

The following is a rundown of the treatment systems we operate and other projects the Babb Creek Watershed Association has worked on or is currently working on:

-- Lick Creek diversion wells -- Built in 1990-91 and operated continuously since. This is a pair of limestone diversion wells. They treat the flow from Lick Creek, a tributary to the main stem of Babb Creek near Arnot. (You may remember the place where the memorial marker is located, right along the road.) Inflow pH is about 4. Treatment raises it to 6+. Second and third diversion wells and first paired system in the United States. At full flow, two wells use about a ton of limestone per week. (Adjacent 7-acre mine spoil area reclaimed and revegetated in 1996, providing grassy vegetation for wildlife food.)

-- Red Run Diversion Wells -- Built in 1995, pair of diversion wells treats flow from Red Run tributary of Lick Creek, which receives secondary discharge from Klondike underground mine complex. Inflow pH 3.5; outflow, 6.5-7+. Uses 2+ tons of limestone per week at high flows.

-- Arnot #2 SAPS -- Built in 1997, this is a dual passive treatment system, including a vertical flow wetland pond and an underground anoxic drain. Treats main discharge from the Arnot #2 abandoned underground mine complex. Inflow pH 3.5; outflow, 7+. (Five-acre surface pond, formerly mine acid, receives discharge from treatment system. Formerly dead, it now holds fish and aquatic plants planted by BCWA and state foresters to attract waterfowl.)

-- Klondike Treatment complex -- Built in 1998, combination of vertical flow wetland and small diversion well (built in 1994) for overflow or supplemental treatment. Treats main discharge from Klondike underground mines. Inflow pH 3.5; outflow, 6.5-7.

-- Landrus Railroad Grade reclamation -- Project removed 2,500 feet of elevated railroad grade built with coal mine spoil and waste coal that was being eroded by Babb Creek. More than 40,000 cubic yards of material removed, about 10,000 tons of coal salvaged and sold to cogeneration electric plant in New York State. Created approximately 4-acre grassy opening for wildlife food. Done by Signor Brothers Contracting with funding from BCWA and cooperation from DEP, Bureau of Forestry.

-- Bear Run SAPS complex -- Built in 2000 by Stott Coal Co. as a penalty payment to DEP, a pair of vertical flow wetlands treat two discharges from the Bear Run underground mine complex. Inflow pH 3.5; outflow 7+.

(Note: All of the systems listed above are on the main stem of Babb Creek between Arnot and Morris and are on Tioga State Forest land.)

-- Antrim AMD Treatment Plant -- Originally built in 1996 by Antrim Mining Co. to comply with DEP order, this is a large, active water treatment plant. It uses a waste lime product to treat two discharges, from the Antrim #1 and Backswitch mines. The discharges that can be as high as 8,000 gallons per minute and represent 50 percent of acid mine drainage flowing down Wilson Creek branch of the watershed. Inflow pH 3.5 with heavy load of dissolved iron, aluminum and manganese; outflow, 6-9, with most metals removed. This system cost about \$1.5 million to build and about \$100,000 a year to operate. Antrim Mining conveyed ownership of plant, plus \$1.5 million to operate plant for 50 years, to a trust fund owned by DEP. Babb Creek Watershed Association Inc. operates plant under a consent order with DEP (basically a management contract) and is the only nonprofit conservation group ever

given such responsibility. First-round Growing Greener grant of \$299,000 paying for plant improvements and upgrades.

-- Arnot #2 (Secondary) System -- Completed in December 2001 by Arnot Sportsmen's Club under Babb Creek Watershed Association sponsorship, with \$376,000 Growing Greener grant. Treats discharge that flows into both the Lick Creek branch of Babb Creek and Johnson Run, a tributary to the Tioga River. (First AMD treatment system to affect Tioga River water quality.)

-- Rattler Mine Complex project -- Now under construction with \$411,000 Growing Greener Grant, will treat three discharges into the Stony Fork branch of Babb Creek. Innovative technology involves injection of fine limestone gravel into deep mines to achieve preliminary treatment of chemically worst mine discharge in state, 2.5 pH with heavy dissolved metals. Vertical flow wetlands on surface will provide second-stage treatment to raise pH to 6-7 range. Project also involves biosolids (sewage plant sludge) and replanting of 97 acres of mine spoil piles. Complex is on State Game Lands 268 and all work is being done with the full cooperation of the Pennsylvania Game Commission.

-- Anna S Mine Complex project -- Under construction this spring with \$2.26 million Growing Greener grant (largest ever) plus \$40,000 in companion funds from BCWA and possibly federal Office of Surface Mining. Will treat three main discharges with series eight vertical flow wetlands, sediment basins and polishing ponds to remove acid and metals. Will be largest passive treatment complex in state. Fourth discharge to be treated by diversion well system. System design (about \$60,000) paid for by Waste Management Inc. and donated to BCWA. Discharges now 3-3.5 pH will be raised to 7±.

Completion of Rattler and Anna S will bring last AMD discharges (planned for late fall 2002) in watershed under treatment, eliminating 100 years of pollution. Work remains on streambank stabilization and erosion prevention. However, primary mission of BCWA will be fulfilled.

List compiled by:

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