

study provides a practical, simple method for trans-site shingle removal that can minimize worker exposures during large and small jobs alike. The sampling strategies shared during this presentation may be used by others to develop negative exposure assessments for their own operations that may disturb asbestos.

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MASSIVE EXPLOSION AND FIRE AT AN AGRICULTURAL CHEMICAL PACKAGING FACILITY. A. Heins, U.S. Department of Labor, Salt Lake City, Utah; A. Fuentes, U.S. Environmental Protection Agency, Washington, DC; M. Marshall, U.S. Department of Labor, Washington, DC

Situation: On May 8, 1997, a massive explosion and fire occurred at an agriculture chemical packaging facility in West Helena, Arkansas. This incident resulted in the deaths of three firefighters, the evacuation of hundreds of residents, and extensive emergency response and cleanup operations.

Problems: The concern resulting from the toxic chemical release resulted in the closure of major roads and Mississippi River traffic for nearly 12 hours. The ensuing fire hampered investigative efforts, and the fires took nearly two weeks to totally extinguish. The facility was instantly transformed into a hazardous waste site, complete with the many industrial hygiene problems associated with the stabilization, investigation, and cleanup of a site grossly contaminated with agricultural pesticides and products of decomposition.

Resolution: As a result of the cooperative efforts of a number of local emergency response groups, the site was stabilized and the fires extinguished. Subsequently, a joint investigation of the incident was conducted by representatives of EPA and OSHA. A report was prepared identifying four root causes and contributing factors to the incident and making recommendations pursuant to the prevention of similar incidents at other facilities.

How will sharing this work experience benefit other industrial hygiene practitioners? Not all practitioners of industrial hygiene fully appreciate the significance of some of the contributing factors to this incident, including the importance of a full understanding of the hazards associated with chemical storage and the necessity for standard operating procedures for material storage and handling. In addition, the quality of the hazardous materials information made available to emergency responders is of paramount importance during response actions.

Of special interest is the conclusion of the Joint EPA-OSHA Accident Investigation Team that the incident was most likely caused by the decomposition of a "supersack" containing a pesticide that had been placed against an air compressor discharge line. Subsequent experimentation demonstrated that the line could easily have exceeded the 145°F estimated by both employees and management and, in fact, could have exceeded 300°F. The vast majority of industrial hygienists would not anticipate this type of temperature from a compressed airline.

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SICKNESS FROM THE SILO: ORGANIC DUST TOXIC SYNDROME. J. Williams, Sr., MD, MPH, Marshfield Clinic, Marshfield, WI

Situation: This study reports two cases of organic dust toxic syndrome occurring in two males, ages 17 and 23 years, who were working for several hours in a silo that had been capped for nine months. They were not using respiratory protection.

Problems: The two men presented to the Marshfield Clinic Urgent Care Department complaining of flu-like symptoms; including headaches, weakness, muscle aches, fever, and sore throats. Physical examinations were unremarkable, other than low-grade fevers. Pulmonary function testing was abnormal in both men, but their chest X-rays were normal.

Resolution: The men were treated with nonprescription analgesics and removed from the workplace, namely the silo. Their symptoms gradually resolved over the next week. Use of proper ventilation and confined space entry techniques were dis-

cussed as well as the appropriate types of respirators for this type of work.

How will sharing this work experience benefit other industrial hygiene practitioners? This case will help differentiate the organic dust toxic syndrome (also known as silo unloaders disease) from these less common but more serious conditions; farmer's lung and silo fillers disease. Recognition of the differences between these illnesses is essential and can be life-saving. Engineering and administrative controls, as well as use of personal protective equipment, are just as important in this type of agricultural work as is in general industry.

