TDS Evolution from Fills at Coal-Mac, Inc.

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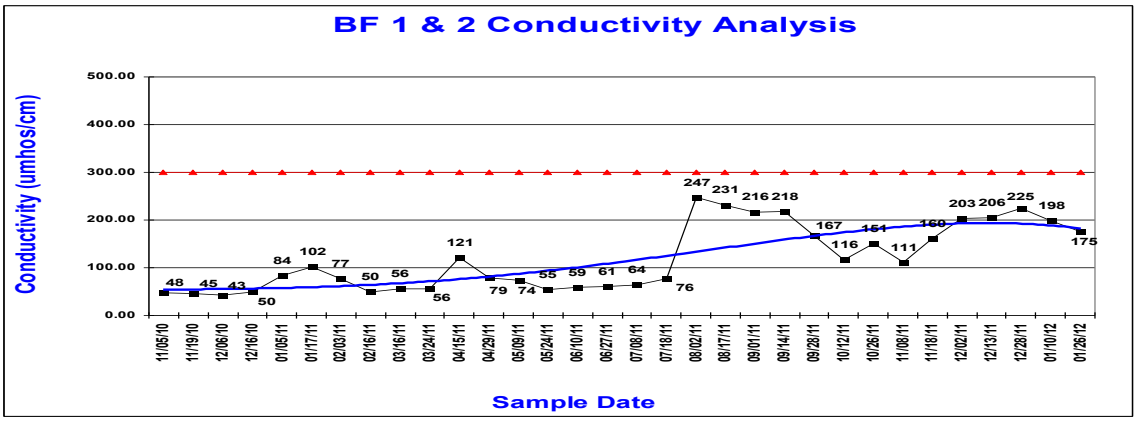
Abstract

Coal-Mac operates a surface operation producing approximately 3 MM clean tons annually near Logan, WV. The mine utilizes two Komatsu 5500 series excavators and numerous Caterpillar front end loaders to move approximately 40 MM bank cubic yards of overburden per year overlying the Five Block, Stockton, and Coalburg coal horizons. Excess spoil from the mining operation not needed to achieve AOC is placed into adjacent fills. The West Virginia Department of Environmental Protection issued a mining permit to Coal-Mac on September 5, 2008, but serious delays in approval of the Section 404 permit prevented normal start-up of the fill construction. To offset this loss of storage volume, excess yardage was hauled to a reclaimed flat area originally permitted as pastureland, covering approximately 400 acres.

The Section 404 permit approval from the US Army Corps of Engineers (USCOE) was ultimately issued on July 27, 2010. The approval was limited to construction of only one of the three proposed fills. The permit also placed thresholds on the Conductivity values in the discharges immediately below the fills. To receive approval to construct subsequent fills, conductivity values at or below 500 micro-siemens/cm must be maintained in the discharge immediately below Fill #1 until Fill #1 has been constructed to completion as defined in the approved USCOE Section 404 permit.

Coal-Mac submitted an Adaptive Management Plan (AMP) to the USCOE as a supplement to the Section 404 application. This plan proposed modified construction techniques for Fill #1 in an effort to reduce the level of dissolved solids (measured as conductivity) in the fill runoff by minimizing water infiltration into the fill material and by passing this reduced flow through an underdrain constructed of the best available inert durable sandstone produced by the mining operation. Fill #1 has been completed and as evidenced by the graph below, conductivity values have remained well below the 500 micro-siemens/cm target.



The Best Management Practices incorporated into the operation focus on construction and material handling practices to minimize infiltration, utilization of on-site overburden to minimize exposure to weathering and contact with water, and holistic watershed mitigation.