

Mine Pollution Protection

**How do you protect the environment when you have toxic waste that could enter the water supply in the event of a major earthquake?
How to safe major fines and environmental disaster?**

This was the problem that a mining company in Peru had to grapple with. The mine had finished extracting the gold from the mine so needed to ensure there was no adverse effects ongoing. The process of extraction used Cyanide to leach the gold in the ore. The cyanide is still present in the solutions from the heap leach pad and need to be treated. To do this a cyanide water detoxification plant has been setup to operate until all the cyanide has been consumed or destroyed on site.

This plant will ensure any water that comes into contact with the mine site is funnelled to the water treatment plants before being discharged off site. Discharged water must comply with strict regulations in Peru. There are limits for content of various metals, salts and the acidity level of the water.

Most of the water treated at the plants is not used by local communities, but some of it is channelled into several communities in the nearby valleys for irrigation use. The treatment plants contain reverse osmosis technology—sophisticated water purification technology that removes sulphate, carbonate and other salts from water.

The area is in a high rainfall catchment, so the plant has to cope with significant volumes of water.

The water treatment plants conduct daily water sampling and on-site analysis, measuring various metrics including water acidity, or pH levels, and turbidity. The environment team also regularly collects water samples off site and sends the samples to an independent, certified laboratory for analysis. Results from these analyses are reported to authorities on a quarterly basis to ensure the mine is in compliance with its permit and Peruvian regulatory standards.

Earthquake

While the plant can handle the high rainfall and ensure safety, what happens if there is a major earthquake that could produce breaks in the pipes meaning water escapes into the outflow, causing major contamination in the valleys, and requiring significant effort to clean up the environment, plus major fines for the company.

Here the cost effective, proven **Palert** solution provided the answer. By installing Palert devices, any time an earthquake is detected the plant automatically shuts down valves, pumps any contaminated water into massive holding ponds and stops the processing.

In addition, the Palert has a proven early warning algorithm that detects the non-destructive P-Wave before the arrival of the destructive S-wave. The P-wave travels twice as quick as the S-wave. This enables the plant to protect the environment before the earthquake shock waves even arrives.

Without the Palert system the risk of contamination was too great and the whole site would have required significant work to remove the cyanide rock to be processed in alternative plants, causing years of truck movement and general disturbance of the neighbourhood.

To find out more about earthquake early warnings , seismic warning systems and earthquake detection please visit the website at <http://www.earthquakeearlywarning.systems/> or in Spanish at <https://www.earthquakeearlyalert.com/> . Alternative email eewsinfo@jenlogix.co.nz

