC 1E
E. McKenna - U.S. NRC 1E
P. Ray - TVA 1E
P. Hastings - Duke Power 1E
R. Kitchen - Progress Energy 1E
A. Monroe - SCANA 1E
J. Wilkinson - Florida Power & Light 1E
C. Pierce - Southern Company 1E
E. Schmiech - Westinghouse 1E
G. Zinke - NuStart/Entergy 1E
R. Grumbir - NuStart 1E
P. Hunton - Westinghouse 1E

ENCLOSURE 1

Response to Request for Additional Information on SRP Section 18

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP18-COLP-07
Revision: 0

Question:

The NRC staff requested documents that were referenced in various Westinghouse Technical Reports. These documents were referenced in NRC letters dated April 7 and April 17, 2008. Please state whether these documents, provided to the NRC staff at the Westinghouse Rockville office, were approved procedures vice unapproved drafts.

Westinghouse Response:

All documents that were provided in the Rockville office are "approved" but the difference may exist if it is a letter revision or numeric revision. The numeric revisions signify a completed deliverable supported by references that are also completed. It further signifies documentation that is subject to design change control under AP1000 Operating Procedures. When issued as numeric, any subsequent change to the document occurs only after submittal and approval of a Design Change Proposal (DCP), per Operating Procedure AP-3.2. Any letter revisions are considered drafts and are not subject to the design change control process as numeric revisions are.

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-10
Revision: 0

Question:

NUREG-0800, Section 13.5.2.1, states that the procedure development program, as described in the PGP for EOP's, which is to include the plant-specific technical guidelines and writers' guides, and a description of the EOP verification and validation program and the program for training operators on EOP's, and should be submitted to the NRC at least three months prior to the date the applicant plans to begin formal operator training on the EOP's. What is the schedule for development and submittal of the PGP?

Westinghouse Response:

The general schedule for procedure development is provided in TR-70 Revision1, APP-GW-GLR-040. The plans for the verification and validation program for training operators on the EOPs will be submitted at least 3 months prior to the date that any AP1000 applicants plan to begin formal operator training on the EOPs.

Reference:

1. APP-GW-GLR-040, Rev. 1, Technical Report 70, "Plant Operations, Surveillance, and Maintenance Procedures"

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-11
Revision: 0

Question:

Bullets 7 and 9 of NUREG-0711, Section 9.4, give the acceptance criteria the staff uses to review an applicant's computer based procedures approach to procedure development. Interim Staff Guidance #5 (ISG 5), Digital Instrumentation and Controls, Computer-Based Procedures section gives additional review guidance to the staff on computer-based procedure systems and computer-based procedures.

The NRC staff reviewed APP-OCS-J1-020, Rev. A, "Computerized Procedure System Functional Requirements," at the Westinghouse Rockville office and developed the following requests for additional information.

General Review Criteria 2, in the Computer-Based Procedures Systems section of ISG 5, states that the procedure user should always be in control of the procedure system, and that the system should only accomplish a procedure automated step at the direction of the user.

In section 2 of technical report APP-OCS-J1-020, Rev. A, bullet 2, it states:

The Computerized Procedures System shall have the capability to be either user paced or computer paced. When user paced, the system shall not advance to a procedure step, a Note, Caution or Foldout Page item or a procedure unless instructed to do so by the user. When computer paced, the system shall advance to the next appropriate procedure step as long as plant process conditions are satisfied and an alternate pathway through the procedures has been specified, the system shall advance according to that path.

In Section 3.1.3, of APP-OCS-J1-020, it states:

The system will not advance to the next substep, or step, it will not respond to any parallel information violation, nor will it transition to a new step or procedure for any reason without the concurrence of the user.

Please clarify whether the system, when in its automated mode, takes advances with or without operator input. Also, please explain how the operator determines when the computer is in the automated mode or the user initiated mode.

Westinghouse Response:

The computer-paced, or automated, mode will be removed as a functional requirement of the system; therefore, this issue will be irrelevant.

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

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-12

Revision: 0

Question:

Criterion 3 of NUREG-0711, Section 9.4, states that a writer's guide should be developed to establish the process for developing technical procedures. Criterion 3 clarifies certain characteristics that the writers guide should include. This guidance in Criterion 3 can be applied to both computer-based procedures and paper-based procedures.

The staff reviewed APP-OCS-J1-020, "Computerized Procedure System Functional Requirements," APP-GW-GJP-100, "Writer's Guidelines for Normal Operating Procedures," and APP-GW-GJP-200, "Two-Column Format Procedures," at the Westinghouse office in Rockville. From the available writer's guides available for review and other technical reports, it is difficult to determine whether the display format the operator sees on the main control room (MCR) visual display units (VDUs) is the same as the format the operator will view for the paper based procedures.

Please explain whether the format of the computer based procedures uses the same format as that which is in the reports mentioned above, or if there is a separate writer's guide, or criteria, specifically for the display formatting for the computer based procedures.

Westinghouse Response:

The format utilized for the computer-based procedures will be consistent with the paper-based presentation of the procedures. The "flowchart" view of the entire current procedure (to be shown on the left side of the CPS user interface) graphically will display the two-column format. The textual "step" view of the currently active step (to be shown on the right side of the CPS user interface) will display the "Response Not Obtained" column of the step below and indented from the "Action/Expected Response" column of the step. The logic of the current step will be shown below the step text.

The CPS design is consistent and compatible with the paper-based procedures and has been shown through testing to provide a robust user interface that effectively utilizes the capabilities of computer processing while at the same time maintaining the "look and feel" of the paper.

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-13
Revision: 0

Question:

In technical report APP-OCS-J1-020, Rev. A, "Computerized Procedure System Functional Requirements," Section 3.1.5, what is meant by GOOD, BAD, POOR, and TIMED OUT data? Please explain their differences.

Westinghouse Response:

The CPS shall utilize the same data quality conventions as the Ovation platform. The following are the definitions provided in the Ovation documentation.

- GOOD = Point is functioning properly
- POOR = Generated from certain algorithms if some inputs were BAD and some were GOOD
- BAD = Point is not functioning properly, typically caused by a sensor failure
- TIMED OUT = Point is not being updated by the data highway at the receiving drop

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-14
Revision: 0

Question:

The second part of NUREG-0711, Section 9.4, criterion 7, states that an analysis of alternatives in the event of loss of computer based procedures should be performed and documented. It is not clear to the staff where this analysis has been documented, or if it has been performed. If documentation of this analysis exists please provide a detailed explanation.

Westinghouse Response:

An analysis of the loss of computer based procedures will be conducted as part of the second operational sequence analysis as described in Section 2.1 of APP-OCS-J1R-210, "Operational Sequence Analysis 2 (OSA-2) Implementation Plan." OSA-2 is scheduled to begin in the fall of 2008.

Reference:

1. APP-OCS-J1R-210, Rev. 0, "Operational Sequence Analysis 2 (OSA-2) Implementation 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-15
Revision: 0

Question:

Interim Staff Guidance #5, Digital Instrumentation and Controls (ISG 5), states that computer-based procedure systems that call for the user to enter data should provide a method for data entry.

In the AP1000 computerized procedure system, are there any conditions for which the operator, or user, may be prompted to input data? If so, what method for data entry is used?

Westinghouse Response:

There are no plans at this time for the computerized procedure system user to input data.

Design Control Document (DCD) Revision:
None

PRA Revision:
None

Technical Report (TR) Revision:
None