These questions are to support discussion during a public meeting with the Nuclear Energy Institute (NEI) to discuss NEI 24-05, Revision 0, "An Approach for Risk-Informed Performance-Based Emergency Planning," scheduled for June 23, 10:00 am – 1:00 pm ET.

Section	Question	Reviewer
2.2	Emergency Plan Requirements Table 2.2: 10 CFR 50.160(b)(1) Text (page 10) has a note at the bottom that states "¢ - Only applicable if the PEP EPZ is outside the site boundary." What does this note go with or to?	Schrader
4.2.1	NEI 24-05 Section 4.2.1, "Identify [licensing basis events] LBEs with Radionuclide Release," under the heading "Preliminary LBE Screening," on page 20 states that, "A preliminary screening can be conducted based on several factors, including: LBE Estimated Dose: Screening based on very low doses outside facility structures." NEI 24-05 does not provide a technical basis for what constitutes "very low doses." Regulatory guide (RG) 1.242, "Performance-Based Emergency Preparedness for Small Modular Reactors, Non-Light-Water Reactors, and Non-Power Production or Utilization Facilities**,"** Appendix B, "Development of Information of Source Terms," item B-3, states, in part, that a technical basis for the screening of any identified release scenarios from quantitative consideration would need to be provided. "Very low doses" is an undefined term that may result in a wide variation of values, in application submittals to the NRC, without a provided technical basis for the chosen values. Therefore, what is the technical basis for what constitutes a "very low dose?"	Bucholtz
4.2.1	NEI 24-05 Section 4.2.1, "Identify LBEs with Radionuclide Release," under the heading "Preliminary LBE Screening," on page 20 states, in part, that bounding or conservative dose estimates can be used to screen out LBEs with radionuclide releases that are unlikely to influence a plume exposure pathway (PEP) emergency planning zone (EPZ) determination. RG 1.242, "Performance-Based Emergency Preparedness for Small Modular Reactors, Non-Light-Water Reactors, and Non-Power Production or Utilization Facilities**,"** Appendix B, "Development of Information of Source Terms," item B-3, states, in part, that a technical basis for the screening of any identified release scenarios from quantitative consideration would need to be provided. NEI 24-05 does not provide a technical basis for the determination that the bounding or conservative dose estimate is unlikely to influence a PEP EPZ determination. Therefore, what is the technical basis for the determination that the bounding or conservative dose estimate is unlikely to influence a PEP EPZ determination?	Bucholtz
4.2.1	NEI 24-05 Section 4.2.1, "Identify LBEs with Radionuclide Release," under the heading "Preliminary LBE Screening," on page 20 states, in part, "LBE estimated Timing: Screening based on … and consideration of the time available for implementation of protective measures." It is unclear if "protective measures" considered in the preliminary LBE screening should include protective measures for onsite personnel, as	Bucholtz

	is consistent with requirements under 10 CFR 50.160(b)(1)(iii)(B) as noted in the NEI 24-05 Section 4.4.2 discussion of the protective measures evaluation for the case of a PEP EPZ derived distance at or within the site boundary. The second bullet appears to include screening based on time available for implementation of protective measures "for the public" and "personnel within the site boundary." However, the NEI 24-05 section 4.2.1 discussion that follows only discusses timing available for the implementation of protective measures for the public. RG 1.242, "Performance-Based Emergency Preparedness for Small Modular Reactors, Non-Light-Water Reactors, and Non-Power Production or Utilization Facilities**,"** Appendix B, "Development of Information of Source Terms," item B-3, states, in part, that a technical basis for the screening of any identified release scenarios from quantitative consideration would need to be provided. Therefore, please clarify how the screening would be performed for the time available for the implementation of protective measures for personnel within the site boundary.	
4.2.1	The second to last paragraph in NEI 24-05, section 4.2.1, starts with "At noted above," this should be revised to "As noted above."	Bucholtz
4.2.1	NEI 24-05, section 4.2.1, "Identify LBEs with Radionuclide Release," on page 21, uses reference 13, RG 1.247 trial use "Acceptability of Probabilistic Risk Assessment Results for Non-Light-Water Reactor Risk-Informed Activities." How is this reference relevant to the low power rule? On page 21, how is reference 10, "U.S. Nuclear Regulatory Commission, "Safety Goals for the Operation of Nuclear Power Plants," Federal Register, 51 FR 30028, 1986" relevant to prompt protective measures?	Schrader
4.2.3	The Licensing Modernization Project (LMP) described in NEI 18-01, as endorsed by RG 1.233, frequently uses terminologies and definitions that are different from those that are traditionally used. NEI 24-05, which is written for applicants that follow the LMP, appears to intermix "event" and "accident" terminology in the second paragraph of the background discussion in Section 4.2.3, "Security Events." Staff notes this can cause misinterpretation or misunderstanding. Please confirm the proper usage of the terminology.	Bucholtz
4.2.3	NEI 24-05, section 4.2.3, "Security Events," states that accidents resulting from security events may be eliminated from detailed consideration in a facility's PEP EPZ technical basis based on the LMP approach provides a comprehensive assessment of potential accident sequences and associated consequences. The document gives guidance to the applicant to provide documentation, including a discussion of security-by-design and compliance with security-related regulatory requirements to support this determination. Given that the NEI methodology is a generic methodology with design and site considerations related to potential security-initiated events unknown	Hart

