



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/NRC2343

January 8, 2009

Subject: AP1000 Responses to Requests for Additional Information (SRP11)

Westinghouse is submitting responses to the NRC request for additional information (RAI) on SRP Section 11. 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.

Enclosure 1 provides the response for the following RAIs:

RAI-SRP11.2-CHPB-04 Rev. 1
RAI-SRP11.2-CHPB-05 Rev. 1

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,

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 11

DO63
NRO

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

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP11.2-CHPB-04

Revision: 1

Question:

Section 11.2.3 is missing the consequence evaluation of a liquid waste tank failure. The acceptance criteria in SRP 11.2 require this evaluation and rely on the approach specified in Branch Technical Position 11-6. Please provide this analysis and revise the DCD accordingly. Also provide sufficient details for the staff to perform an independent confirmatory analysis.

The staff needs to determine that the applicant met the requirements of General design Criteria 60 and 61 with respect to the control of releases of radioactive materials released to the environment by providing controls to reduce the potential impact of the failure of the radioactive liquid waste system and its associated components. Without this analysis, the staff cannot assure that the applicant met the design criteria.

In addition, the staff needs the results of this analysis to determine the classification of the radioactive waste system for design purposes. Regulatory position C.5 in Regulatory Guide 1.143 uses estimated doses from system failures to classify the design hazard of the waste management system. Based on this design hazard classification, the building containing the radwaste system and the system itself must comply with certain design standards specified in the Regulatory Guide. Without this analysis, the staff can not determine the proper design classification and applicable design standards. This rationale also applies to classifying the design hazard of the 3 new monitoring tanks housed in the radwaste building specified in Revision 16 of the DCD.

10 CFR 52.63 allows for this change to the DCD. This information is necessary to provide adequate protection of the public health and safety and to bring the DCD into compliance with the design criteria under 10 CFR 50.

Westinghouse Response:

The off-site dose impact of a liquid waste tank failure is substantially site specific. Therefore, for the AP1000 this evaluation is a Combined License Information item, as discussed in DCD section 15.7.3, and shown in DCD section 15.7.6. This is COL item 15.7-1 of Table 1.8-2.

Results are provided, for example, in the Bellefonte FSAR (Ref. 1) Subsection 2.4.13.

The radiological content of the monitor tanks located in the radwaste building was estimated and discussed in the response to RAI-SRP11.2-CHPB-06.

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

Reference(s):

1. Bellefonte Units 3 & 4 COLA (Final Safety Analysis Report), Rev. 0

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-SRP11.2-CHPB-05

Revision: 1

Question:

Section 11.2.4, Preoperational Testing, does not address the testing and inspection of ion exchange resin. The initial performance of the liquid radioactive waste systems depends on the existence and performance of ion exchange resin in the ion exchange vessels. Westinghouse based the annual liquid effluent release of radioactivity estimated in section 11.2 on assuming the media provided a specific level of decontamination as listed in Table 11.2-5. What types of preoperational testing and inspection will be performed to ensure that the resin is properly installed and performing to assumed levels at initial start up? Please revise Section 11.2.4 of the DCD to include a description of the preoperational testing of the ion exchangers.

The only tests specified in DCD section 11.2.4 deal with sump level indicators and isolation valve testing. There are no tests specified to determine that the radwaste system will perform as described in the DCD when it pertains to radioactive decontamination of liquid waste. The applicant states how they intend to verify the performance of the gaseous waste delay beds in section 11.3.4 for the gaseous waste management system, a similar description for the liquid system ion exchangers in 11.2.4 would be an acceptable response.

This revision is necessary under 10 CFR 52.63 to provide adequate protection of the public health and safety because the doses from liquid effluents are dependent on the performance of the liquid decontamination system.

Westinghouse Response:

Liquid effluents processed in the liquid radwaste system are routed to monitor tanks prior to discharge. As discussed in DCD section 11.2.2.5.1.3 and 11.2.2.5.2, any fluids routed through the liquid radwaste ion exchangers is collected in these monitor tanks. The contents of the monitor tanks will be sampled routinely prior to discharge in order to ensure that isotopic concentrations are within those required and targeted for discharge. Finally, all liquid effluents en route to discharge are routed through the discharge radiation monitor, which will alarm if radioactivity levels exceed the setpoint. Thus, the arrangement and operation of the liquid radwaste system routinely and intrinsically demonstrates that the performance of the liquid decontamination system is adequate to meet discharge requirements.

Also, each radwaste ion exchange bed is equipped with a differential pressure gauge, and the hypothetical absence of ion exchange media would result in a noticeably lower differential pressure through the vessel. Therefore, the operator is provided with adequate information regarding media loading.

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

The charcoal used in the gaseous radwaste system discussed in section 11.3.4 does not deplete with use and is anticipated to have a very long life. By contrast, ion exchange media in the liquid radwaste system will be replaced routinely. Thus, pre-operational verification of the liquid media would provide limited benefit.

Therefore, we believe the current DCD commitments are adequate, and anticipated operating procedures properly address the concerns of this RAI.

Design Control Document (DCD) Revision:

None

PRA Revision:

None

Technical Report (TR) Revision:

None