

Holden Mine Cleanup Project

September 2016



The water treatment plant will operate for many decades, neutralizing and filtering contaminated water collected from the mine site, which will then be returned to Railroad Creek.



The old mill building before the demolition (left), and after (right).

For more information, check out our project video at holdenminecleanup.com to learn more about the past, present and future of the Holden Mine Cleanup Project. Click on our “Links” tab for more information about Rio Tinto and our expertise in and commitment to managing legacy sites.

About Rio Tinto

Rio Tinto's business is finding, mining, and processing mineral resources. Major products are aluminum, copper, diamonds, thermal and metallurgical coal, uranium, gold, industrial minerals (borax, titanium dioxide and salt) and iron ore. Activities span the world and are strongly represented in Australia and North America, with significant businesses in Asia, Europe, Africa and South America.

The Holden Mine Cleanup Project is part of Rio Tinto's Legacy Management group. The Legacy Management group works to ensure that old historic sites inherited through the acquisition of other entities are made safe, that all problem areas are addressed cost-effectively, and that there is a sustainable socioeconomic future for the community and a minimal burden of aftercare for the historic sites.

For more information visit:
riotinto.com/ourcommitment/features-2932_9199.aspx



Rio Tinto

The Holden Mine remediation project is a federally mandated cleanup located in a remote spot high in the Okanogan-Wenatchee National Forest above Lake Chelan in north-central Washington State. The \$500 million cleanup addresses a number of environmental problems from an old copper mine that operated between 1938 and 1957. It sits next to Holden Village, a Lutheran community and spiritual retreat center that has operated on the site for more than 50 years.

Rio Tinto never owned or operated the Holden Mine, but inherited the responsibility for the cleanup when it acquired the company Alcan in 2007. No taxpayer dollars are being used for the project. Rio Tinto is paying the entire cost.

The cleanup was necessary to prevent future water and soil contamination. After five years of construction, Rio Tinto is close to reaching its goal of restoring the natural ecosystem and preventing any more contamination from the historic mine site.

History

The Holden Mine was an underground copper mine operated by the Howe Sound Mining Company between 1938 and



1957. After the mine closed, Howe Sound gave it and the accompanying town site to the Lutheran Bible Institute. The Institute established an independent, non-profit

corporation that has operated the community of Holden Village since then.

Operation of the mine left behind a number of environmental problems, including old underground workings, millions of tons of tailings, acid rock drainage and elevated levels of metals in soil and water. The U.S. Environmental Protection Agency and U.S. Forest Service named Howe Sound successor Intalco the Potentially Responsible Party (PRP) for the cleanup in the early 1990s.

The parties involved studied 14 different alternatives for the cleanup effort, beginning in the mid-1990s. In January of 2012, the EPA and U.S. Forest Service issued a Record of Decision (ROD) on the cleanup, allowing Rio Tinto to get started with some of the major remediation work in 2012.

Because the project is snowbound during winter months, the cleanup work is dependent on weather conditions. The work takes place from May through October each

year. It is divided into two phases. The first phase will be completed in 2016, followed by several years of water-monitoring. All interested parties will then determine the necessity of a second phase.



About the Project

Rio Tinto started construction on the Holden Mine Cleanup Project in 2012 and is scheduled to complete work in 2016. Over the life of the project we have:

- Re-shaped and contoured nine million tons of tailings and 250,000 tons of waste rock piles.
- Sealed off the mine entrance by installing two high-head bulkheads to control water flow from underground workings.
- Built a water-collection system and underground barrier to prevent further contamination of creek water.
- Demolished and buried the old mill building.
- Re-aligned 900 feet of Railroad Creek.
- Built a new barge ramp at Lucerne.
- Built a new parking lot down-lake at the Chelan Boat Company to allow for a staging area.
- Built a new bridge to bypass Holden Village.
- Built and began operating a water treatment plant.

In 2016 we are reclaiming our work areas and stabilizing the tailings cover, operating the water treatment plant, replacing the Holden Village footbridge and buildings, and extending their hydro plant. We are also repairing and replacing the trail system, making repairs to Forest Service Road 8301 and continuing environmental monitoring. The planting of thousands of trees begins in 2017.

The Future

Rio Tinto is committed to the Holden Mine Cleanup Project for the long term. Decades of environmental monitoring and water treatment will follow the cleanup activities. When the cleanup is finished:

- Water in Railroad Creek will meet the standards for sensitive aquatic life.
- Ground and surface water at the site will be monitored continuously.
- Tailings and waste rock piles will be re-shaped and contoured to ensure they can withstand a major earthquake.
- Tailings and waste rock piles will be covered with soil and re-planted to create a haven for wildlife.
- Improved parking area at Lake Chelan Boat Company and boat ramp at Lucerne remain for public use.



Re-shaping and contouring tailings and waste rock piles.



The massive 2015 Wolverine wildfire forced the evacuation of the project site and Holden Village. The fire delayed the cleanup for more than a month, pushing a significant amount of work into 2016.

Economic Contribution

During construction, between 200 and 300 Rio Tinto employees and contractors each year were housed at Holden Village; which we compensated with rent and other payments. Over the life of the project, we've employed more than 1800 people from the region.

Rio Tinto's latest economic impact study shows that the project has contributed nearly **\$240 million** to Chelan and Douglas counties. This includes wages paid to local employees, contractors, and equipment providers, as well as property, sales & use, and employment taxes paid to local and state governments. It also includes goods purchased from local businesses and revenue generated by individual salaries and expenditures within the local communities.

Community Relations

Holden Village: Access to Holden Village and its facilities is essential to the cleanup project. The cleanup site is remote and Rio Tinto needs access to Holden Village land, services and facilities. Holden Village, in turn, needs to ensure that the project has limited impact on their community today and provides benefits in the long term. For the past five years, Village residents lived and worked near an active construction site and co-existed with Rio Tinto employees and contractors. Formal agreements allow Rio Tinto temporary access to the Village during construction and monitoring periods. The agreements financially compensate Holden Village for the disruption to their programming and activities. Rio Tinto will also replace buildings it used during construction, replace the Holden Village footbridge and extend the community's hydro plant.

Chelan: Rio Tinto hosts annual community meetings, project updates and regular site tours for residents and public officials from Chelan and surrounding communities. In keeping with its commitment to sustainability, Rio Tinto has financially supported the Chelan Library children's reading area, the Lake Chelan Hospital Foundation youth health programs and the Lake Chelan Visitor Center educational exhibits.