

Response to SDAA Audit Question

Question Number: A-11.1-2

Receipt Date: 04/10/2023

Question:

In review of SDAA Section 11.1 the NRC staff seeks to understand the differences between the NuScale SDAA and DCA source term information that is provided in the SDAA Section 11.1 tables and technical report. What modified parameters are causing the SDAA source term values to be different from the previous DCA source term values?

In review of SDAA Table 11.1-1, the staff observes that some of the source term information was scaled for power level, while others were not. For example, please describe the differences for determining Kr-85, Kr-87, Xe-131m, Xe-135, Xe-138, I-129, Cs-134 Cs-135m, Cs-136, Cs-137, Sr-90, Y-90, Tc-99, Rh-105, Sb-125, Te-125m, Ba-137m, C-14, and H-3 since these radionuclides appear to scale from more than just power level differences.

Response:

The Chapter 11 source term values reflect several parameters that changed and are shown in Table 11.1-2 and 11.1-3. For Table 11.1-1 specifically, the main contributors are the change in cycle length, increase in burnup, and the change in thermal power. The US600 design has a 160 MWth design with a two year cycle length, whereas the NuScale Standard US460 Plant Design has a 250 MWth design with a 1.5 year cycle length. The US600 design also evaluates a maximum of 60 GWd/MTU, whereas the NuScale Standard US460 Plant Design evaluates up to 62 GWd/MTU. Additionally, the uranium mass per fuel assembly changed. Therefore, the changes are not necessarily scalable by thermal power.

As requested during the clarification call on April 18, 2023, NuScale has provided EC-101293, Revision 1, "Fuel Assembly Activity Calculation," for staff review in the eRR location "SDAA Chapter 11 Audit Response A-11.1-2." NuScale letter number LO-140095 provides the supporting files for staff review.



No changes to the SDAA are necessary.