

Restoration of Coldwater Fork Following the Martin County Coal Slurry Spill

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Abstract: The coal slurry release from the Big Branch Slurry Impoundment on October 11, 2000 resulted in the flow of over 200 million gallons of slurry into the Coldwater Fork and Wolf Creek watersheds. An approximate 6000-foot section of Coldwater Fork was the most severely impacted reach, with up to 6 feet in depth of slurry spilling out into the floodplain. The emergency response to this spill required both pumping of slurry as well as the use of excavators. Efforts were made during excavation of the spill to maintain the pre-spill channel configuration of Coldwater Fork, however, portions of the creek were realigned.

Since the slurry release occurred, significant portions of Coldwater Fork have exhibited recovery including the reestablishment of pools and riffles, gravel substrate and macroinvertebrates. At the downstream limits of the project near the confluence of Walnut Fork, a series of head-cuts have formed which threaten to destabilize the recovering portions of the creek. A head-cut is also forming near the confluence with Lynn Bark Branch.

The stream restoration design focused on minimizing reworking of the stream in areas exhibiting good natural recovery, and restoration of destabilized areas using Natural Channel Design techniques. Within areas exhibiting head-cuts, a primary objective was to provide grade control, decrease the entrenchment, decrease the channel slope (by increasing sinuosity) and restore bankfull channel geometry. Channel dimensions developed from reference reach data were used to design two areas where the channel alignment and geometry was altered during the slurry cleanup. In addition a bankfull bench was constructed in a number of areas to decrease the channel entrenchment. This presentation will discuss the design and construction of this project.