

mercury, it is safe to discharge to the air.

Following the five months of radiological operations in 2023, during which the IWTU treated 68,000 gallons of sodium-bearing liquid waste, the GAC beds in two vessels became loaded with mercury. Per operating procedures and permit requirements, once the GAC beds can no longer remove mercury from process off-gas, the plant must be shut down for bed replacement. According to a DNFSB report dated December 1, 2023, numerous samples of the used GAC bed material were to be analyzed to determine whether any unexpected performance was occurring.

According to DOE-EM, a specialty vacuum used to remove the spent carbon reached the IWTU vessels through 24-inch passageways. Those same passageways were used to load new carbon. The recovered carbon is being disposed of as Resource Conservation and Recovery Act waste. Crews also replaced three different-sized

ceramic balls, which rest on the bottoms of the two vessels. The balls act as spacers to evenly distribute off-gas flow up through the GAC beds.

During the IWTU outage, crews also were investigating other operational challenges with the plant, including an ongoing issue with differential temperature across the fluidized bed of the denitration mineralization reformer (DMR), the IWTU's primary reaction vessel. According to the DNFSB report, during initial operations, high differential temperature events occurred in the DMR bed, along with the clogging of waste-feed nozzles, reducing the volume of waste that could be treated. "Testing of various waste blend simulants with a scaled DMR replica has been ongoing at an off-site facility to recreate this temperature effect and to develop potential mitigations," the report states.

Source Points continues



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### IMPLEMENTED NUCLEAR QUALITY ASSURANCE PROGRAMS

- ASME NQA-1 2008/2009a
- 10 CFR 50 Appendix B
- 10 CFR 830.122
- 10 CFR 71, Subpart H
- ISO 9001:2008
- ASME Div. 1 "U" Stamp
- AWS D1.1, D1.6

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