

**From:** [Clark Shurtleff](#)  
**To:** [Andrew Brenner](#); [Manny Sayoc](#)  
**Cc:** [Carolyn Lauron](#); [Shilp Vasavada](#); [Michelle Hayes](#); [India Banks](#); [Sean McCloskey](#); [Jodine Vehec](#); [Andy Arend](#)  
**Subject:** [External\_Sender] RE: Staff Questions for 10/25 Meeting on Risk Significance Methodology  
**Date:** Tuesday, October 24, 2023 10:18:11 AM  
**Attachments:** [Holtec Responses - Presubmittal Meeting Questions.docx](#)

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Manny, our responses to the questions are provided in the attached document.

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Clark

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**From:** Andrew Brenner <a.brenner@holtec.com>  
**Sent:** Monday, October 23, 2023 10:43 AM  
**To:** Manny Sayoc <Emmanuel.Sayoc@nrc.gov>; Clark Shurtleff <C.Shurtleff@holtec.com>  
**Cc:** Carolyn Lauron <Carolyn.Lauron@nrc.gov>; Shilp Vasavada <Shilp.Vasavada@nrc.gov>; Michelle Hayes <Michelle.Hayes@nrc.gov>; India Banks <India.Banks@nrc.gov>  
**Subject:** RE: Staff Questions for 10/25 Meeting on Risk Significance Methodology

Thanks Manny, I appreciate the early feedback from you and the staff. I'll pass these questions on to our staff and make sure we address them in the meeting, if not also providing written responses prior.

Thanks,  
Andrew

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**From:** Manny Sayoc <[Emmanuel.Sayoc@nrc.gov](mailto:Emmanuel.Sayoc@nrc.gov)>  
**Sent:** Monday, October 23, 2023 8:24 AM  
**To:** Andrew Brenner <[a.brenner@holtec.com](mailto:a.brenner@holtec.com)>; Clark Shurtleff <[C.Shurtleff@holtec.com](mailto:C.Shurtleff@holtec.com)>  
**Cc:** Carolyn Lauron <[Carolyn.Lauron@nrc.gov](mailto:Carolyn.Lauron@nrc.gov)>; Shilp Vasavada <[Shilp.Vasavada@nrc.gov](mailto:Shilp.Vasavada@nrc.gov)>; Michelle Hayes <[Michelle.Hayes@nrc.gov](mailto:Michelle.Hayes@nrc.gov)>; India Banks <[India.Banks@nrc.gov](mailto:India.Banks@nrc.gov)>  
**Subject:** Staff Questions for 10/25 Meeting on Risk Significance Methodology  
**Importance:** High

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Hello Andrew and Clark,

Please see the following questions from the staff for our subject meeting in 10/25. We don't necessarily need a written response, although they are welcome, but perhaps a discussion on these items at our public meeting.

Presubmittal Meeting Questions

1. Although not stated, it appears that Holtec's proposed risk significance determination methodology is similar to the approved risk significance determination methodology from NuScale Topical Report TR-0515-13952-NP-A (ML16284A016).

a. Are there any differences between NuScale's approved risk significance determination methodology and Holtec's proposed methodology?

b. Is Holtec familiar with the limitations and conditions that the NRC staff placed on the approval of NuScale's risk significance determination methodology? These limitations and conditions may be applicable to Holtec's risk significance determination methodology approval. Does Holtec have any concerns related to this?

i. Describe the applicability of the methodology based on the baseline risk since the baseline risk is not yet available to the NRC.

ii. Describe inputs to the determination of risk significance that ensure the process is risk-informed and not risk-based (e.g., defense-in-depth, safety margins, performance monitoring).

2. The approved risk significance determination methodology in NuScale Topical Report TR-0515-13952-NP-A is based, in part, on a CDF on the order of  $1E-7$  per year.

a. What are the estimated baseline CDF and LRF values for the Holtec SMR-160+ design?

3. Are the risk thresholds selected by Holtec based on the cumulative risk from all hazards, or will risk thresholds be based on risks from individual hazards?

I will introduce the key Staff at the meeting that will review the Risk Significance TR, but the leads are Stacey Rosenberg and Steve Alferink, from our Div or Risk Assessment. Shilp Vasavada is the branch chief for the lead review branch. You will likely interact with them mostly during the meeting.

Thank You,  
Very Respectfully,  
Emmanuel "Manny" Sayoc  
Safety and Environmental Project Manager  
NRR/DNRL/NLIB  
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## Presubmittal Meeting Questions – Risk Significance Methodology

1. Although not stated, it appears that Holtec's proposed risk significance determination methodology is similar to the approved risk significance determination methodology from NuScale Topical Report TR-0515-13952-NP-A (ML16284A016).

a. Are there any differences between NuScale's approved risk significance determination methodology and Holtec's proposed methodology?

There are no differences between Holtec's proposed risk significance determination methodology and NuScale's approved risk significance determination methodology.

b. Is Holtec familiar with the limitations and conditions that the NRC staff placed on the approval of NuScale's risk significance determination methodology? These limitations and conditions may be applicable to Holtec's risk significance determination methodology approval. Does Holtec have any concerns related to this?

Holtec has reviewed the limitations and conditions placed on the approval of NuScale's risk significance determination methodology. Holtec believes the limitations and conditions apply to Holtec's risk significance determination methodology as well. Holtec has no concerns with the limitations and conditions.

i. Describe the applicability of the methodology based on the baseline risk since the baseline risk is not yet available to the NRC.

Based on current PSA models (including at-power and LPSD Level 1 and 2 models of internal and external events), the Holtec SMR baseline CDF is expected to be on the order of  $10^{-7}$ /yr and the baseline LRF is expected to be on the order of  $10^{-8}$ /yr. This is significantly smaller than the typical CDF and LRF of the current operating fleet and is similar to the NuScale reactor module CDF and LRF. This supports Holtec's determination that the methodology is applicable to the Holtec SMR design.

ii. Describe inputs to the determination of risk significance that ensure the process is risk-informed and not risk-based (e.g., defense-in-depth, safety margins, performance monitoring).

PRA risk insights will be considered along with deterministic approaches and defense-in-depth concepts such that Holtec is utilizing a "risk-informed" rather than a solely "risk-based" approach. In short, these new criteria will be implemented in the same way the traditional RG 1.200 relative risk criteria would have been.

2. The approved risk significance determination methodology in NuScale Topical Report TR-0515-13952-NP-A is based, in part, on a CDF on the order of  $1E-7$  per year.

a. What are the estimated baseline CDF and LRF values for the Holtec SMR-160+ design?

Based on current PSA models (including at-power and LPSD Level 1 and 2 models of internal and external events), the Holtec SMR baseline CDF is expected to be on the order of  $10^{-7}$ /yr and the baseline LRF is expected to be on the order of  $10^{-8}$ /yr.

3. Are the risk thresholds selected by Holtec based on the cumulative risk from all hazards, or will risk thresholds be based on risks from individual hazards?

The criteria apply to the full-scope PRA, including all hazards and operating modes, and both CDF and LRF. The thresholds are applied at the single unit level; the absolute RAW thresholds apply to the aggregated risk across all hazards, and the FV thresholds apply individually to each hazard group and mode of plant operation, and individually to CDF and LRF.