

RE-Powering America's Land: Siting Renewable Energy on Potentially Contaminated Land and Mine Sites Summitville Mine, Rio Grande County, Colorado Success Story *Hydroelectric plant powers contaminated water treatment at former gold mine*

EPA is encouraging the development of renewable energy facilities on potentially contaminated land and mine sites. This series of stories highlights successful projects and the benefits of siting renewable energy facilities on potentially contaminated land and mine sites.

Site Description

The 1,400-acre Summitville Mine Superfund site is located approximately 18 miles southwest of Del Norte, Colorado. The former mine is in the San Juan Mountains at an elevation of 11,500 feet, two miles from the Continental Divide. The Wightman Fork of the Alamosa River flows from the site through forest and agricultural land. The Terrace Reservoir, used for irrigation, is on the Alamosa River 18 miles downstream from the site.

Property History

U.S. Forest Service owns the property and began leasing it in 1870 for gold mining operations. The latest mining operator, Summitville Consolidated Mining Corp., Inc. operated a pit heap leach gold mining operation, using cyanide to extract the gold, from July 1986 through October 1991. The company abandoned the site in December 1992 after declaring bankruptcy. The site is contaminated with heavy metals (i.e., copper, cadmium, manganese, zinc, lead, nickel, aluminum and iron) onsite. Downstream of the site, surface water quality has been heavily degraded with heavy metals, especially copper and acid mine drainage.

The EPA Emergency Response Branch assumed responsibility of the site on December 16, 1992. On May 31, 1994, the site was placed on the National Priorities List of Superfund sites. Management of surface water contaminated by heavy metals and acid mine drainage from exposed minerals at the site is a cleanup priority. The hydroelectric plant is part of a series of construction projects to improve control of snowmelt and storm water runoff at the site. A new water treatment plant is scheduled to be completed in 2010.

Renewable Energy Development

Construction began on the Summitville micro hydroelectric plant in summer 2008. An inlet structure and penstock for a 35 kilowatt (kW) plant were built in 2008, and construction of a power house and installation of the turbine is expected to be complete in the fall of 2010. It is anticipated that project will be commissioned the following Spring.

A 16-inch diameter penstock will divert water from the Wightman Fork. Once complete, the facility will generate approximately 145,000 kilowatt-hours (kWh) per year – enough to power about 20 households, and prevent 120 metric tons of carbon dioxide from being released into the atmosphere every year. It is anticipated that the hydroelectric plant will provide 15 to 20% of the electricity needed to operate the existing water treatment plant. A new, more energy efficient water treatment plant is scheduled to replace the existing plant in 2011/2012.



QUICK FACTS:

Location:	EPA Region 8, Rio Grande County, CO
Property Size:	1,400 Acres
Site Ownership:	Federal – U.S. Forest Service
Former Use:	Heap leach gold and silver mining
Cleanup Type:	Superfund—OSRTI/OSW/Mining Team
Contaminants:	Heavy metals, acid mine drainage
Type of RE:	Hydroelectric
RE Capacity:	35 kW
Key Partners:	EPA, Colorado Department of Public Health and Environment;
Current Status:	Under construction; 2010 completion

PROJECT HIGHLIGHTS:

- Management of contaminated surface water incorporates a 35 kW hydroelectric plant to partially power water treatment at the remote former mine.
- Hydroelectric plant will generate approximately 145,000 kWh per year – enough to power about 20 households, and prevent 120 metric tons of carbon dioxide from being released into the atmosphere every year.