

Fire Detector An early warning fire detection sensor developed for NASA's Space Shuttle Orbiter is being evaluated as a possible hazard prevention system for mining operations. Developed by Brunswick Corporation Defense Division, the Incipient Fire Detector represents an advancement over commercially available smoke detectors in that it senses and signals the presence of a fire condition *before* the appearance of flame and smoke, offering an extra margin of safety.

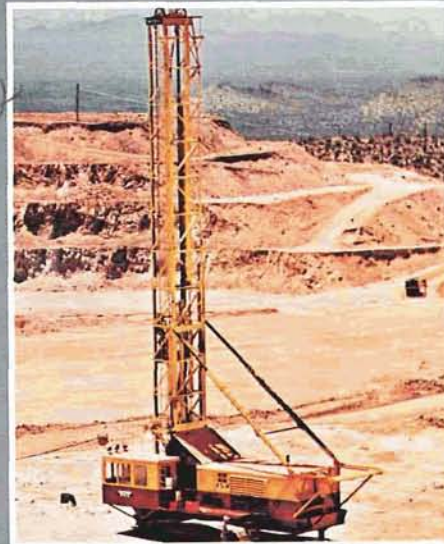
The sensor operates, as do most smoke detectors, by sampling air to determine the presence of combustion particles. Unlike earlier equipment, however, the Brunswick Incipient Fire Detector can discriminate between combustion particles and such extraneous matter as dust. This gives it an important advantage: it is less susceptible to false alarms. For large area applications, such as mines, any number of sensors can be linked to a central processor/display unit to provide a central fire watch system that would instantly warn of incipient fire and pinpoint the location.

The Department of the Interior's Bureau of Mines is interested in the potential of the new detector for improving mine safety and is conducting a one-year trial to see how well it works.

A number of sensors have been installed in a Bucyrus-Erie rotary blast driller operated by Peabody Coal Company, Lynnville, Indiana. Drillers like this one are massive machines that cost several hundred thousand dollars and their continuous operation is vital to profitable mining. But, because they have many electro-mechanical operating components, costly breakdowns do occur, caused by friction and spark-induced burn. Early warning provided by the sensors can avert extensive fire damage and reduce machine down-time.

If the Incipient Fire Detector demonstrates effectiveness in the driller trial, it will be considered for wider employment in mining operations. Many major mines have elaborate fire-sensing and fire-suppression systems, but improvements in reliability or incipient detection represent a significant advance in mine safety.

The system has obvious utility in other high-hazard applications, to protect both personnel and high-value equipment in such facilities as factories, communication centers and utility power plants. A centralized fire watch system using Brunswick detectors is now being tested in a military airplane, and a system for an aircraft carrier is under study.



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