

Track:

Special Symposium – Poster Session

Session Title:

TVA Kingston Fly Ash Release: Environmental Studies in Progress

Session Chairs:

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Summary:

On Monday, December 22, 2008, a dike containing the Tennessee Valley Authority (TVA) Kingston Fossil Plant (KIF) coal ash dredge cells failed, releasing approximately 5.4 million cubic yards (cy) of fly ash and bottom ash into adjacent waterways and over land. The KIF is located near the confluence of the Emory and Clinch Rivers on Watts Bar Reservoir near Kingston, Tennessee. The ash flow covered approximately 300 acres to varying thicknesses, including the Swan Pond Embayment on the north side of the KIF property. Fly ash also entered the channel and overbank areas of the riverine section of the Emory River. The initial response focused on providing temporary housing for affected residents and protection of public health, restoring essential services, stabilization of released ash, and environmental monitoring of ash, air, surface water, municipal drinking water supplies, and ground water.

Early in the response a dike was constructed in the eastern portion of the Swan Pond Embayment to prevent ash in the western part of the embayment from moving further into the river, and an underwater dike was installed in the Emory River to help prevent further downstream movement of ash. TVA also quickly recognized the need for measures to prevent atmospheric re-suspension of particles from the spilled ash and immediately implemented several effective dust suppression measures.

Recovery of ash from the Emory River outside of the Swan Pond Embayment is being performed via excavation and hydraulic dredging under a CERCLA time-critical removal action, and is expected to be completed in late spring, 2010. Disposition of the ash west of the dike installed in the Swan Pond Embayment and any remaining ash in the Emory, Clinch, and Tennessee Rivers is being addressed as a non-time-critical CERCLA action that will include substantial public review.

TVA's initial environmental monitoring efforts rapidly evolved to include comprehensive monitoring of potentially exposed ecological receptors and their prey and forage. Cooperative efforts among TVA, the Tennessee Department of Environment and Conservation (TDEC), Tennessee Wildlife Resources Agency (TWRA), and Oak Ridge National Laboratory (ORNL) to collect fish, benthic organisms, and other wildlife for bioaccumulation and ecological health assessment began within a month following the ash release. Additional investigations were added during the course of the spring, summer, and fall. Simultaneously, several research organizations began developing independent plans of investigation, with several receiving funding from private and public sources, including the National Science Foundation.

This special poster session summarizes several environmental investigations that are in progress at the Kingston site and provides information on several others that are planned.