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Your ref: Docket No. 52-006
Our ref: DCP/NRC1680

February 17, 2004

SUBJECT: Transmittal of Revised Responses to AP1000 DSER Open Items

This letter transmits Westinghouse revised responses for Open Items in the AP1000 Design Safety Evaluation Report (DSER). A list of the revised DSER Open Item responses transmitted with this letter is Attachment 1. The non-proprietary responses are transmitted as Attachment 2.

Please contact me at 412-374-4728 if you have any questions concerning this submittal.

Very truly yours,

R. P. Vijuk, Manager
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/Attachments

1. List of the AP1000 Design Certification Review, Draft Safety Evaluation Report Open Item Responses transmitted with letter DCP/NRC1680
2. Non-Proprietary AP1000 Design Certification Review, Draft Safety Evaluation Report Open Item Responses dated February 17, 2004

D063

Attachment 1

List of

Non-Proprietary Responses

Table 1 "List of Westinghouse's Responses to DSER Open Items Transmitted in DCP/NRC1680"	
CIP Issue 7 17.3.2-2, Revision 2	

DCP/NRC1680
Docket No. 52-006

February 17, 2004

Attachment 2

AP1000 Design Certification Review
Draft Safety Evaluation Report Open Item Non-Proprietary Responses

AP1000 DESIGN CERTIFICATION REVIEW

Draft Safety Evaluation Report Open Item Response

DSER Open Item Number: CIP Issue 7

Original RAI Number(s): None

Summary of Issue:

The Non Class IE DC and UPS System (EDS) is was identified in DCD Tier 2 Section 16.3 as a system needing investment protection controls (See DCD Tier 2 Table 16.3-2 Section 3.4). DCD Tier 2 Section 16.3.1 states that the investment protection systems, structures, and components are included in the design reliability assurance program. Why is the EDS (other than a mention of EDS distribution panels for the DAS power) not listed as Risk Significant in DCD Tier 2 Table 17.4-1?

Westinghouse Response:

The EDS is included in Table 17.4-1 because it was identified in the PRA as a marginally risk-significant system (see AP1000 PRA Tables 50-12 and 50-13). The primary risk-significant function of EDS is the power supply to DAS. DAS is an energize-to-actuate, 2-out-of-2 system, i.e., no redundancy. DAS requires both power supplies to perform its function. The EDS panels that supply power to the DAS are included in Table 17.4-1. Each of these EDS panels can receive power either from a battery through an inverter or from a regulating transformer. Therefore, the power supplies to these EDS panels listed in Table 17.4-1 have both redundancy and diversity and thus become less important than the panels. As a consequence, UPS distribution panels EDS1-EA-14 and EDS2-EA-14 are included in Table 17.4-1, but the power supplies to these panels are not included.

Other systems listed in Table 17.4-1 that require power from EDS are PLS and the hydrogen igniters. The power supply to these systems is less significant than the power supply to DAS because of the redundancy built into the PLS and the hydrogen igniters. The interconnection between these systems is such that if one of the EDS subsystems were lost, then the PLS components and hydrogen igniters which continue to receive power from the other EDS subsystems will perform the required functions. With this level of redundancy, the power supplies for PLS and the hydrogen igniters is not risk-significant.

NRC Follow Comment:

The NRC found that an Electrical Distribution System (EDS) power supply bus to DAS exceeds the Risk Achievement Worth (RAW) threshold for unavailability in the AP1000 Probabilistic Risk Assessment, Chapter 50, PRA Importance and Sensitivity Analysis, Table 50-10, Component Importances - Risk Increases, Page 50-38, Basic Event ED1BSDS1TM. The EDS power supplies currently do have investment protection short-term availability controls per DCD Table 16.3-2. The EDS power supplies are also included in the Chapter 17 QA program to meet the requirements of GL 85-06, "Quality Assurance Guidance for ATWS Equipment that is not

Safety-Related." Westinghouse included the EDS distribution panels but did not include the EDS buses in the D-RAP. The EDS power supplies, the buses, and inverters electrically up stream from the EDS distribution panels are not included in the D-RAP. See DCD Figure 8.3.2-3, "Non-Class 1E DC & UPS System One Line Diagram," for additional details. It appears to the NRC staff that some of this equipment may exceed the RAW and Risk Reduction Worth (RRW) thresholds for reliability. The NRC staff requests additional information from Westinghouse to clarify why this EDS equipment is not included in the D-RAP.

