

News Release



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MSHA to Digitally Reconstruct Sago Mine to Help Determine Explosive Forces Causing the Jan. 2 Disaster

WASHINGTON—The U.S. Mine Safety and Health Administration (MSHA) has entered into an interagency agreement with the U.S. Army Corps of Engineers to digitally reconstruct the Sago mine where 12 miners died following a Jan. 2 methane explosion. The digital reconstruction will help determine the overpressures of the explosion and factors contributing to the failure of the alternative seals separating the abandoned area of the mine from the active section.

“MSHA is utilizing all available technologies to help determine how the Sago tragedy occurred so we can take meaningful steps to prevent similar tragedies in the future to better protect America’s miners,” said David G. Dye, acting administrator of MSHA.

MSHA and the U.S. Army Corps of Engineers’ Engineer Research and Development Center will conduct a computational fluid dynamics (CFD) study of the Jan. 2 methane explosion in the Sago mine to establish the overpressures and the propagation of the explosion through the mine. In the case of the Sago accident, a CFD study will allow researchers and investigators to understand the physical phenomena that would result from how various strengths of explosive forces would interact or flow in the mine.

The mathematical modeling of the Sago mine will account for features of the sealed and active areas of the mine including crosscuts and entries with gradual and abrupt changes in roof-floor heights, coal pillars with non-uniform dimensions, debris, and ventilation stoppings and seals. This precise modeling of the Sago mine will allow investigators to better calculate the strength of the explosive pressures needed to create the damage investigators found following the accident.

Ten ventilation seals and numerous ventilation stoppings were destroyed by the Jan. 2 explosion. MSHA is also conducting full-scale tests, subjecting alternative seals to explosive forces as part of its ongoing investigation into the Sago disaster.

The CFD model will be used to study the phenomenon of pressure build-up, or pressure piling, due to abrupt and gradual changes in entry heights and the structural strengths of the alternative seals in use at the Sago mine

MSHA sought an interagency agreement with the U.S. Army Corps of Engineers for this type of study after determining that the magnitude and complexity of the methane explosion required supercomputer resources, and specialized expertise and software.

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