

Mine Subsidence

Old mine workings or voids beneath residential and commercial properties, roadways, and facilities can cause sinkholes or catastrophic collapse.

To assess subsidence risk, the current state of practice for many geotechnical subsidence hazard assessments relies on limited investigations and a simplistic approach based on the depth to the workings. Assessing subsidence hazards accurately, however, requires understanding and evaluating the unique combination of characteristics that contribute to the subsidence risk at each specific project site.

To address the often complex issue of mine subsidence, Tetra Tech concentrates on developing cost-effective, focused solutions to identify, define, and (if necessary) mitigate subsidence hazards. Tetra Tech:

- Uses a suite of advanced geophysical methods to identify the position, shape, and extent of mine voids—including pillar size, spacing, and condition—to accurately define the nature and extent of the potential hazard while minimizing subsurface drilling
- Couples the results of the geophysical surveys, test borings, and laboratory data and an understanding of rock mechanics, coal mining operations, and underground coal mine design with empirical and state-of-the-art numerical models. This approach allows Tetra Tech to provide a detailed evaluation of the subsidence potential, identify specific areas requiring additional ground support or backfilling, and assess the level of mitigation necessary
- Applies a variety of mitigation techniques applicable to the specific type and extent of subsidence risk, the depth and geometry of the mine workings, and the overburden characteristics



Tetra Tech considers not only the depth to the mine workings but also the height of the mine openings; the condition of the workings (air-, water-, or rubble-filled); the presence of voids and the void geometry; the size, spacing, and strength of any remaining pillars; the nature of the overlying strata; the presence and orientation of discontinuities; the effects of faulting, groundwater conditions, and temporary ground support used during mining (such as timbers); and the effects of mine fires.

Corporate Headquarters

3475 East Foothill Boulevard
Pasadena, California 91107-6024 USA

Phone +1 (626) 351-4664
mining@tetrattech.com

Tetra Tech Mining & Minerals

Australia	Perth, Western Australia
Brazil	Belo Horizonte, Minas Gerais State
Canada	Vancouver, British Columbia Toronto, Ontario
Chile	Santiago, Santiago Province
UK	Swindon, Wiltshire
US	Golden, Colorado

www.tetrattech.com/mining