Westinghouse Response to NRC Follow Comment:

Westinghouse has reviewed the previous response and the NRC follow comment and believes that EDS distribution panels EDS1-EA-1 and EDS2-EA-1 should be added to D-RAP. EDS1-EA-1 and EDS2-EA-1 will be added to DCD Tier 1 Table 3.7-1 and Tier 2 Table 17.4-1 as shown below.

Design Control Document (DCD) Revision:

Table 3.7-1
Risk-Significant Components

Equipment Name	Tag No.
Diverse Actuation System (DAS)	
DAS Processor Cabinets and Control Panel (used to provide automatic and manual actuation)	DAS-JD-001 DAS-JD-002 OCS-JC-020
Annex Building UPS Distribution Panels (provide power to DAS)	EDS1-EA-1, EDS1-EA-14, EDS2-EA-1, EDS2-EA-14
Rod Drive MG Sets (Field Breakers)	PLS-MG-01A/B
Containment Isolation Valves Controlled by DAS	Refer to Table 2.2.1-1

DCD Table 17.4-1 (Sheet 1 of 8)

RISK-SIGNIFICANT SSCs WITHIN THE SCOPE OF D-RAP

System, Structure, or Component (SSC)[1]	Rationale[2]	Insights and Assumptions
System: Diverse Actuation System (DAS)		
DAS Processor Cabinets and Control Panel (used to provide automatic and manual actuation) (DAS-JD-001, -002, OCS-JC-020)	RAW	The DAS is diverse from the PMS and provides automatic and manual actuation of selected plant features including control rod insertion, turbine trip, passive residual heat removal (PRHR) heat exchanger actuation, core makeup tank actuation, isolation of critical containment lines, and passive containment cooling system (PCS) actuation.
Annex Building UPS Distribution Panels (EDS1-EA-1, EDS1-EA-14, EDS2-EA-1, EDS2-EA-14)	RAW	These panels distribute power to the DAS equipment.
Rod Drive MG Sets (Field Breakers) (PLS-MG-01A/B)	RAW	These breakers open on a DAS reactor trip signal demand to de-energize the control rod MG sets and allow the rods to drop.
Containment Isolation Valves Controlled by DAS (Note 5)	RAW	These containment isolation valves are important in limiting offsite releases following core melt accidents.

PRA Revision:

None

AP1000 DESIGN CERTIFICATION REVIEW

Draft Safety Evaluation Report Open Item Response

DSER Open Item Number: 17.3.2-2, Revision 2

Original RAI Number(s): None

Summary of Issue:

Implementation of QA Program for AP1000 Design

Westinghouse stated that a project-specific quality control plan was used to implement the requirements of the Westinghouse QMS program. The staff plans to conduct an inspection of the implementation of the project-specific quality plan to verify that design activities conducted for the AP1000 project complied with the Westinghouse QMS and the requirements of 10 CFR Part 50, Appendix B. As discussed in this report Chapter 20, "Generic Issues," the NRC staff will also address the implementation of QA requirements 10 CFR 50.34(f)(3) and NUREG-0933, Item I.F.2, during this inspection. This is DSER Open Item 17.3.2-2.

Westinghouse Response:

NRC conducted an audit of AP1000 activities at Westinghouse on September 15-18, 2003. This audit was documented by NRC letter: "NRC Inspection Report No. 99900404/03-01 and Notice of Nonconformance," dated November 4, 2003. As documented by Westinghouse letter APD/NRC0005, "Closure of NRC Notice of Nonconformance 99900404/03-01 (Status of Contributor Quality Control) and AP1000 Open Item 17.3.2-2," dated February 6, 2004, Westinghouse has responded to the Notice of Nonconformance. As a result of the reported actions, Westinghouse believes that NRC can close this Open Item 17.3.2-2.

Design Control Document (DCD) Revision:

None

PRA Revision:

None