THE CHALLENGE:

The mine tested several gas monitoring systems, but each had problems inherent to the technology. Hard-wired monitoring systems involved more equipment, were difficult and costly to advance, and required recurrent wire repair. Systems using Wi-Fi also required a wired backbone to get the data to the surface, and were expensive to maintain.

The mine was looking for a solution which would:

- Continuously monitor to ensure miner safety
- Deliver accurate data to the surface
- Deploy easily and advance quickly
- Comply with regulations used in high-risk areas

THE SOLUTION:

The mine discussed their situation with IWT and installed SENTINEL™ Wireless Gas Monitors (WGM) with hydrogen-compensated carbon monoxide (CO) sensors at each of the charging station locations.

Because the mine uses a SENTINEL Dispatch Station, they were able to take advantage of a compensation algorithm inherent to the Dispatch Station when using a multi-gas WGM with sensor modules for hydrogen and CO. The unique algorithm allows the mine to monitor CO levels near the battery charging stations where batteries can vent hydrogen without receiving false alarms at the Dispatch Station.

In addition, WGMs are completely wireless making them easy to deploy and advance. And, because WGMs are battery-powered, the units are able to operate even in power outages.

A large, U.S. coal mine sought a solution to obtain reliable carbon monoxide and hydrogen gas readings at each of the mine’s twelve underground charging stations. The solution needed to be easy to use, maintain, and advance. It also needed to provide accurate gas readings as excess hydrogen can be generated at charging stations and cause false readings or alarms in these areas.
REAL RESULTS:
The mine saw immediate results:

- **Increased safety**
  - Dependable gas readings
  - Intrinsically safe units
  - Gas alarms broadcast directly to area miner handsets *(shown below)*

- **Improved efficiency and money savings**
  - Eliminates expensive spools of cable (costing in excess of $1,500 per spool)
  - No more broken cables to repair

- **Faster section advancement**
  - One person can quickly advance a WGM
  - Previous wired solution required two people working half a shift

- **Increased reliability**
  - IWT H2-compensated CO algorithm reduces false alarms. The graph below show two instances during this recorded timeframe when a false alarm would have occurred without the algorithm compensation.

  - NRTL tested and certified units for best performance
  - Batteries provide continued monitoring during power loss

“They are so easy to install; my guys love them. Basically, just make sure you have radio service in the area, hang it, and walk away.”

-- Communications & Electrical Supervisor