

Slurry Transfer Line Test

MCE conducted a slurry transfer line test in support of the Hanford K Basins sludge removal activities. A progressive cavity pump was tested in the vertical position. Four pumping transfers of the low concentration sludge simulant and four transfers of the high concentration sludge simulant were performed.

The pump was automatically flushed after each transfer. Flush water flow rate, flush duration, and total flush volume parameters were recorded. Simulant material flushed from the pump and piping during the flush was collected, dried, and weighed to quantify the amount of simulant holdup in the transfer line.

This information was used to determine the overall effectiveness of the flushes and establish a design input flush volume.



Testing demonstrated recovery measures after a loss of flow scenario midway through a sludge simulant transfer to the assay vessel. A loss of flow condition was demonstrated by stopping the pump during a simulant transfer. Testing identified flush water flow rates, durations, and total water volume needed to resuspend and clear solids from the discharge lines after a loss of flow scenario.

MCE developed the test procedure, setup and executed the test, and prepared the final test documentation for the test. Fabrication and testing were performed at the MCE Fabrication Shop in north Richland.

**Client: EnergySolutions/Fluor Hanford
Richland, WA**