# Subsidence Deformation Prediction System (SDPS)

SDPS is an integrated approach to the problem of calculating and predicting ground deformations above undermined areas. Based on empirical or site-specific regional parameters, the model quantifies a variety of ground deformation indices for both longwall and high extraction room-and-pillar mines, including subsidence profile, angle of draw, strain, slope, and curvature, to name a few. The application includes a graphing program as well as a pillar stability program that can help evaluate the stability of pillars in room-and-pillar mines.

### *Underground Stability Analysis*

The underground stability analysis module includes traditional pillar stability programs as well as the pillar stability formulations developed by NIOSH regarding stability of pillars in longwall operations and stability of pillars in room and pillar retreat operations.

### *Profile Function Module*

The profile function module allows the user to predict the distribution of subsidence values on the surface along an axis of an underground excavation (longwall panel or pillar recovery/high extraction mining).

### *Influence Function Module*

The influence function module allows the user to model complex mining geometry. Subsidence prediction, horizontal strains and other related deformation indices can be calculated. Multiple areas of high extraction mining (longwall panels or pillar recovery) can be modeled.

### *Graphing Module*

The graphing module allows for the results of the other modules to be displayed in graphic format. Exporting these graphs and data to other formats (such as Excel) is also supported.

SOFTWARE:
SDPS

SMCRA BENEFITS/USES:
- Calculate a number of predicted subsidence parameters
- Calculate pillar stability safety factors
- Develop a pillar plan
- Determine a protection area

TIPS TRAINING CLASSES:
Online SDPS course available

**NEED HELP????**
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