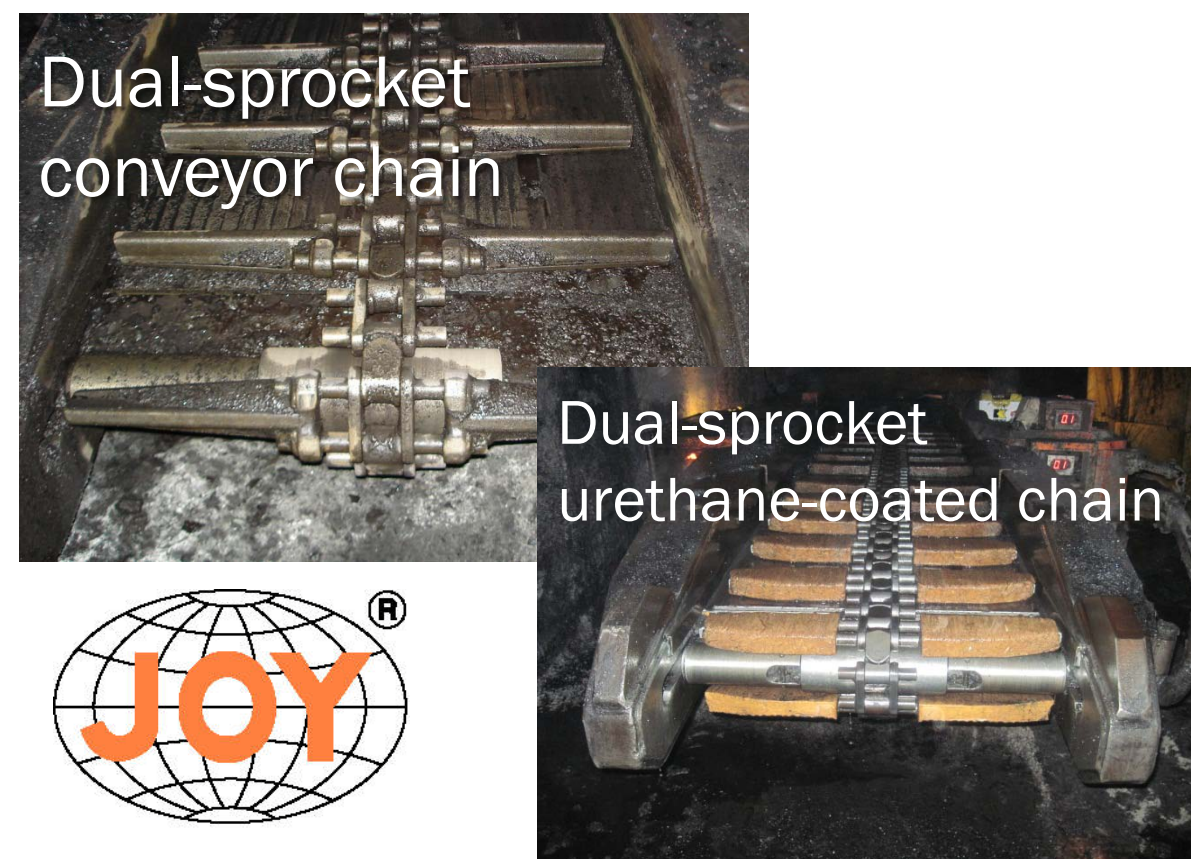


Successes in Research to Practice from the NIOSH Office of Mine Safety and Health Research

Continuous mining machine noise controls



Dual-sprocket chain reduces hazardous noise from underground coal continuous mining machines by 3 dB(A)

Joy Mining Machinery put into production in 2008

Now installed on 30% of US continuous mining machines

Dual-sprocket urethane-coated chain reduces noise by additional 4 dB(A).

Manufacturing partner (Joy Mining Machinery) taking orders for coated chain

Coal Dust Explosibility Meter



Coal Dust Explosibility Meter warns of explosive concentrations of coal dust in the mine atmosphere

Eliminates delays in obtaining analysis from remote laboratories

Developed and commercialized through partnerships with H&P Prototyping, Geneva College Center for Technology Development, and Sensidyne, Inc.

Field studies showed 97% agreement with MSHA lab analysis

Over 200 now in use in mines

Roof bolting machine noise controls



Drill bit isolator developed to reduce hazardous noise from roof bolting machines used in underground coal

