Deep Earth Logic

Blast Monitoring with AirLink® Gateways Ensures Quarries Comply with Regulations - A Sierra Wireless® Remote Monitoring Solution



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A Sierra Wireless® Remote Monitoring Solution

CUSTOMER CRITICAL CHALLENGE

- Required a solution that could be packaged quickly to meet growing customer demand
- Needed fast, reliable communications of results for communication to customers/ regulators

SOLUTION

- Integrated seismograph and AirLink® industrial gateway

BENEFITS

- Near real-time connectivity enables results to be shared quickly with customers

- Rugged and reliable

- Simple to configure and deploy

Business Challenge

Quarry operators routinely perform controlled blasting in order to replenish their supplyof gravel, fill and gradient used in the construction of roads, parking lots, and cement.Legislation requires that such blasting be monitored to protect people, property andthe environment.

Quarries often outsource the blasting and ongoing blast monitoring to external fi rms.A seismograph is used to ensure that both ground vibration and air-over pressure (theadditional pressure above normal atmospheric pressure) are within specifi ed ranges.Seismographs typically contain two sensors – a geophone that measures groundvibration, and a microphone that measures air-over pressure.

An important activity that often accompanies blasting is public information andeducation. By working with local governments and citizens to educate them about theprocess and likely impacts, blasting can proceed without delay.

Deep Earth Logic provides 3 services to quarries:

- Determine location, installation, maintenance and monitoring of seismic activities
- Validate seismic events, evaluate results, model past and future blasts with captured data to improve future blast design and predictions
- Public education and public relations

Sierra Wireless AirLink Solution

Deep Earth Logic has established close working relationships with their clients allowingthem to perform an important role as an independent third party that can perform allmonitoring remotely, and assist their clients with public relations.

Deep Earth houses an Instantel seismograph along with the Sierra Wireless AirLinkLS300 rugged 3G gateway provided by USAT Corp located in Chapel Hill, NC

andhouses the equipment in a cabinet which is mounted on a monitoring location. Themonitoring locations are strategically placed around the quarry. Upon an “event”, theseismograph is triggered and the microphone and geophone are activated. The resultsare “locked in” and automatically transmitted via the AirLink LS300 to a back-endserver. The data is then analyzed and sent on to clients and/or regulators. A typicalquarry could have from 1 to 6 sensor units.

Kyle Gates has been involved in the blast monitoring industry for 8 years, and in aprior company had used the AirLink Raven, the predecessor to the LS300. He knewit was solid, reliable technology but was coming to the end of its product life and wasconcerned about which technology they would migrate to for remote sensing. Withconsultation from of USAT Corp., he learned about the AirLink LS300 gateway, but hestill had to see product deployed to be fully assured of its capabilities. “We understoodthe reliability that the Gateways offered as part of the solution, and migrating to theLS300 was a learning curve but proved to be the right choice. The LS300 is equallyreliable and much faster than the 2G Raven. We were starting up our business and hadto hit the ground running, so we were able to quickly configure and deploy the solutionto get early sites connected.”

Results

The AirLink LS300 is designed for harsh environments and industrial uses like thoseof Deep Earth Logic. The simplicity of the solution make it ideal for this type of remotemonitoring application which requires reliability and durability.