

REMOTE DATA, REMOTE LOCATION

Mine Installs Envōk™ for Tailings Efficiency and Compliance

A trona ore mine struggled with environmental compliance and efficiency in monitoring its tailings pond pumps. With nine ponds scattered over 55 miles, collecting SD (secure data) cards from sensors on pumps required that many personnel travel miles for data that was unreliable. The mine had no way of knowing if a pump had gone offline without sending someone to inspect it.

The mine needed an efficient, reliable —and remote—way to monitor pump activity and collect data on water flow from tailings ponds. It needed to know immediately if a pump was malfunctioning, and also to easily collect the information needed to comply with environmental regulations. IWT was already providing the mine with remote networking for voice and data communications in their underground operations, so mine environmental engineers asked IWT to help find a solution for the pump-back wells at the surface tailings ponds.

THE CHALLENGE:

“It is a very labor-intensive effort with logistical challenges,” says the Environmental, Health, Safety and Governmental Affairs manager. “Some ponds are miles away from us, and personnel have to travel in inclement weather. We need a lot of people to do this well, especially with the ever-changing environmental regulations.”

The following challenges and issues were identified:

- Stringent environmental regulatory compliance was difficult with unreliable data.
- SD cards only stored two days of data, and managers had no way of knowing if a pump
- stopped working until workers were physically at the site.
- Vast territory and inhospitable terrain made laying cable or using a traditional Wi-Fi network impossible.
- Hydrogeologists needed better data and information to track the flow of an underground plume.
- Personnel traveling to each pond to collect data was inefficient and costly—and sometimes difficult considering the weather and terrain.

The company needed an efficient way to collect data about water quality and flow.

Most of the tailings ponds pre-date the passage of the Environmental Protection Act, are unlined, and prone to leaching. Its location provides another layer of complication: The mine is close to a major watershed that supplies water to 40 million people and irrigates 5.5 million acres of land. The company struggled to comply with strict guidelines regarding allowable amounts of emissions into the watershed without reliable, frequent, data tracking.

THE SOLUTION:

The IWT Envök™ system specifically addresses problems of environmental big-data monitoring and transmission in remote and difficult locations. It meshes radio nodes together, which builds a wireless net of connectivity that is able to transmit in conditions where line-of-site networks do not work due to topography, vegetation, or other factors. The nodes seek out the best route to transmit data rather than merging into a single gateway, which could block all transmissions if that gateway were to fail. It uses no infrastructure cabling, and the more nodes installed, the bigger and faster the network becomes. A mesh network is self-configuring and self-healing, which means the network installs more quickly than traditional systems and

“Regulatory compliance does not need to be burdensome,” says the Environmental, Health, Safety and Governmental Affairs manager. “IWT’s collaborative approach solves a problem with a system that’s reliable and easy to maintain.”

automatically re-routes data in the event of a communications disruption. The Envök system provides an easy-to-maintain and cost-effective way to gather data, as the sensors are controlled remotely.



The mine’s environmental staff can now monitor pump-back wells in real time, from any location with secure internet

IMMEDIATE RESULTS:

The immediate results of deploying the Envök system at the trona mine was the ability of the environmental staff to monitor and control each of the pump-back wells in real time, 24/7, from any location with a secure internet connection. There was no longer a need to send personnel out to collect SD cards from a well site, only to find that the pump had stopped operating days beforehand or that the SD card was blank.

Through IWT’s customizations and reports, the mine is able to measure pump flow over time, providing validation to hydrogeologists’ modeling of ground water flow. Further, thanks to the efficiency of the network, the 24/7 remote data availability, and customization, any disruption in the pump-back wells’ operations is immediately noticed, and the company is able to save personnel time and labor cost.

In addition, the mine now has complete data sets to present to Federal and State environmental regulators. It is now able to easily prove that its pumps were running effectively, demonstrate to regulators its due diligence in tracking harmful emissions, and show the direction and size of the plume. And the turnkey system is easy for mine personnel to manage.

Start the conversation today at iwtwireless.com
sales@iwtwireless.com
+1.434.316.5230