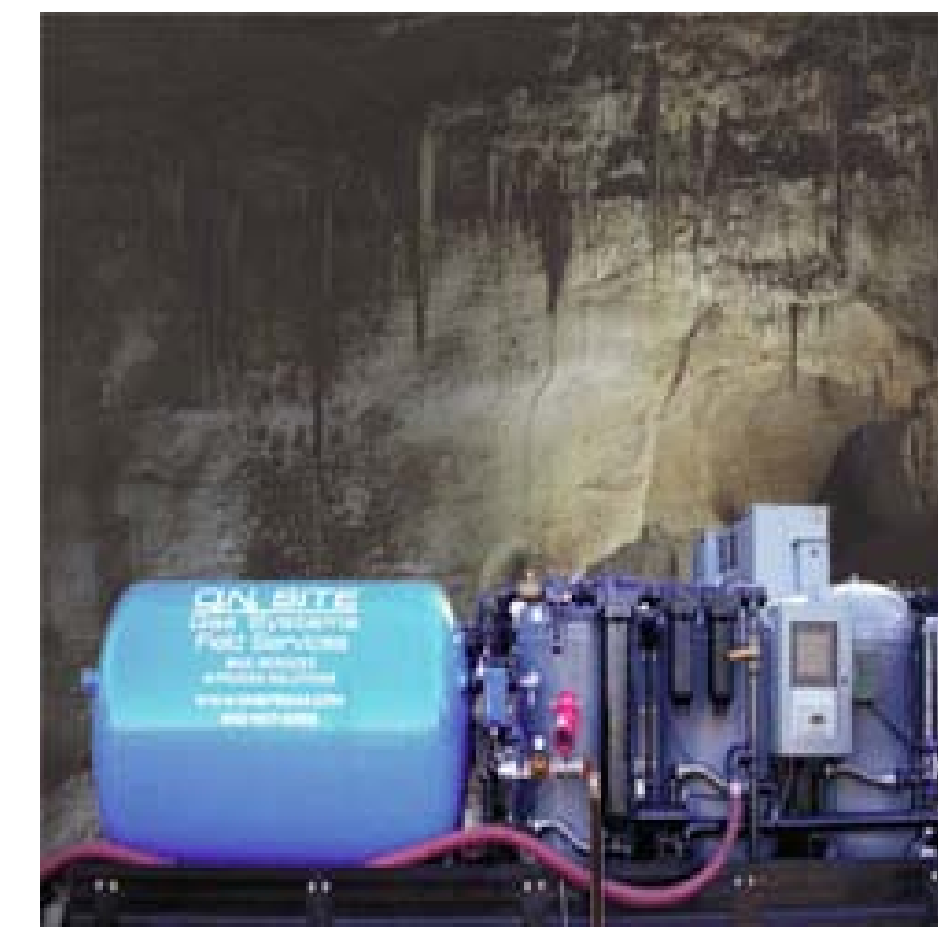
Developed with input from manufacturing partners Kennametal Inc. and Corry Rubber

Achieved 3-5 dB(A) reductions in mine tests

Durable and does not interfere with normal operation

Manufacturers taking orders and first deliveries are now in mines

In-mine gas nitrogen generating system



In-mine gas nitrogen generating system renders inert potentially explosive methane accumulations behind mine seals

NIOSH contract with On Site Gas Systems to develop an inerting system

Developed new pressure swing adsorption bed design for high nitrogen output from smaller generating plant

Completed design extracts nitrogen from mine atmosphere and injects behind seals to displace oxygen and reduce explosion risk

Now commercially available to the mining industry

Personal Dust Monitor



Personal Dust Monitor warns of coal dust that causes black lung

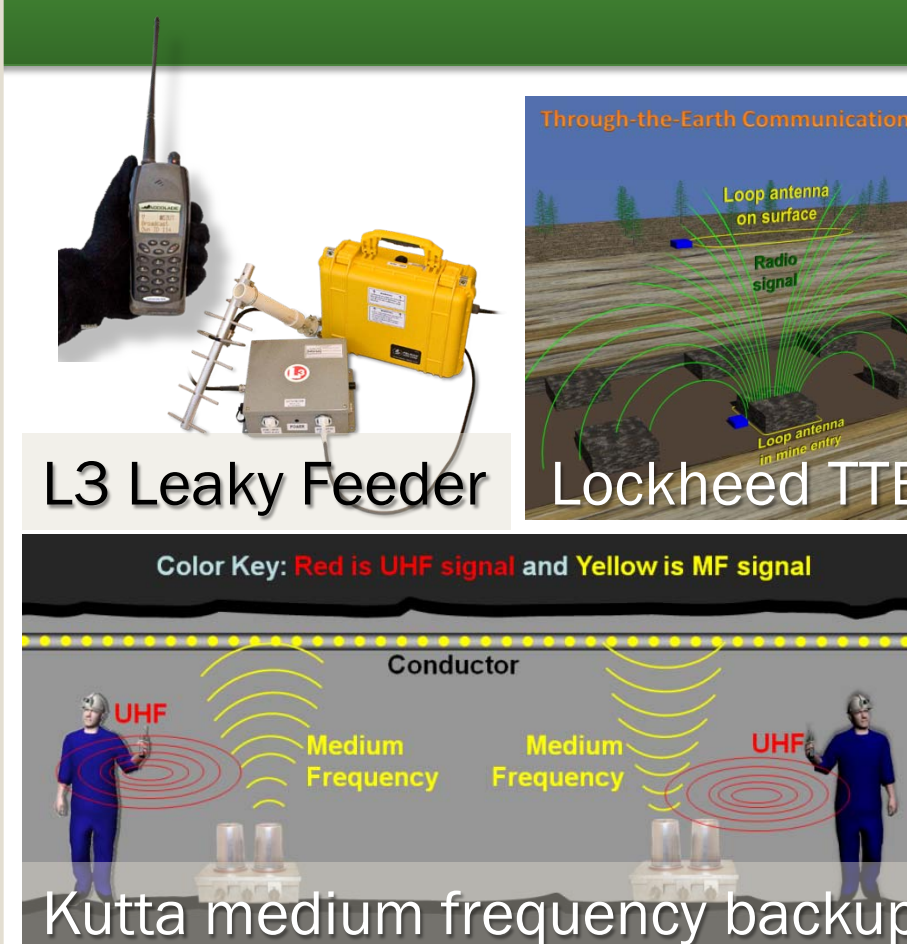
Input from stakeholders guided design -- integrated into cap lamp battery

Performance meets or exceeds that of slower standard gravimetric samplers and delivers warning in real time

Approved by MSHA and commercialized

200 units now in use in mines

Communication systems



Communication systems needed to improve chances of surviving mine emergencies

Stakeholder input solicited to identify candidate technologies, followed by competitive contracts to multiple partners

Primary solutions include L3 Communications wireless mesh and Becker Mining Systems leaky feeder communications system

Secondary backup solutions include Lockheed Martin Through the Earth system and Kutta Technologies Medium Frequency system

Disclaimer: The findings and conclusions in this presentation have not been formally disseminated by the National Institute for Occupational Safety and Health and should not be construed to represent any agency determination or policy.