	and encompassing a wide range of potential users, how can the determination that security events can be eliminated from detailed consideration be made as applicable to all future implementations to support specific licensing applications?	
4.3.1	NEI 24-05 Section 4.3.1, "Perform Probabilistic Dose Aggregation," states that, "Of specific importance for the PEP EPZ determination process are the dose-versus-distance curves for 1 rem and 200 rem." NEI 24-05 provides dose values for the dose-versus-distance curves but does not state which radiological dose to individuals is determined (e.g., total effective dose equivalent (TEDE), whole body, thyroid etc.). In a public meeting on May 6, 2025, NEI stated that the criteria radiological doses are 1 rem TEDE and 200 rem TEDE. NRC staff note that inconsistent use could cause confusion.	Bucholtz
4.3.1, 4.3.2, and Appendix C	NEI 24-05, section 4.3.1, "Perform Probabilistic Dose Aggregation," states that the Criterion B 200 rem [TEDE, calculated for a 96-hour period] curve is an indicator of the potential for early health effects and aligns with the historic criteria from NUREG-0396 [planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants]. The discussion of Criterion B in section 4.3.2, "LBE Dose Criteria Comparison," also states that evaluation of the cumulative 200 rem TEDE curve at the frequency of 1E-6 per plant year maintains consistency with the early health effects evaluation in the PEP EPZ basis for large LWRs (NUREG-0396). NEI 24-05 Appendix C, "Derivation of Probabilistic Dose Aggregation Criteria," includes the statement that Criterion B has additional conservatisms compared to NUREG-0396. NUREG-0396 used a value of 200 rem whole body acute dose as a critical value as the dose which significant early injuries start to occur. NUREG-0396 does not state the specific dose exposure period used in the Appendix I dose aggregation, however other precedent approved methodologies for facility-specific PEP EPZ sizing have used 200 rem whole body for a 24-hour period. Please discuss how the dose value of 200 rem TEDE for a 96-hour period used in Criterion B is indicative of early health effects. Additionally, describe how the Criterion B use of 200 rem TEDE for a 96-hour period is consistent with the values used in the analysis in NUREG-0396 Appendix I or provides additional conservatism.	Hart
4.3.2	NEI 24-05 discusses that the LMP methodology can be used to develop cumulative dose-versus-distance curves which provide relative probabilities of exceeding the chosen dose as a function of distance from the facility for a spectrum of LBEs. NEI 24-05 Section 4.3.2, "LBE Dose Criteria Comparison," proposes two criteria, the evaluation of the cumulative 1 rem curve at a frequency of 1E-5 per plant year, and the evaluation of the cumulative 200 rem curve at a frequency of 1E-6 per plant year. NEI 24-05, section 4.3.2 also states that one reason for the criteria is to "Maintain consistency with threshold for current large LWR [light water reactor] EPZ basis (NUREG-0396)." The	Bucholtz

