

SOLUTION MINING RESEARCH INSTITUTE

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**MEETING
PAPER**



SURFACE SUBSIDENCE OVER THE IMC K-2 MINE

by

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1.0 INTRODUCTION

A Solution Mining Research Institute (SMRI) paper titled *The IMC K2 Mine Flooding¹* was presented at the 1993 Fall Meeting in Lafayette, Louisiana. The paper discussed the inflow incident at IMC's underground potash mine and presented some of the facts relevant to understanding the inflow's origin, size, and consequences. One of several topics in the paper was the surface subsidence over the mine both before and after the inflow. This paper focuses exclusively on surface subsidence over the K2 Mine, and provides more information about the subsidence than was possible in the earlier paper.

Four sections follow this introduction. Section 2.0 provides summary information about the IMC mines and their inflow problem. The summary is brief; the original paper provides a more detailed description. Section 3.0 discusses surface subsidence in general, how it is measured, and how it can be modeled. The subsidence situation at IMC is discussed in terms of how the extraction ratio influences the subsidence rates and time required for ultimate subsidence. Section 4.0 discusses how subsidence modeling was used to identify perturbations in the measured surface subsidence. In this instance, the perturbation was caused by regional faulting previously unrecognized at the mine. Section 5.0 presents information about the effects of abutments on the subsidence profile and the "angle-of-draw" for this potash mine.

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