

From: Lee, Samson
Sent: Thursday, September 16, 2021 5:00 AM
To: Joshua Turner
Subject: DRAFT supplemental information needed for acceptance - Wolf Creek license amendment and exemption requests regarding GSI-191 (EPIDs L-2021-LLA-0152 and L-2021-LLE-0039)

Josh,

Below is DRAFT supplemental information needed for acceptance of the Wolf Creek license amendment and exemption requests for a risk-informed approach to address Generic Safety Issue-191 and respond to Generic Letter 2004-02. We have scheduled a clarification call for September 23, 2021. We plan to issue the final supplemental information needed for acceptance after the clarification call. As agreed, please provide a response by October 12, 2021.

Thanks,
Sam

BACKGROUND

By letter dated August 12, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21224A118), Wolf Creek Nuclear Operating Corporation (the licensee) submitted an application requesting a license amendment that would revise the licensing basis as described in the Wolf Creek Generating Station Updated Safety Analysis Report to allow the use of a risk-informed approach to address potential issues discussed in Generic Safety Issue (GSI)-191, "Assessment of Debris Accumulation on PWR [Pressurized-Water Reactor] Sump Performance," and respond to Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors" (ADAMS Accession No. ML042360586). Additionally, the licensee requested an exemption from certain requirements in Section 50.46(a)(1) of Title 10 of the *Code of Federal Regulations* in accordance with the provisions of 10 CFR 50.12, "Specific exemptions." The licensee's application was submitted following the guidance in Regulatory Guide (RG) 1.174, Revision 3, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis" (ADAMS Accession No. ML17317A256).

REGULATORY BASIS

Section 2.4, "Acceptance Guidelines" of RG 1.174, Revision 3, states in part:

...if there is an indication that the CDF [core damage frequency] may be considerably higher than 10^{-4} per reactor year, the focus should be on finding ways to decrease rather than increase it.

and

...if there is an indication that the LERF [large early release frequency] may be considerably higher than 10^{-5} per reactor year, the focus should be on finding ways to decrease rather than increase it.

and

In applying these guidelines, it is particularly important to recognize that the risk metrics calculated using PRA [probabilistic risk assessment] models are a function of the assumptions and approximations made in the development of those models. This is particularly important when the results from PRA models for multiple hazard groups are combined, since the results from some hazard groups, depending on the state of practice, may be conservatively or nonconservatively biased.

INFORMATION INSUFFICIENCIES

During its acceptance review of the application the U.S. Nuclear Regulatory Commission (NRC) staff noted that Table 1, "Baseline CDF and LERF Values" in Attachment VII "Overview of Risk-Informed Approach," of the application provides the plant's baseline CDF as 5.69E-04 per year and baseline LERF as 1.34E-05 per year. In the same attachment the licensee states only that (1) the fire PRA model has not yet been finalized or peer reviewed, and (2) the CDF and LERF values are expected to decrease. In addition, the plant's baseline CDF and LERF values reported in the application indicate the potential erosion of margins to the Commission's "Safety Goals for the Operations of Nuclear Power Plants" (51 FR 28044; August 4, 1986, and republished in 51 FR 30028; August 21, 1986) embedded in the 10^{-4} per reactor year and 10^{-5} per reactor year guidelines for CDF and LERF, respectively. Information is unavailable in the application justifying why this is not the case. Further, the NRC staff noted that Table 3, "GSI-191 Risk Quantification Results," in Attachment VII of the application shows the change in CDF and LERF from various hazards. The application states that these values are not added together because bounding methods were used in the calculation of the values. While a licensee has the option of selecting the approach for determining the change in risk from different contributors, the application does not provide sufficient information to support not aggregating the change in risk and, therefore, the claim that the base case change in risk is within "Region III" of RG 1.174.

SUPPLEMENTAL INFORMATION NEEDED

To support the continuation of the acceptance review for this application, the NRC staff requests the licensee to supplement the application with the following information:

1. Justification supporting the claim that "the CDF and LERF values are expected to decrease," including the anticipated extent of the decrease, details of the existing fire PRA model conservatisms and non-conservatisms on the PRA results as presented in the application, any plant modifications affecting potential fire risk, and details of the new fire PRA model, current status, and schedule for finalization.
2. Discussion of whether ways to reduce baseline CDF and LERF, consistent with the guidance in RG 1.174, have been identified and the associated implementation schedule, or justification why such steps are unnecessary.
3. Justification that the margins from the Commission's Safety Goals embedded in the 10^{-4} per reactor year and 10^{-5} per reactor year guidelines for CDF and LERF in RG 1.174, respectively, are maintained based on the baseline CDF and LERF values described in the application. Provide any actions and an implementation schedule to maintain the margins if necessary.

4. Justification that the total change in risk remains within “Region III” of RG 1.174 after aggregating the change in risk from the different contributors listed in Table 3 of the application.

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