

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 3, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: Alexander Velazquez-Lozada, Cognizant Engineer
SUBJECT: Waste Isolation Pilot Plant (WIPP) Report for December 2019

DNFSB Staff Activity: There were no Board's staff visits to WIPP this month.

Maintenance of Safety Systems. Nuclear Waste Partnership, LLC (NWP), paused waste receipts due to a deficiency with the waste hoist tail ropes. The Mine Safety and Health Administration (MSHA) issued a citation indicating that the waste hoist could not be used until a deficient tail rope, originally identified in May, was replaced. By the end of this reporting period, NWP had replaced the tail rope and plans to start accepting waste shipments in January.

Conduct of Operations. As reported in the Board's WIPP Report for November 2019, NWP personnel identified an underground compressor emitting excessive soot and also detected elevated carbon monoxide levels in the underground. Further investigation revealed that the compressor intake filter was clogged by excessive salt dust created during probe hole drilling and possibly other mining activities. In addition, NWP reported that filters on air samplers located at the salt hoist appeared black and that a Continuous Air Monitor (CAM) at Panel 7 cycled its filter repeatedly due to clogging, finally running out of filter paper. NWP plans to evaluate diesel air compressor preventive maintenance in general, to ensure maintenance frequencies are adequate for the operating environment. NWP also identified that CAM preventive maintenance recommended by the manufacturer may need to be modified for a mine operating environment.

Safety System Confinement Ventilation System (SSCVS). On August 27, 2019, the Board sent a letter to the Department of Energy (DOE) outlining three safety items and two observations related to the SSCVS final design. The first safety item is related to the 60-second closure time of isolation dampers to prevent an unfiltered radiological release to the atmosphere. The Board's letter indicated that contaminated air has the potential to reach the surface in less than 60 seconds (41 seconds in one example calculation). The second safety item is related to the lack of interlocks between SSCVS fans and (future) utility shaft fans to prevent potential up-casting of contaminated air. The third safety item is related to how to select the locations and set points of the underground CAMs. The first observation identified the need to evaluate how the underground environment may impact to CAM system ability to detect a radiological release. The second observation indicated that the redundancy requirements for the radiation detection systems is unclear. On December 20, 2019, DOE sent a letter responding to the Board's letter. In response to the first safety item, DOE indicated that dampers have the capability to close in 30 seconds or less, and that closure time and locations of CAMs will be adjusted to ensure detection and closure times prevent a release. In response to the second safety item, DOE committed to provide a safety designation and install the interlock before utility shaft fans start operation. In response to the third safety item, DOE indicated that the design of the SSCVS CAM and interlock systems are scheduled to begin this year. For the first and second observations, DOE responded that the CAM design will account for degradation due to environmental factors and that the objective of the redundant controls of the radiation detection system will be to maximize the probability of detection. DOE intends to brief the Board on these topics.