

Response to SDAA Audit Question

Question Number: A-11.5-4

Receipt Date: 07/31/2023

Question:

Please discuss the interrelationship between the sampling points in FSAR Tables 11.5-2 and 11.5-3 and the sampling points identified in the Section 9.3.2 tables. Some sampling points appear to be repetitive in both Section 11.5 and Section 9.3.2, while other points only appear in one section. For example, the containment evacuation system (CES) sample tank radionuclide sampling point is identified in both Table 9.3.2-4 and Table 11.5-3, but the chilled water return lines radionuclide sample point is identified only in Table 9.3.2-4 and is not identified in Chapter 11.

In addition, there were many more sample points identified and more specificity in the NuScale US600 design than in the US460 design, including sampling points for the purpose of identifying radioactivity. Please discuss the reduction in the sampling points in the US460 design and if the sample points in the US460 design are adequate to address potential leakage paths to the environment and unintentional contamination of normally clean systems? For example, the US600 design specified sample points for each radioactive waste drain system sump tank, the reactor building chemical drain tank, and the reactor component cooling water system drain tank. In the US460 design it just indicates that there is a sample point for the radioactive waste drain system (without any additional specificity where in that system).

Response:

Tables in Section 9.3.2, and Tables 11.5-2 and 11.5-3 interrelate in that they show the sample collection method. However, the sampling points in Tables 11.5-2 and 11.5-3 only indicate the radioactivity sampling points, while those in Section 9.3.2 may sample other variables, such as chloride, fluoride, sulfate, lithium, boron, iron, and many others. The chilled water return lines referred to in Table 9.3.2-4 are grab samples however, radioactivity measurements are not included and thus are not included in Table 11.5-3.

The reduction in sampling points from the US600 to the US460 are due to the design changes and a smaller plant design. Radiation monitors and their associated sampling points remain in compliance with GDC 64 and 10 CFR 20.1406 for monitoring radioactivity releases and preventing the spread of contamination. Compliance with 10 CFR 20.1406 relies on more design features than just sampling, as described in FSAR Tables 12.3-12 through 12.3-40.

Markups of the affected changes, as described in the response, are provided below:

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Table 9.3.2-4: Local Sample Points

Sample Point	System	Fluid Type	Sampling Method	Analysis ⁽¹⁾
BAS batch tank	BAS	liquid	grab	boron
BAS storage tank	BAS	liquid	grab	boron
CES sample vessel	CES	liquid	grab	radionuclides
Chilled water return lines	CHWS	liquid	grab	radionuclides
GRWS inlet gas	GRWS	gas	continuous, grab	iodine
PCWS cleanup loop (including SFP)	PCWS	liquid	grab	
Pool leakage detection system drain lines	Pool leakage detection system	liquid	grab	

Notes:

1. Specific analyses, limits, and monitoring frequencies are specified in plant chemistry procedures.