

Response to SDAA Audit Question

Question Number: A-12.4.1.9-1

Receipt Date: 07/03/2023

Question:

Section 12.4.1.9 indicates that the annual dose for a construction worker is estimated to be 1.64 mrem/year from an adjacent NuScale plant. This was the same dose estimated for constructing a new NuScale facility adjacent to an operating US600 NuScale facility in the DCA design.

1. Please discuss in general the assumptions made in calculating the 1.64 mrem/year value.
2. In constructing a new NuScale US460 facility, will construction have been completed before any of the six units in the facility are operating or could one module or supporting systems for a module still be in the process of being installed/constructed while another unit is operating)? If units in the plant could be operating while other units are being installed/constructed, is additional construction worker dose expected (or additional dose to occupational workers expected) or are additional radiological controls expected to be needed in this scenario?

Response:

The annual dose to a construction worker from an adjacent NuScale plant results from working on a construction site bordering an existing NuScale facility, but outside the site boundary of the existing power plant. For this evaluation, there are no shared facilities between the existing plant and the construction site. The maximum exposure limit for a construction worker is 5 mrem/year (per 10 CFR 50 Appendix I) which converts to an average hourly dose rate when divided by the total period of potential exposure (1 year). The maximum annual exposure calculation for the US460 design assumes a worker receives exposure on the construction site 5 days a week for an average on-site duration of 11 hours per day. The resulting maximum annual occupational dose to a construction worker is 1.64 mrem/year.

The sequencing for installation and inspection of NPMs for the US460 design is controlled by the licensee. Radiation exposures for installation of new NPMs would be controlled by the licensee's radiation protection program.

No changes to the SDAA are necessary.