

Tailings Impoundment

Kennecott Utah Copper's tailings are the uneconomic waste product of the ore crushing, grinding and flotation concentrating process. After the profitable metals have been removed from the ore, this barren material, mostly ground rock and residual minerals the consistency of fine sand, is transported 14 miles as a slurry in a 60" concrete pipe from the Copperton Concentrator to the tailings impoundment located near Magna, Utah. Tailings are processed through two cyclone stations that separate the coarse grained material (underflow) from the finer grained material (overflow). The underflow is used to construct the outer embankment of the impoundment and the overflow is deposited into the interior of the impoundment where the solids drop out forming a beach and the water pools in a pond in the center of the impoundment. To accommodate the approximately 60 million tons of tailings deposited annually, the impoundment height is raised approximately 8-10 feet per year.

The impoundment has been receiving tailings since 1906. Since then, more than 1.5 billion tons of tailings have been stored. In the late 1990's, Kennecott transitioned active tailings deposition to a 3,200-acre north impoundment adjacent to the older 5,700 acre south impoundment. This transition allowed Kennecott to improve the seismic stability of the south Impoundment and reclaim the 5,700 acres with grasslands and shrubs. The reclamation has provided typical Great Basin habitat on the south impoundment which is now popular with growing numbers and species of wildlife.

As part of the impoundment design and operation, Kennecott has identified, extensively investigated, and addressed many environmental issues — air quality, surface water management, groundwater protection, wetlands and wildlife habitat. A peripheral discharge system keeps the active surface area wet to provide enhanced dust control. In addition, excess waters are collected on the surface of the Impoundment and recycled back to other Kennecott operational areas for reuse.

Because construction of the north impoundment impacted some lands considered wetlands, KUC replaced, or mitigated those lost wetlands. Working with representatives from the Nature Conservancy, National Audubon Society, Utah Division of Wildlife Resources, US Fish and Wildlife Services, U.S. EPA, and the US Army Corps of Engineers, Kennecott developed a plan and constructed a wildlife reserve. The Kennecott Inland Sea Shorebird Reserve (ISSR) is next to the Great Salt Lake and functions as a migratory bird refuge. The site was so successful that KUC expanded it from 2,500 to 3,670 acres in 1998. The reserve lures roughly 150,000 migratory shorebirds and waterfowl each year and was designated the Outstanding Environmental and Engineering Geologic Project by the Association of Engineering Geologists in 1999.

These are just a few examples of Kennecott's commitment to sustainable development and environmental stewardship.