BULLETIN

News from SubTerra, Inc.®

Tar Creek Subsidence Evaluation and Risk Assessment
Picher Lead Mining Field
Picher, Oklahoma

***SubTerra, Inc** was retained by the US Army Corps of Engineers to provide direction to a Task Force appointed by the US Senate and the Oklahoma Governor's office regarding characterization and analysis of subsidence potential in the Picher lead mining field in northeastern Oklahoma. As part of this work, **SubTerra** digitized over 300 mine plans and sections and constructed a 3-D digital model representing over 4,000 acres of undernined land. A task force drawn from four federal and three state agencies worked with private sector experts to analyze the risks posed by abandoned mines and recommend mitigation.*

SubTerra's scope of work included:

1. Obtaining, scanning, and digitizing underground mine plans and construction of a geo-referenced 3-D model of the underground mines, geology, and surface.
2. Assisting USACE personnel in managing participant work scopes and the developed work product.

This photograph shows a cross-section through the limestone bedrock which overlies and hosts the lead bearing formation that was mined.

Over 50 mines were active in the study area mining openings ranging from tens of feet to several hundreds of feet in width. Historically, openings over 100-ft high were mined within 60-ft of the surface leading to the large subsidence features shown in the photograph below.

Historic subsidence events were characterized and back-analyzed to develop spatial relationships that were used in a GIS based subsidence analysis of the entire undermined area.

The 3-D model developed by ***SubTerra*** was input to ARC GIS which was in turn programmed to perform the area-wide subsidence analysis. Areas of potential subsidence risk were designated and documented in a report

This report served as a basis for relocating residents from the study area avoiding future potential consequences of subsidence and health risk associated with contaminated mine spoils.

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