

## BREAKTHROUGH EVENTS 1994 TO 2000

This list may not include all of the events.

**SITE 1:** Water and coal slurry from an impoundment at Martin County Coal Corporation (MCCC), Permit No. 680-8002, Martin County, Kentucky, discharged into an underground mine, traveled down dip through the workings and discharged from abandoned entries in the preparation plant area and an adjacent watershed.

**BACKGROUND:** On May 22, 1994, water/slurry from MCCC's impoundment drained through an opening (fracture or subsidence feature) at the edge of the underground mine. The outcrop barrier was about 60 feet wide and the overburden was about 15 feet in depth. The water/slurry was about 28 feet above the mine roof at the time of the event. About 50 million gallons drained into the underground mine in the Coalburg seam. Water/slurry discharged from the underground mine at three locations; from two portals and through a two- to three-foot wide coal barrier between the underground mine and a contour bench. The discharge from one of the locations passed through a sediment pond causing some erosion. The discharge at another location cause a freshwater pond to fail. The discharge from the third location was controlled, at least partly, by a berm constructed by MCCC after the event. In response to the event, MCCC proposed, and obtained approval of, a seepage barrier adjacent to the underground works. The seepage barrier was constructed by blasting a contour bench and pushing the spoil over the hillside down to the slurry level.

**SITE 2:** Slurry from an impoundment discharged into an underground mine at Lone Mountain Processing, Inc. (LMP) Permit No. 1301411, St. Charles, Lee County, Virginia.

**BACKGROUND:** On August 9, 1996, coal slurry from LMP's impoundment drained through a highwall opening above the coal seam. The opening occurred when strata immediately above the coal seam in the highwall was pushed back into an undetected/unknown mine entry. The coal barrier separating the pre-existing surface mine and the underground mine was less than five feet. The slurry drained into and through the abandoned underground mine works in the Darby (a.k.a. Number 5 or Taggart) seam. Most of the leak was contained within the mine. The duration and impact of the discharge was minimal. An earthen liner was backfilled/constructed along the entire mine bench to preclude additional leakage into the underground workings.

**SITE 3:** Slurry from an impoundment at LMP Permit No. 1301411, St. Charles, Lee County, Virginia, discharged into an underground mine, traveled down dip through the workings and discharged from an abandoned entry into an adjacent watershed.

**BACKGROUND:** After the earthen liner was placed on the mine bench by LMP following the August 1996 leak, the slurry impoundment filled to a level above the liner. On October 24, 1996, slurry from the impoundment drained suddenly through a subsidence crack beneath the

slurry pool into the same subjacent underground workings that contained the August 1996 leak. The slurry traveled through the abandoned underground mine works and exited an open portal on Gin Creek. The Virginia Division of Mined Land Reclamation (DMLR) estimated the initial discharge at 3,000 gallons per minute. Company officials reported that the leak from the impoundment was stopped within two hours; however, the black water discharge from the mine continued for approximately one week after the initial event. The discharge deposited sludge in Gin Creek, Straight Creek, Stone Creek, North Fork of the Powell River, and the Powell River. The sludge-laden water killed fish in the upper four tributaries (approximately nine miles). The Powell River is considered as critical habitat to several Federally listed threatened or endangered mussel and fish species. The earthen liner was extended up the hillside and covered with coarse refuse to preclude further problems.

**SITE 4:** Slurry discharge through an underground mine and into an adjacent watershed from an impoundment at Consolidation Coal Company Permit No. 1400047, Oakwood, Buchanan County, Virginia.

**BACKGROUND:** On November 26, 1996, Consolidation Coal Company (Consol) experienced a coal slurry spill from its slurry impoundment similar in nature to the October 24, 1996, spill at LMP's operation. Consol reported as much as four million gallons of slurry was lost from the impoundment at their Buchanan No. 1 operation between November 26 and November 28. Company representatives theorized that slurry entered old auger holes or an old mine portal along a highwall within the impounding area, traveled through abandoned underground works and escaped from a bond-released Jewell Smokeless Coal Corporation mine entry, Permit No. 1201067. The Jewell Smokeless mine portal is located across a ridge approximately 900 feet northwest of the impoundment. Downstream of the discharge point is the Island Creek Coal Company VP-8 mine. Employees discovered black water threatening to run into one of the mine's active shafts. Company employees diverted the flow from the shaft into the Right Fork of Garden Creek. The spill has affected North Branch, Garden Creek, and the Levisa River. DMLR sampled a one-mile portion of Garden Creek and the Levisa River and found 1,150 dead fish. The incident also impacted the Corps of Engineers Fish Trap Reservoir. Consol constructed a cofferdam to isolate the slurry in the impoundment from the area of the suspected leak. The slurry was excavated from behind the cofferdam and seals were placed in the auger holes and mine entries. Coarse refuse was placed above the seals.

**SITE 5:** Slurry discharged into an underground mine adjacent to an impoundment at a Harlan Cumberland Coal Company mine, Harlan County, Kentucky.

**BACKGROUND:** On September 21, 1994, Harlan Cumberland slurry impoundment broken into its own underground mine and flooded abandoned and active mine areas. There were not any miners in the works at the time of the event. An estimated 23 million gallons of water and slurry entered the mine. The water entered through a previously sealed mine opening; apparently the mine entry collapsed inside the seal. There was about 26 feet of overburden at the breakthrough location. The plans for sealing the breakthrough location included exposing the coal seam if possible, backfilling the exposed works, covering with geotextile filter cloth, covering with coarse refuse, and finally building a slurry delta.

**SITE 6:** Slurry from an impoundment at MCCC's Permit No. 680-8002, Martin County, Kentucky, discharged into an underground mine, traveled through the workings and discharged from an abandoned entry and also through the portal for an active beltway.

**BACKGROUND:** On October 11, 2000, coal slurry from MCCC's impoundment drained through an opening (fracture or subsidence feature) at the edge of the underground mine. The outcrop barrier was about 65 feet wide, however, a considerable portion of the outcrop barrier was composed of weathered material. The coal slurry was about 100 feet above the mine roof at the time of the event. About 250 million gallons drained into underground mine in the Coalburg seam. Slurry discharged from the underground mine at two locations. The discharge from both locations damaged the sediment pond and impacted in excess of 75 miles of stream and several municipal water supplies. The failure occurred through the seepage barrier built after the May 1994 event (see Site 1).