

Case Study

Chilean Power Station Vulnerable to Lightning Strikes, Overheating and Poor Design

Cost-Saving Fire Protection at 9,000 Feet in the Andes

From a distance, the power plant located near two power transformers that supplied electricity for the AVC manufacturing facility in nearby Santiago, Chile, might have looked to the average person like two iron-grid sentinels. But perched way up in the majestic Andes Mountains, the power station flanked by the transformers looked more like a monument to the logistical challenges of providing workable fire protection at 9,000 feet above sea level. At least that's how it seemed to Futrell Fire's team of engineers who, in 1998, undertook the task of protecting the power plant transformer field from fire.

If a fire caused a loss of power at any time, it could readily harm AVC's operations. But at that altitude – and foreign location – the challenges seemed absolutely daunting:

- There was no budget for onsite assessments
- There were Spanish language and Metric numbers barriers
- The area was subject regularly to lightning strikes
- The transformers sometimes overheated
- There was no on-site water supply

The principals of the South American company originally proposed building a series of water tanks connected to a system of underground pipes that would carry pressurized water to spray on any fire that might break out. The problem with this concept, however, was that the mountain site sat on about eight feet of rock and hard sediment. And at that altitude, water could freeze!

“Excavating that deep to install a pipe system would have added significant costs to the project,” says Scott Futrell, President of Futrell Fire. “We were not even sure some of that base could have been excavated. We came up with a creative plan that provided cost savings and solved the need for fire protection of the plant.”

Working with Arrow Tank and Engineering of Minneapolis, the company that supplied the pressure tanks, Futrell Fire designed a fire protection concept that featured a different configuration of tanks to compensate for altitude and water pressure – and an *over ground* piping system that traveled more effectively to the transformers.

International long distance discussions – often augmented by translators, faxes, and fate – eventually proved fruitful, as the Futrell Fire and Arrow Tank teams turned the mountain obstacles into pluses and converted numbers into metrics to successfully complete the fire protection project.

“When we were asked for a professional fire protection referral, Futrell Fire immediately came to mind. We've worked with them for years and knew this type of job was right up their alley,” says Steven Hohag, Product Manager at Arrow Tank and Engineering. “They do great work and they're easy to work with, unlike larger, more bureaucratic companies.”

As the Chileans might say, “Que Bueno!” (What goodness!).