The National Institute for Occupational Safety and Health (NIOSH) Research Program for Detection of Abandoned Mines and Mine Voids

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ABSTRACT

In 1996 the mining health and safety research mission of the former U. S. Bureau of Mines (USBM) was transferred to the National Institute for Occupational Safety and Health (NIOSH). NIOSH was created by the 1970 Occupational Safety and Health Act to ensure safe and healthful working conditions for the nations workers through research, training, and making recommendations for the prevention of work-related illnesses and injuries. NIOSH conducts the bulk of its mining safety research at its Pittsburgh, PA, and Spokane, WA, research laboratories, which were former USBM research centers. NIOSH through its congressional mandate to conduct mining health and safety research and through its history, including that of the USBM, has done various investigations into technologies that were either aimed at detecting mine voids or could be applied to that goal. A brief review of some of these techniques investigated in the past will be given, including long hole directional drilling, and various radar techniques, such as a frequency domain radar device and more traditional pulse-type ground penetrating radar (GPR). Past and ongoing work utilizing seismic techniques will also be reviewed. Discussed will also be our view of NIOSH's role in and plans for future research to develop technologies that can be applied to the problem of locating abandoned mines or mine voids. NIOSH through its past work in this area; its staff of scientists and engineers; its unique facilities, such as it labs and research mines; and its knowledge of mining, especially relative to this particular issue, is uniquely positioned to conduct or manage research aimed at developing technologies to address the detection of abandoned mines and mine voids.