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U.S. Nuclear Regulatory Commission
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Your ref: Docket No. 52-006
Our ref: DCP/NRC2123

April 22, 2008

Subject: AP1000 COL Responses to Requests for Additional Information (SRP8.2 & SRP8.3.1)

Westinghouse is submitting responses to the NRC requests for additional information (RAI) on Standard Review Plan (SRP) Sections 8.2 & 8.3.1. 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-SRP8.2-EEB-01, RAI-SRP8.2-EEB-03, RAI-SRP8.3.1-EEB-01 and RAI-SRP8.3.1-EEB-02 as sent in an email from Billy Gleaves to Sam Adams dated March 13, 2008. This response completes two of the three requests received to date for SRP Section 8.2. This response completes all of the requests received to date for SRP Section 8.3.1.

Pursuant to 10 CFR 50.30(b), the response to the request for additional information on SRP Section 8.2 & 8.3.1, is submitted as Enclosure 1 under the attached Oath of Affirmation.

Questions or requests for additional information related to the content and preparation of this response 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,

D. C. Lindgren /for

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

D063
NRO

/Attachment

1. "Oath of Affirmation," dated April 22, 2008

/Enclosure

1. Responses to Requests for Additional Information on SRP Section 8.2 and SRP Section 8.3.1

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

ATTACHMENT 1

"Oath of Affirmation"

ATTACHMENT 1

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of:)

AP1000 Design Certification Amendment Application)

NRC Docket Number 52-006)

APPLICATION FOR REVIEW OF
"AP1000 GENERAL INFORMATION"
FOR DESIGN CERTIFICATION AMENDMENT APPLICATION REVIEW

W. E. Cummins, being duly sworn, states that he is Vice President, Regulatory Affairs & Standardization, for Westinghouse Electric Company; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission this document; that all statements made and matters set forth therein are true and correct to the best of his knowledge, information and belief.

W. E. Cummins
Vice President
Regulatory Affairs & Standardization

Subscribed and sworn to
before me this 22nd day
of April 2008.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Patricia S. Aston, Notary Public
Murrysville Boro, Westmoreland County
My Commission Expires July 11, 2011
Member, Pennsylvania Association of Notaries

Notary Public

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ENCLOSURE 1

Responses to Requests for Additional Information on SRP Section 8.2 and SRP Section 8.3.1

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP8.2-EEB-01
Revision: 0

Question:

Section 8.1.2 of the DCD states, "When neither the normal nor the preferred power supply is available due to an electrical fault at either the main step-up transformer, unit auxiliary transformer, iso-phase bus, or 6.9 kV non-segregated bus duct, fast bus transfer will be initiated to transfer the loads to the reserve auxiliary transformers." Section 8.2.2 of the DCD states, "In the Chapter 15 analyses, if the initiating event is electrical system failure (such as failure of the iso-phase bus), the analyses do not assume operation of the reactor coolant pumps following the turbine trip." In view of the addition of the fast bus transfer feature in the design, the staff is concerned that these two statements are inconsistent with one another. Explain why Section 8.2.2 has not been revised to reflect the new design.

Westinghouse Response:

Westinghouse chapter 15 analyses do not credit a bus transfer. While it is expected that the automatic bus transfer will occur for faults which initiate the transfer scheme there is no credit taken for the success of the scheme in the safety analyses. For those analyses that an electrical fault is the initiating event there is no assumption of reactor coolant pump operation. Westinghouse does not believe there is a conflict. The analyses are performed without crediting a bus transfer. However, the design of the plant is such that for some electrical faults a bus transfer will occur and reactor coolant pump operation will continue even though it is not credited in the analysis.

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-SRP8.2-EEB-03
Revision: 0

Question:

Section 8.3.1.1 of the DCD indicates that the unit auxiliary transformers have been provided with protective devices for sudden pressure, overcurrent, differential current and neutral overcurrent. The reserve auxiliary transformers have protective devices for sudden pressure, overcurrent and differential current. IEEE-Std-666, "IEEE Design guide for Electric Power Service Systems for Generating Systems," recommends ground fault protection for transformers. Provide justification for not including ground fault protection for reserve auxiliary transformers.

Westinghouse Response:

The AP1000 design does include this protective function. The neutral overcurrent protection was inadvertently omitted from the words in the DCD in regards to the reserve auxiliary transformers (RATs). The DCD will be revised as shown below to include the neutral overcurrent protection for the RATs.

Design Control Document (DCD) Revision:

Revise Section 8.3.1.1.1 as follows:

The reserve auxiliary transformers have protective devices for sudden pressure, overcurrent, differential current and neutral overcurrent. The reserve auxiliary transformers protective devices trip the reserve supply breaker and any 6.9 kV buses connected to the reserve auxiliary transformers.

PRA Revision:
None

Technical Report (TR) Revision:
None

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP8.3.1-EEB-01
Revision: 0

Question:

In Section 8.3.1.1.6 of the DCD, Containment Building Electrical Penetrations, it is stated that optical fibers are installed in instrumentation and control or low voltage power electric penetrations. Describe how different divisions of fiber optic cables will be identified in your design.

Westinghouse Response:

Fiber optic cables, as with all scheduled cables, will be identified by their functional circuit identifier. Fiber optic cables will pass through a separate feed (separate from other cable types) within any given electrical penetration assembly regardless of cable identifier.

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-SRP8.3.1-EEB-02
Revision: 0

Question:

In Section 8.3.1.1.1 of the DCD it is stated that in the event of a loss of voltage on these buses, the diesel generators are automatically started and connected to the respective buses and in the event of a fast bus transfer, the diesel generator connection to the bus is delayed such that the fast bus transfer is allowed to initiate. The above statement implies that the diesel generator is already running during the fast bus transfer and its connection to the bus is delayed. Explain why the diesel generator would start during fast bus transfer.

Westinghouse Response:

The AP1000 bus transfer scheme has both the immediate transfer capability and a residual voltage transfer scheme based on medium bus voltage degrading adequately to allow for a second attempt (automatic) at a level where the motor field voltage has degraded adequately to allow for the motors to be connected to a source without damage.

Between the first attempt (the first few cycles) and the second attempt (after motor field voltage has sufficiently degraded to allow closure) the undervoltage setpoint of the diesel generator busses may be reached allowing for a diesel generator start (undervoltage initiation) while the bus transfer scheme will complete a residual transfer before the diesel generator connects to the switchgear bus, thereby having the result of a powered bus from a reserve source, a running diesel, and no need to have the diesel connect to the bus. As the time between diesel generator start and loading onto the bus is relatively long (120 sec), all automatic bus transfers will have completed operation long before (diesel) generator connection to the bus in attempted.

Design Control Document (DCD) Revision:
None

PRA Revision:
None

Technical Report (TR) Revision:
None