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TVA Kingston Fly Ash Release: Environmental Studies in Progress

Abstract Title:

Kingston Ash Release—Initial Water and Sediment Monitoring Response and Subsequent Refinements

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Abstract:

The Tennessee Valley Authority's (TVA) response to the December 22, 2008 release of ash from a holding cell into the Emory River included an immediate assessment of the surface water quality effects and the extent of ash deposits that entered the river system. The surface water quality monitoring response initially necessitated a coordinated and multi-disciplined effort for sample collection, analytical support and data management, with on-site input from regulatory agencies. Although this early and immediate effort was a significant challenge, the water quality monitoring program implemented during the first week has continued with relatively few changes. Since that time, other sampling and analytical programs have been implemented for a variety of purposes (e.g., human health and ecological risk assessment and disposal purposes). Briefly, the collective programs include air monitoring, ash and sediments, waste disposal monitoring and an array of aquatic and terrestrial biota monitoring. Each of these programs required objective formulation, documented rationale and planning and execution by TVA and consulting environmental experts, analytical service providers and data management professionals.

Of particular challenge was the ash and sediment monitoring, since it required a more dynamic approach to evaluate redistribution by high flow events and mixing of ash with native sediments. Further complicating the ash and sediment program was the objective to separate the effects of the recent spill from effects of legacy pollutants in the system. While the collective monitoring programs since the spill have been substantial, sampling locations maps that are presented are limited to ash/sediment and surface water. Summaries of the surface water, ash and sediment analytical results generated for samples collected during the first 10 months following the release are also presented. Finally, the initial rationales for sampling design and subsequent refinements are also included.