

---

## Deep Earth Logic

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

---



### **Blast Monitoring with AirLink® Gateways Ensures Quarries Comply with Regulations**

#### ***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 supply of 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 and the environment.

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

An important activity that often accompanies blasting is public information and education. By working with local governments and citizens to educate them about the process 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 allowing them to perform an important role as an independent third party that can perform all monitoring remotely, and assist their clients with public relations.

Deep Earth houses an Instantel seismograph along with the Sierra Wireless AirLink LS300 rugged 3G gateway provided by USAT Corp located in Chapel Hill, NC

---

and houses the equipment in a cabinet which is mounted on a monitoring location. The monitoring locations are strategically placed around the quarry. Upon an event, the seismograph is triggered and the microphone and geophone are activated. The results are locked in and automatically transmitted via the AirLink LS300 to a back-end server. The data is then analyzed and sent on to clients and/or regulators. A typical quarry could have from 1 to 6 sensor units.

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

## Results

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