	determination of the frequency values used in the NEI 24-05 LBE dose criteria is described in NEI 24-05 Appendix C. NEI 24-05, Appendix C, "Derivation of Probabilistic Dose Aggregation Criteria," derives a frequency of exceeding 1 rem and 200 rem at a 10-mile distance from NUREG-0396, Figure I-11, "Conditional Probability of Exceeding Whole Body Dose Versus Distance. Probabilities are Conditional on a Core Melt Accident (5×10^{-5})," which uses core melt accident information (probability and consequences) from the Reactor Safety Study (WASH-1400). RG 1.242, "Performance-Based Emergency Preparedness for Small Modular Reactors, Non-Light-Water Reactors, and Non-Power Production Or Utilization Facilities**,"** Appendix A, "General Methodology for Establishing Plume Exposure Pathway Emergency Planning Zone Size," item A-3.7 states, "The likelihood of exceeding a TEDE of 10 mSv (1 rem) at the proposed EPZ boundary should be consistent with the evaluation in Appendix I to NUREG-0396, which provides relative probabilities of exceeding certain critical doses as a function of distance from the facility for a spectrum of severe accidents." What is the technical basis for applying the proposed frequency metrics which are representative of older large light water reactor data, to new reactor designs, instead of identifying the distance at which the likelihood of exceeding the dose level of interest dropped substantially directly from the cumulative dose-versus-distance curves?	
4.3.2	NEI 24-05, section 4.3.2 states that the Criterion B evaluation aligns with the approach in NUREG-0396 and ensures an equivalent level of protection for radiological emergencies that may result in early health effects. What is meant by an "equivalent level of protection," and how is this accomplished?	Hart
4.3.3	NEI 24-05, section 4.3.3, "LBE Uncertainty and Cliff-Edge Analyses," states that, "The cliff-edge evaluation can likely be performed as part of the greater uncertainty assessment, but specific justification may be warranted for distances derived from cumulative dose-versus-distance curves that have flat regions near the frequency criteria." RG 1.242, "Performance-Based Emergency Preparedness for Small Modular Reactors, Non-Light-Water Reactors, and Non-Power Production Or Utilization Facilities**,"** Appendix B, "Development of Information of Source Terms," item B-3, states that "the PRA results should retain event sequences with frequencies below the "cutoff," and analysts should use them to confirm that there are no cliff edge effects and that there is adequate defense in depth." The methodology in NEI 24-05, section 4.3.3 does not appear to direct a cliff-edge evaluation be performed if potential cliff-edge behavior is identified. Provide the technical basis for not confirming that there are no cliff-edge effects and that there is adequate defense in depth, if potential cliff-edge behavior is identified, or revise NEI 24-05.	Bucholtz
4.4.2	Is "prompt protective measures" intentionally left out of section 4.4.2, "Derived Distance at or within the Site Boundary?"	Schrader

4.6.2	NEI 24-05, section 4.6.2, "Non-Uniform PEP EPZs," gives a potential reason for a non-uniform EPZ based on meteorological phenomena that reduce the dose in certain directions, if there are sufficient data to support. Considering that the actual meteorological conditions during an event are unknown for the determination of the PEP EPZ size, how would this potential consideration be included in the analyses? Are there examples of the meteorological and site conditions would always reduce the dose in certain directions such that it may lead to consideration of non-uniform PEP EPZs?	Hart
5.3	How close is this section intended to get an applicant to an approved EAL scheme?	Schrader
5.3	How would this guidance address a situation where an event > 1 rem/96 hrs is known but the accident progression time slow enough to allow ad hoc protective actions?	Schrader
5.3.1	NEI 24-05, section 5.3.1, "Event Classification", states that "Once the set of ICs [initiating conditions] is developed and mapped to the ECLs [emergency classification level] based on their severity and consequences, the EALs for each IC should be identified." Should the second "and" be an "of"?	Schrader
5.3.5	Is section 5.3.5, "Staffing and Operations", intended to be enough guidance for an applicant to determine appropriate staffing levels?	Schrader
5.4	Why is "Planning Activities – §50.160(b)(1)(iv)" described as only "centers on onsite and offsite (if necessary) planning activities"?	Schrader
5.4.1	In section 5.4.1, "Onsite Planning Activities ", why are planning activities for Public information, Coordination with safeguards contingency plan, Communication with NRC, and Site familiarization training considered largely outside the scope of this project?	Schrader
Appendix B	NEI 24-05, Appendix B, "Consequence Analysis Methodology," states that the consequence assessment described in NEI 24-05, section 4.3.1, should use mean meteorology (or mean results of sampled meteorology). What is meant by mean meteorology? Also, in the parenthetical statement is "mean results" referring to the mean dose results calculated using sampled meteorological data (e.g., through a MACCS calculation), a set of meteorological data (e.g., wind speed, wind direction, stability class, etc.), or a set of atmospheric dispersion factors?	Hart
General comment	The document should be clear on any differences in the methodology when used to support construction permit applications vs. operating license or combined license applications (e.g., selection of events).	Hart
General comment	The document should provide guidance on needed documentation for the PEP EPZ size determination, including determination of the spectrum of events, consequence analyses, protective measure evaluation, and final determination of the PEP EPZ, and compliance with the regulatory criteria. It should be clear what information will be provided in the license application.	Hart