SOLUTION VOID CAVITY DEFINITION USING THE SURFACE-BASED Z-SCAN HIGH RESOLUTION MAGNETOTELLURIC SYSTEM

Daniel A. Woods, President – Digital Magnetotelluric Technologies
Stephen A. Marinello, Ph.D. – Newpark Resources, Inc.

ABSTRACT

A new high-resolution magnetotelluric remote sensing system was used to survey a salt solution mining operation located in Fort Stockton, Texas. The system was used to determine the depth, geometry, and estimated capacity of the three main solution caverns in the bedded salt. The results compared favorably with those of a previously run borehole sonar survey of the uppermost cavern. The system technology, known as the **Z-SCAN** technology, has been accepted by the Railroad Commission of Texas for the evaluation of underground caverns. It is completely portable and non-invasive, and was unintrusive to daily area operations at the Fort Stockton site. Survey station layouts are adaptable to the varying goals of different projects and can be easily modified throughout the procedure in order to meet evolving needs.