

From: Getachew Tesfaye
Sent: Tuesday, June 03, 2008 9:54 AM
To: 'usepr@areva.com'
Cc: John Rycyna; Joseph Hoch; Joseph Colaccino; Charles Cox
Subject: U.S. EPR Design Certification Application RAI No. 10
Attachments: RAI 10 RSAC 186 187 188 190.doc

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on May 16, 2008, and discussed with your staff on May 29, 2008. The staff agreed to delete draft RAI Questions 02.03.01-5, 02.03.02-1, 02.03.04-5, and 02.03.05-2 as a result of that discussion. The schedule we have established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs. For any RAIs that cannot be answered within 30 days, it is expected that a date for receipt of this information will be provided to the staff within the 30 day period so that the staff can assess how this information will impact the published schedule.

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Request for Additional Information No. 10, Revision 0
06/03/2008

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 02.03.01 - Regional Climatology
SRP Section: 02.03.02 - Local Meteorology
SRP Section: 02.03.03 - Onsite Meteorological Measurements Programs
SRP Section: 02.03.04 - Short Term Atmospheric Dispersion Estimates for Accident Releases
SRP Section: 02.03.05 - Long-Term Atmospheric Dispersion Estimates for Routine Releases
Application Section: FSAR Chapter 2
RSAC BRANCH

QUESTIONS

02.03.01-1

NUREG-0800, Section 2.3.1, states that both normal and extreme live loads should be considered for the design of a nuclear power plant. The normal live load is based on the weight of the 100-year snowpack or snowfall, whichever is greater, recorded at ground level. The extreme live load is based on the normal live load plus the weight of the 48-hour probable maximum winter precipitation (PMWP). Tier 1 Table 5.0-1 and FSAR Table 2.1-1 list an extreme live load site parameter of 100 pounds per square foot (psf). Please explain if a normal live load should be included as a site parameter.

02.03.01-2

Please consider changing the name of the site parameter for extreme wind, "Maximum Sustained Speed," in Tier 1 Table 5.0-1 and FSAR Table 2.1-1 since the value is based on a 3-second gust. The National Weather Service defines a sustained wind as the wind speed determined by averaging observed values over a two-minute period.

02.03.01-3

Please include a reference to FSAR Section 3.3 in FSAR Section 2.3.1 for the 100-year, 3-second gust wind speed because this section provides the technical basis for the site parameter value.

02.03.01-4

Please include a reference to FSAR Section 3.3 in FSAR Section 2.3.1 for the tornado design parameters because this section provides the technical basis for the site parameter values.

02.03.01-6

Please provide a technical basis for the extreme live snow load site parameter of 100 psf provided in Tier 1 Table 5.0-1 and FSAR Table 2.1-1.

02.03.01-7

NUREG-0800, Section 2.3.1, states that the staff shall verify that the postulated site parameters are

representative of a reasonable number of sites that have been or may be considered for a COL application. To consider if the proposed zero percent exceedance non-coincident wet bulb temperature site parameter is representative of a reasonable number of potential COL sites, the staff considered wet bulb temperature data for 672 available weather stations from the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.'s (ASHRAE) Weather Data Viewer, Version 3.0. The staff compared the proposed site parameter against ASHRAE's extreme annual maximum wet bulb temperature at each station. Attachment 1 shows the percentage of weather stations in each state that have exceeded the zero percent maximum non-coincident wet bulb temperature of 81 ° F. The proposed site parameter is exceeded throughout the majority of the U.S., 67 percent of the time, especially in the Southeast U.S., where the proposed site parameter is exceeded nearly 96 percent of the time. Please justify that the zero percent maximum non-coincident wet bulb temperature of 81 ° F is representative of a reasonable number of sites that may be considered for a COL application.

02.03.01-8

Please provide a technical basis for the site parameter values used to calculate the maximum evaporation and drift loss of water from the ultimate heat sink provided in FSAR Table 2.1-3 and the site parameter values used to calculate the minimum water cooling in the ultimate heat sink provided in FSAR Table 2.1-4. Also, please justify that the site parameter values are representative of a number of potential COL sites.

02.03.01-9

For each of the U.S. EPR regional climatology site parameters, as presented in Tier 1 Table 5.0-1 and FSAR Table 2.1-1, please list the structures, systems, and components (SSCs) that make use of this information and the corresponding FSAR sections where the SSCs are discussed.

02.03.04-1

FSAR Section 2.3.4 states that the accident χ/Q values were either extracted from the EPRI ALWR URD or were calculated following the methodology in NRC Regulatory Guide (RG) 1.145. Please provide further discussion regarding the χ/Q values based on RG 1.145, such as the meteorological data used, release characteristics, and locations considered. Also, please explain how the proposed accident χ/Q values could be considered representative of a reasonable number of potential COL sites.

02.03.04-2

Please provide the technical basis for the control room accident χ/Q values presented in FSAR Tables 2.3-1 and 2.3-2.

02.03.04-3

Please consider including the control room accident χ/Q values in either Tier 1 Table 5.0-1 or FSAR Table 2.1-1.

02.03.04-4

SRP Section 2.3.4 states that the DC application should contain figures and tables showing the design features that would be used by the COL applicant to generate control room χ/Q values (e.g., intake heights, release heights, building cross-sectional areas, distance to receptors). Please

include the necessary input assumptions for ARCON96 (RG 1.194) in FSAR Section 2.3.4 for a COL applicant referencing the U.S. EPR DC.

02.03.05-1

Please provide the technical basis for the annual average χ/Q ($4.973E-6$ sec/m³) presented in FSAR Section 2.3.5 and FSAR Table 2.1-1.

02.03.05-3

NUREG-0800, Section 2.3.5, states that the staff shall verify that the postulated site parameters are representative of a reasonable number of sites that have been or may be considered for a COL application. Please explain how the proposed annual average χ/Q could be considered representative of a reasonable number of potential COL sites.

02.03.05-4

In FSAR Table 11.3-4, "Input Parameters for the GASPAR II Computer Code used in Calculating Annual Offsite Doses to the Maximally Exposed Individual from Gaseous Releases," the following parameters are listed: (1) an annual average atmospheric dispersion factor of $5.0E-06$ sec/m³ and (2) an annual average ground deposition factor of $5.0E-08$ m⁻². In FSAR Table 11.3-7, "Input Parameters for the GASPAR II Computer Code used in Gaseous Waste Cost-Benefit Analysis," the following parameters are listed: (1) an average humidity over the growing season of 8.4 g/m³, (2) an average temperature over the growing season of 66.8 °F, and (3) an atmospheric dispersion factor (highest 0.5 mile value) of $3.2E-06$ sec/m³. Please explain why the annual average χ/Q values listed in FSAR Table 11.3-4, FSAR Table 11.3-7, and FSAR Table 2.1-1 all differ. Please explain why the meteorological parameters (e.g., "annual average ground deposition factor," "average humidity over the growing season," and "average temperature over the growing season") listed in FSAR Tables 11.3-4 and 11.3-7 were not included as site parameters in Tier 1 Table 5.0-1 or FSAR Table 2.1-1. Please provide a list of meteorological parameters used in other sections of the FSAR that were not included as site parameters in Tier 1 Table 5.0-1 or FSAR Table 2.1-1. The corresponding FSAR section(s) should be included in this list.

