

Solution Mining Research Institute Spring 2013 Technical Conference

**Lafayette, Louisiana, USA, 22 – 23 April 2013**

## The Value of 2D, 3D and 4D Reflection Seismic Data in Solution Mining Work

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### **Abstract**

2D, 3D and 4D seismic data are important tools when a clear image of the sub-surface is required. With proper, modern processing techniques, seismic data of different types, vintages, and acquisition parameters can usually be made to show the complexities of many geobodies. Salt domes, faults, complex structure, injection sands, and even mining operations can be imaged with reflection seismic data. Knowledge of what needs to be imaged is essential before embarking on the quest for acquisition of new or old reflection seismic data. Acquisition and processing parameters and interpretation of reflection seismic data for solution mining work is slightly different than that of oil and gas work.

This paper will compare 2D vs. 3D seismic data, explain 4D seismic and have numerous examples of sub-surface seismic images from many different solution mining project areas. Acquiring, processing, and interpreting reflection seismic data may seem costly. However, the images that reflection seismic data can yield in and around solution mining works are invaluable.

**Key words:** 2D Seismic Data, 3D Seismic Data, 4D Seismic Data, Acquisition, Processing, Interpretation, Geobodies, Salt Domes, Mining Operations

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