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CHARACTERIZATION OF VISIBLE DUST PLUMES FROM SURFACE COAL MINE HIGH-WALL DRILLS. J. Cocalis, NIOSH, Morgantown, WV

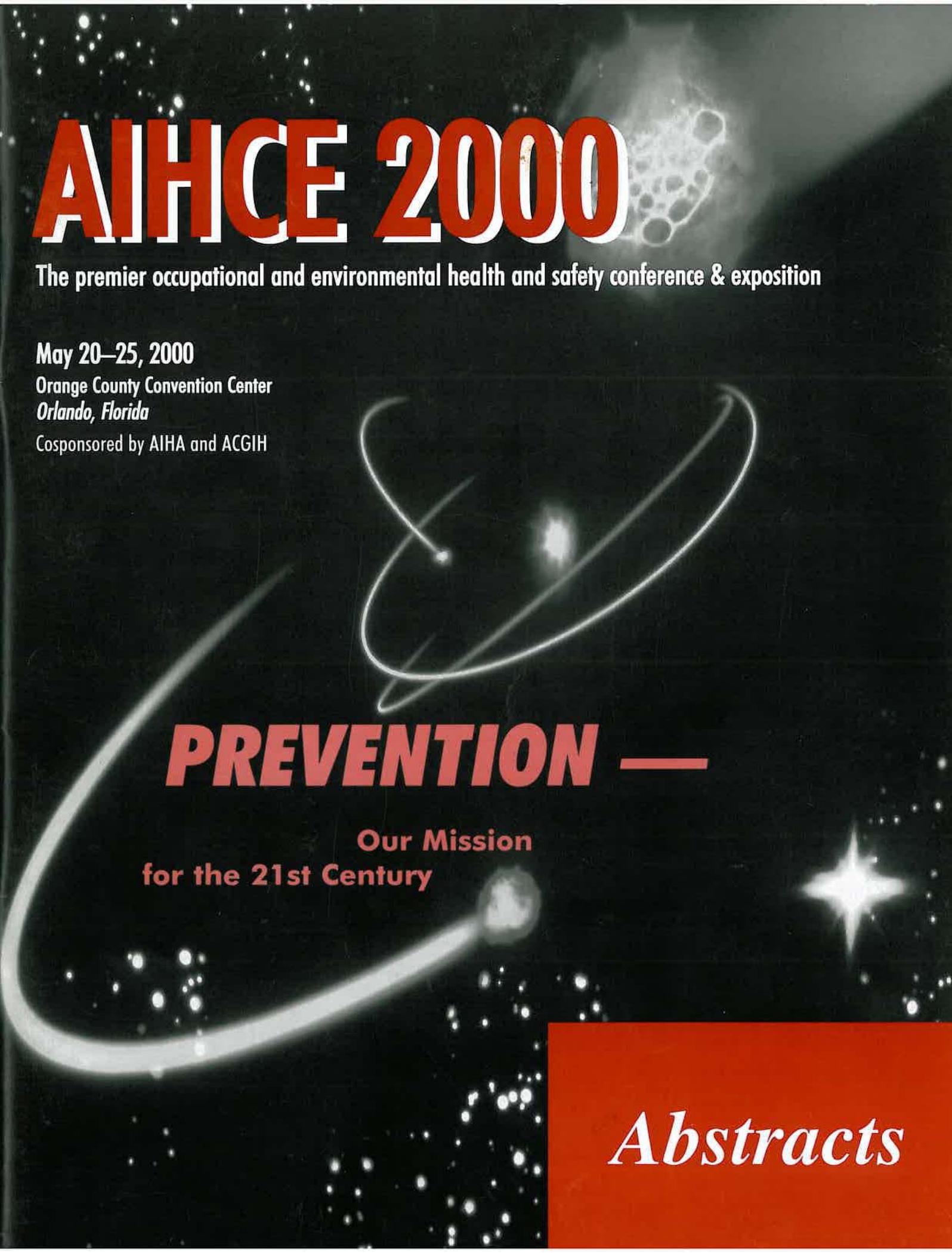
Situation: Surface coal mine highwall drill dust exposure has been linked to silicosis. Traditional gravimetric sampling, using cyclones, may not identify peak exposures that are believed to occur when visible dust plumes are present. Characterization of these exposure peaks is important from the standpoint of both health assessment and exposure control.

Problems: Short-term high-intensity exposures to respirable crystalline silica have not been well quantified for surface coal mine drilling operations.

Resolution: Surface coal mine drill dust plumes were concurrently videotaped and sampled using DataRams, personal impactors, and traditional samplers. The results indicate the presence of respirable dust in all plumes, with short-term peak concentrations of 100-400 mg/m³ typically lasting for up to 10 seconds.

How will sharing this work experience benefit other industrial hygiene practitioners? These data can be used for better exposure control, including the design of cabs to withstand peak exposures.

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