

Response to SDAA Audit Question

Question Number: A-11.4-2 (follow up)

Receipt Date: 07/14/2023

Question:

Original Question:

In SDA section 11.4, the staff notes that the COL item related to ensuring a COL applicant will describe mobile equipment used and connected to plant systems in accordance with RGs and other standards was removed. SDAA Section 11.4.1.7 states the SRWS will have modular equipment and options for additional mobile equipment. A COL Item has been previously used to ensure that the COL applicant will ensure that additional waste processing equipment will be built in accordance with RGs and other standards. Please provide the rational for the removal of this COL item and how the COL will maintain systems are built in accordance with regulatory requirements.

Follow up Question

The staff members have concerns. The COL action item that was deleted was to ensure that any COL applicant in the future would ensure that connected mobile equipment is IAW the required standards. In NuScale's response, they stated "The solid radioactive waste system does not include mobile equipment, but provides connections for such equipment for future use." NuScale then marked up 11.4.1.7 to state in part, "Mobile equipment connected to plant equipment is compliant with..."

The response and the mark-up completely contradict each other. They state that the system doesn't include mobile equipment and the mobile equipment connected is ? The staff believe the edits made in NuScale's response would not ensure the possible actions of a future COL applicant and believe that using the original COL item would be the best course of action.

Response:

The design of the SRWS does not require or include mobile or temporary equipment to meet the processing requirements, because the design provides at least 30 days of storage at the peak waste generation rates. References to mobile or temporary equipment have been removed from Section 11.4.

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

11.4 Solid Waste Management System

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The solid waste management system is called the solid radioactive waste system (SRWS). The SRWS is designed to process both wet solid waste (WSW) and dry solid waste (DSW) from various plant systems produced during normal operation and anticipated operational occurrences, including startup, shutdown, and refueling operations. The Radioactive Waste Building (RWB) has adequate space for onsite storage for various solid waste containers ~~plus space for mobile processing equipment.~~ The SRWS includes the WSW system, DSW system, mixed waste system, and an onsite storage area.

The design basis source term identified in Section 11.1 forms the basis for the shielding design. The shield wall thickness evaluation assumes that the spent filters and spent resins fully loaded using the design basis source term. Section 12.3 discusses additional details on the shielding design.

The wet and dry radioactive solid waste packaged for offsite shipment and disposal complies with the requirements of 10 CFR 61.55, 10 CFR 61.56, 10 CFR 71 and 49 CFR 171-180, as applicable.

Onsite storage allows for radioactive decay with adequate storage in case of processing, maintenance or transportation delays. Onsite storage is adequate to hold solid waste for at least 30 days in accordance with ANSI/ANS-55.1-1992 (Reference 11.4-1) and BTP 11-3. The SRWS meets the design recommendations of BTP 11-3.

The SRWS and associated handling areas have area radiation monitoring equipment to detect excessive radiation or airborne levels and initiate appropriate alarms and procedural actions to maintain radiation exposure as low as reasonably achievable (ALARA). Section 12.3 provides additional information on area radiation monitors.

11.4.1 System Description

The SRWS is a nonsafety-related system, serves no safety-related functions, and is not risk-significant. Table 11.4-5 identifies SSC classifications for the SRWS. The SRWS is designed to

- collect, process, sample, package, and store WSW generated from the chemical and volume control system (CVCS), pool cooling and cleanup system, and liquid radioactive waste system (LRWS), using ~~both~~ permanently installed ~~and mobile~~ equipment in the SRWS.
- collect, segregate, sample, package, and store compactible and non-compactible DSW.
- collect, sample, segregate, package, and ship mixed and oily wastes.
- provide sufficient storage space for packaged solid wastes.

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11.4.1.5 Effluent Controls

The SRWS does not release effluents directly to the environment. Liquids removed from solid waste processing are transferred to the LRWS for further processing.

During the operation of the SRWS, such as processing and packaging solid waste, the expelled air is captured by the RWBVS to prevent unmonitored contamination being released to the environment.

11.4.1.6 Site-Specific Cost-Benefit Analysis

Because the SRWS does not release effluents to the environment, a cost-benefit analysis is not performed separately from the evaluations in Section 11.2 and Section 11.3.

11.4.1.7 Mobile or Temporary Equipment

The design of the SRWS does not require or include mobile or temporary equipment to meet the processing requirements, because the design provides at least 30 days of storage at the peak waste generation rates. ~~The design of SRWS includes modular equipment (e.g., spent resin dewatering system) and options for additional mobile equipment (e.g., shredders, laundry unit). The purpose of modular and mobile equipment is to provide ease of equipment replacement due to either advances in treatment technologies or equipment problems.~~

11.4.2 Radioactive Effluent Releases

The SRWS sends liquid and gaseous effluents to the LRWS and RWBVS, respectively. As a result, other than solid waste shipments offsite, the SRWS does not release effluents directly to the environment. The contributions to the offsite dose consequences from SRWS are included in the evaluations for LRW and gaseous radioactive waste systems in Section 11.2 and Section 11.3.

The SRWS design complies with the requirements of 10 CFR 20.1406. Section 12.3 discusses the SRWS design features to prevent the spread of contamination, facilitate decommissioning, and reduce the generation of radioactive waste.

The PCP follows the guidance of Nuclear Energy Institute 07-10A (Reference 11.4-3). The PCP describes the administrative and operational controls used for the solidification of liquid or WSW and the dewatering of WSW.

11.4.3 Malfunction Analysis

To demonstrate the design's resistance to failures, a malfunction analysis is performed. Table 11.4-4 summarizes this malfunction analysis.

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