
REVISED RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

APR1400 Design Certification

Korea Electric Power Corporation / Korea Hydro & Nuclear Power Co., LTD

Docket No. 52-046

RAI No.: 231-8233
SRP Section: 11.03 - Gaseous Waste Management System
Application Section: 11.3
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Question No. 11.03-8

GDC 61 as it relates to the control of releases to the environment. 10 CFR Part 20.1406 for minimization of contamination.

DCD section 11.3.1.3.b.3, states that, "For the APR1400, pipes less than 25 mm (1 in) are exempt from pressure testing provided the original system was pressure tested."

1. The staff is requesting the applicant to supply within the application the regulatory basis that provides this guidance to justify this statement made in the application.
2. The staff is requesting the justification for the exemption from pressure testing be included in DCD text, if applicable.
3. The staff is requesting the basis in order to gain an understanding that the applicant will be able to adequately control contamination and effluent releases to the environment in the event that piping less than 25 mm are not adequately tested.

Please address these items and provide a markup for the proposed DCD changes.

Response - (Rev. 1)

1. The statement in DCD Section 11.3.1.3.b.3 is based on the requirements in ASME Section XI. In ASME Section XI, Division 1, IWA-4540, it states that components or connections NPS 1 (DN 25) and smaller are exempt from any pressure test on repair/replacement activities during plant commercial operation after completion of design and construction. This requirement is to be applied to pipes that are already adequately installed and tested in accordance with ASME B31.3 as described in DCD Table 11.3-2.

2. Since this exemption requirement is related to repair/replacement activities during plant commercial operation after completion of design and construction, the statement in DCD Section 11.3.1.3.b.3 will be revised for clarity.
 3. It is expected that the requirement would be applicable to this system because the ASME Section XI requirement is also applied to safety-related piping. Since inspections in accordance with ASME Section XI are to be performed during the repair/replacement activities, the contamination and effluent releases to the environment are adequately controlled by meeting the requirements of ASME Section XI.
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Impact on DCD

DCD Tier 2, Section 11.3.1.3.b.3 will be revised as indicated in the attached markup.

Impact on PRA

There is no impact on the PRA.

Impact on Technical Specifications

There is no impact on the Technical Specifications.

Impact on Technical/Topical/Environmental Reports

There is no impact on any Technical, Topical, or Environmental Report.

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- 3) The GRS is pneumatically pressure tested in conformance with Regulatory Position C.4.4 of NRC RG 1.143 (Reference 2). Testing of piping systems is performed in accordance with applicable codes and standards as described in Table 11.3-2. For ~~the APR1400~~, pipes less than 25 mm (1 in) are exempt from pressure testing ~~provided the original system was pressure tested~~. the pipes tested in accordance with Table 11.3-2
- 4) The GRS is designed to permit periodic testing of active components to evaluate the operability in accordance with Regulatory Position C.4.5 of NRC RG 1.143 (Reference 2). on repair/replacement activities during plant commercial operation after completion of design and construction in accordance with ASME Section XI (Reference 36).
- c. The GRS components are classified as RW-IIa, RW-IIb, or RW-IIc as described in Regulatory Position C.5 and are designed to the natural phenomena and man-induced hazards criteria in Regulatory Position C.6 of NRC RG 1.143 (Reference 2), as applicable. The compound building is designed to Radwaste Safety Classification RW-IIa.
- d. The quality assurance (QA) program for the design, installation, procurement, and fabrication of GRS components conforms with Regulatory Position C.7 of NRC RG 1.143 (Reference 2) and NRC RG 1.33 (Reference 21). Table 3.2-1 identifies seismic category, quality, and safety class for each of the respective components in the GRS.
- e. The Radwaste Safety Classification applies to the GRS equipment up to and including the nearest isolation valves. The Radwaste Safety Classification for piping is determined by the inventory based on pipe sizes, lengths, and the fluid concentrations in accordance with NRC RG 1.143 (Reference 2), except for the containment isolation valves and penetration piping. The components and the associated piping are designed, fabricated, and tested in accordance with NRC RG 1.143 (Reference 2) as specified in Table 11.3-2.
- f. The GRS is designed to operate at slightly above atmospheric pressure and with a low pressure drop across the charcoal adsorber beds. This operating condition, and the component welded construction, minimizes the potential for leakage and also minimizes the entrainment of fines. Additionally, a HEPA filter is provided downstream of the charcoal adsorbers to filter and retain the fines to minimize airborne releases.

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26. NUREG/CR-4653, "GASPAR II - Technical Reference and User Guide," U.S. Nuclear Regulatory Commission, March 1987.
27. Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR 50, Appendix I," Rev. 1, U.S. Nuclear Regulatory Commission, October 1977.
28. Regulatory Guide 1.111, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors," Rev. 1, U.S. Nuclear Regulatory Commission, July 1977.
29. 10 CFR 20.1302, "Compliance with Dose Limits for Individual Members of the Public," U.S. Nuclear Regulatory Commission.
30. 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations," Environmental Protection Agency.
31. DAMSAM, "A Digital Computer Program to Calculate Primary and Secondary Activity Transients," Combustion Engineering, Inc.
32. USEPA Federal Guidance Report No. 12, "External Exposure to Radionuclides in Air, Water, and Soil," 1993.
33. NUREG/CR-6604, "RADTRAD: A Simplified Model for RADionuclide Transport and Removal and Dose Estimation," U.S. Nuclear Regulatory Commission, June 1999.
34. NEI 07-09A, "Generic FSAR Template Guidance for Offsite Dose Calculation Manual (ODCM) Program Description," Rev. 0, Nuclear Energy Institute, March 2009.
35. NEI 08-08A, "Generic FSAR Template Guidance for Life Cycle Minimization of Contamination," Rev. 0, Nuclear Energy Institute, October 2009.

36. ASME Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components" The American Society of Mechanical Engineers, the 2007 Edition with the 2008 Addenda.