

CASE STUDY - MINING

OCC cables prevent mining tragedies, stand the test of time

Rock burst—a spontaneous, violent fracture of rock that can occur in deep mines—is a serious hazard. It occurs when the opening of a mine shaft relieves neighboring rocks of tremendous pressure, which can literally cause the rock to explode as it attempts to re-establish equilibrium. Dozens of miners are killed worldwide each year from this geologic phenomenon.

U.S. Silver & Gold's Galena mine, located in Wallace, Idaho, is a 5800 ft.-deep silver-copper mine that produces approximately 900 tons of silver-lead ore daily. The mine has had consistent seismic activity since the late 1950s. But fiber optic cable from Optical Cable Corporation (OCC) has helped the mine monitor and manage these seismologic changes, resulting in zero deaths or injuries related to rock bursts since 2001.



The Galena mines' original installation consisted of OCC B-series MSHA-rated deployable mining cables. The 6-strand fiber optic cable, installed to a vertical depth of 4600 feet, served as a seismic monitoring system. At the time, it was believed to be the world's tallest vertical mine cable installation.

"Prior to the OCC cable installation, the Galena mines had one of the more advanced monitoring systems for its time, but it was dependent on manual processing from the underground office," says Kathryn Dehn, Sr. Rock Mechanics Engineer. "Today, real time monitoring of seismic activity in the mine allows us to alert workers if a problem is detected, so we can pull them out of an area until the rock stabilizes. It has helped reduce injuries and prevent accidents."

Dehn says that prior to 1992 seismic activity was monitored by 1-3 people housed in an underground office who performed critical calculations by hand. Thanks to OCC fiber optic cable, mine operators can now monitor and fix problems from the surface—even remotely using a laptop. "Communication and monitoring via fiber optic cable has revolutionized mining safety and operation," says Dehn. "We have a far better picture of what is happening a mile below the surface and can monitor and correct situations in real time that may otherwise have resulted in accidents in the past."

Dehn says that a new 4-strand cable was hung at the Galena mine in 2001 for additional monitoring, and an additional 6-strand cable installation is in progress to accommodate upgrades and to allow for future expansion. In 2010 the mine also installed 2,000 feet of additional 4-strand cable to expand the system. No matter what the installation, there was no question about which cable the mine would choose, she adds. "We chose to stay with OCC cable because it survives," she said. "Our choice has always been MSHA deployable cable because it has never failed, even though we operate in the harshest of environments."

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ABOUT OCC Mining Cable

OCC B-Series MSHA-rated Deployable Mining Fiber Optic Cables are designed to provide reliable communications and monitoring in hazardous and unforgiving mine environments. The company's MSHA-rated fiber optic cables are manufactured to the toughest standards and feature:

- OCC's polyurethane Core-Locked™ jacket, extruded under high pressure directly over the cable's core, resulting in a cable that has no voids and acts as one unit when bent or twisted.
- Helically stranded cable core for flexibility, deployment, survivability and exceptional mechanical protection for the optical fibers.
- Most rugged, high-strength cable design incorporating color coded subcables for direct termination.
- Crush-resistant and resilient, with two separate layers of aramid strength members in the subcables for individual single-fiber connector or termination pin, and an overall layer for strain relief on multichannel connectors.

OCC also offers a full line of fiber optic connectivity and deployment products to complement its MSHA fiber optic cable products. For more information, contact occfiber.com or call 800-622-7711.

