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Your ref: Docket No. 52-006
Our ref: DCP/NRC2353

January 13, 2009

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

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-SRP11.3-CHPB-02
RAI-SRP11.5-CHPB-02

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,

Robert Sisk, Manager
Licensing and Customer Interface
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/Enclosure

1. Response to Request for Additional Information on SRP Section 11

DO03
NRO

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ENCLOSURE 1

Response to Request for Additional Information on SRP Section 11

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP11.3-CHPB-02
Revision: 0

Question:

Section 11.3.3 is missing the consequence evaluation of a gaseous waste system leak or failure. The acceptance criteria in SRP 11.3 require this evaluation and rely on the approach specified in Branch Technical Position 11-5. Based on the SER for Revision 15, the applicant performed this analysis in response to an RAI, but the description of the analysis and results were not included in the DCD. The applicant should add its analysis to the DCD and provide sufficient detail for the staff to perform an independent analysis.

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 specific design standards described in the Regulatory Guide. Without this analysis, the staff can not determine the proper design classification and applicable design standards.

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.

Westinghouse Response:

The AP1000 results of the analysis of a gaseous waste system leak were not expected to differ significantly from the AP600 results. Therefore, to support the original AP1000 RAI on this subject (RAI 460.005(A)), a preliminary evaluation was performed and sufficient detail was provided in the RAI response. The supporting calculation update to AP1000, with the updated X/Q value, is expected to be finalized March 2009.

Section 11.3.3 of the DCD will be revised to describe the following analysis and results when this calculation is completed:

- A pre-existing, beyond-design-basis condition of operation with 1% fuel defects; (that is, noble gas concentrations in the reactor coolant are assumed to be four times higher than the AP1000 design basis as shown in DCD Table 11.1-2)
- A 1-hour bypass of the WGS charcoal beds
- 30 minutes decay prior to release to the environs
- A conservative site boundary X/Q with respect to the assumptions documented in DCD Chapter 5 of the Tier 1 documentation

With these assumptions, we estimate a site boundary whole body dose of 0.1 rem.
With this analysis, the staff should be able to determine design classifications and standards.

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

Design Control Document (DCD) Revision:
None at this time

PRA Revision:
None

Technical Report (TR) Revision:
None

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP11.5-CHPB-02
Revision: 0

Question:

Will the continuous effluent monitors for both liquid and gaseous effluent conform to ANSI N42.18-2004? There is no mention of this standard or its predecessor (ANSI N13.10-1974) in the entire section 11.5. SRP 11.5 uses this standard to evaluate equipment design features to ensure representative sampling and monitoring. Please provide in the DCD a commitment to follow this standard.

Without a commitment to this standard, the staff has no assurance that the measurements will be accurate and scientifically proven to be representative. Given that many important decisions pertaining to public and occupational exposure to radioactivity are made from such measurements, the DCD needs to commit to the current standard to ensure that the measurements are accurate.

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.

Westinghouse Response:

The AP1000 process radiation monitors are designed in conformance with ANSI-N42.18-1980. This currently is not reflected in the DCD, but will be committed to in the revision shown below.

We have compared the 1980 and 2004 versions of ANSI-N42.18, and have not noted any significant differences. However, since our internal documentation commits to ANSI-N42.18-1980, we prefer to make the DCD commitment consistent with that version.

Reference(s):

ANSI N42.18, "Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents."

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

Design Control Document (DCD) Revision:

11.5 Radiation Monitoring

The radiation monitoring system (RMS) provides plant effluent monitoring, process fluid monitoring, airborne monitoring, and continuous indication of the radiation environment in plant areas where such information is needed. Radiation monitors that have a safety-related function are qualified environmentally, seismically, or both. Class 1E radiation monitors conform to the separation criteria described in subsection 8.3.2 and to the fire protection criteria described in subsection 9.5.1. Equipment qualification requirements, including seismic qualification requirements, and general location information for radiation monitors are listed in Section 3.11. Seismic Categories for the buildings housing radiation monitors are listed in Section 3.2.

The radiation monitoring system is installed permanently and operates in conjunction with regular and special radiation survey programs to assist in meeting applicable regulatory requirements. The radiation monitoring system is designed in accordance with ANSI N13.1-1969. The process monitors are designed in accordance with ANSI-N42.18-1980.

The radiation monitoring system is divided functionally into two subsystems:

- Process, airborne, and effluent radiological monitoring and sampling
- Area radiation monitoring

PRA Revision:
None

Technical Report (TR) Revision:
None