

PA DEP-BUREAU OF ABANDONED MINE RECLAMATION'S BRANDY CAMP AMD TREATMENT PLANT A CASE STUDY¹

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Abstract. On January 5, 1999 the Pennsylvania Bureau of Abandoned Mine Reclamation began construction of a semi-active acid mine drainage treatment plant in Horton Township, Elk County. Extensive water quality and flow data was obtained within a sampling period of 1969 to 1997. A net acidic discharge was characterized as an average flow of 600 gpm, pH 4.5, acidity 200 mg/l, total iron 75 mg/l, ferrous iron 70 mg/l, aluminum 8 mg/l, and manganese 10 mg/l. Plant design consisted of a 35 ton hydrated lime silo, natural aeration, a sedimentation pond, and an aerobic wetland. Upon plant startup in late summer 1999, flow quantities had increased to 2000 gpm. Inefficient natural aeration resulted in a ferrous hydroxide based sludge accumulation in the sedimentation pond. Geophysical studies identified subsidence in two upper watershed tributaries. The increased flows were consistent throughout year 2000 and on February 1, 2001, a DEP growing greener grant was awarded to the Toby Creek Watershed Association to retrofit the plant to an active treatment plant. A treatment building was constructed which houses an aeration tank, polymer make down system, two (2) 500 gpm inclined plate clarifiers, and a belt press. The plant was dedicated on May 18, 2002. Approximately six (6) tons of 20% solids sludge is belt pressed daily with effluent pH 7.5, total iron <1 mg/l, aluminum < 1 mg/l. This paper discusses the operational experiences since plant startup and a sludge resource recovery metallurgical application.

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