

# viega

## Rio Tinto Project Profile

**CUSTOMER:** Rio Tinto Group

**APPLICATION:** Kennecott Utah Copper power plant

**LOCATION:** Bingham Canyon, UT

**CONTRACTOR:** In-House

## Viega ProPress® stainless system helps keep power plant running smoothly at Rio Tinto copper mine

*“ We saved 80 man-hours installing Viega ProPress stainless on the first cooling tower. That’s about a 33 percent savings on labor.”*

Kennecott UT Copper is one of the largest copper mining operations in the world. With a history that dates back to 1903, the company is a leading producer of copper, gold, silver and molybdenum. Its Bingham Canyon mine has produced more copper than any other mine in history—18.7 million tons.

Today, KUC is owned by the Rio Tinto Group, an international mining conglomerate that was established in 1873. Its headquarters are split between London, England and Melbourne, Australia.

In addition to extracting copper ore from the earth, the KUC facility handles the crushing, concentrating and smelting of that ore. Furnaces and an acid solution are then used to remove impurities, resulting in 99.99 percent pure copper.

All of the activities require a lot of electricity, so KUC has its own power plant located 17 miles from the mine. Equipment at the plant includes cooling towers and a sulfuric acid system used in operating the towers and its turbines.



In 2009, KUC was looking to replace the black steel pipe at its power plant. “We decided to convert to stainless steel pipe because we were having problems,” said Ken Pennell, the power plant’s maintenance planner at that time. “The black pipe was getting some leaks in it, so we had to re-pipe parts of the plant every few months. We also had problems with pumps shutting down and not working.

“Sometimes, the operators didn’t see the leaks right away and we’d have a containment situation,” he explained. “We’ve had spills of anywhere from one inch to a few inches of acid by the time the leak was noticed. The acid then had to be pumped out.

“With the black pipe, we used threaded fittings,” continued Pennell. “We had to cut the pipe and thread each end with a threading machine. With the stainless, it’s just cut it, clean it, put the pieces together and press. It’s so much faster and easier than threading.

“We chose the Viega ProPress stainless system to eliminate the corrosion problems,” he said. “Other reasons were the system’s efficiency, ease of use and reliability. We installed a lot of stainless piping and have had very good luck with it.”

It was Pennell’s idea to use Viega ProPress stainless to replace the black pipe. “At first, management was a bit leery about changing all the piping. They asked if I was sure the





stainless steel and FKM sealing element would work with the acid. But I've worked around sulfuric acid for 29 years, so I knew that stainless was the way to go. Management was very happy with the results."

The first time KUC used the Viega ProPress system was in 2009. "We installed about 300 feet of pipe and various fittings on the two pumping systems for our 5,000-gallon sulfuric acid tank," said Pennell. "At the same time, we installed Viega ProPress stainless pipe, fittings and valves on the oil fill and drain piping for 32 cooling tower fan gearboxes. We also used Viega ProPress to install copper tube on some domestic water lines, replacing sweated fittings that were causing problems.

"We easily saved a week of time," he added. "To install all threaded piping, it would have taken us a couple of weeks, working five days a week, eight hours a day. We saved 80 man-hours by using Viega ProPress on the first cooling tower. That's about a 33 percent savings on labor."

Because of the sulfuric acid system, KUC ordered fittings that had FKM sealing elements. "Instead of the standard rubber seals, we had special sealing elements that can be used with acid," explained Pennell. "We ordered the fittings that way from our supplier, Ferguson Enterprises. It was Ferguson that first introduced us to the Viega ProPress system.

"The stainless steel pipe was 316-grade, 1" with various fittings, couplings and unions, such as 90s and 45s," said Pennell. "It proved itself big-time. It's been installed for two years now with no problems. And the 98 percent sulfuric acid is really corrosive."

KUC's in-house mechanics did the stainless installation at the power plant. "They love Viega ProPress," said Pennell. "With the old way, they were sweating, brazing and threading. When they use Viega ProPress, they're done in a fraction of the time. Some of these guys have been installing pipe for 30 or 40 years. They really like doing it with pressing."

The next time KUC used Viega ProPress stainless was in October 2010. The crew re-piped two more cooling towers during a shutdown. The water in the towers is used to cool the boilers and turbines. The sulfuric acid is needed to control the water's pH, so it will not damage the boilers and piping.

"We purchased another 400 feet of new stainless piping for the next two cooling towers," said Pennell. "We expected it would take about three days to re-pipe both towers. But we started on Friday and finished up on Monday ahead of schedule."

According to Pennell, there are 2,500 employees at the Bingham Canyon mine. The power plant generates electricity for the entire operation, including the smelter, the concentrator and the refinery.

"We are the power plant for the whole mountain," he said. "The plant produces 175 megawatts of electricity per hour. Time is megawatts—and megawatts are money. So Viega ProPress saved us both."

Pennell has since been promoted to maintenance supervisor at KUC's tailings and water services department. "We do both domestic water and industrial water piping here," he said. "We pump water from the concentrator down to the tailings and then back up to the concentrator."

He said that he has already used Viega ProPress at his new department. He also plans to install a mix of up to 4" stainless and copper piping in the near future. With Viega's ProPress system, both stainless and copper can be pressed using the same tool, jaws and fittings.

"Management agrees that it's a good idea for us to have our own ProPress system here in the tailings and water services department," added Pennell.

**For more information on Viega ProPress stainless, visit [www.TheTorchIsPast.com](http://www.TheTorchIsPast.com) or call toll free: 866.766.7805.**

