

SOLUTION MINING RESEARCH INSTITUTE

105 Apple Valley Circle
Clarks Summit, Pennsylvania, USA

Telephone: 570-585-8092 ♦ Fax: 570-585-8091
www.solutionmining.org ♦ smri@solutionmining.org

Technical
Conference
Paper



**Monitoring for Induced Seismicity in the Wyoming
Brine Field: instrumentation, procedures and
observations**

Brennan, William J.

Geneseo, New York, USA

Spring 2005 Conference
17-20 April
Syracuse, New York, USA

ABSTRACT

Before solution mining in the Wyoming brine field began some concern about the possibility of induced seismicity was voiced by area residents at a public meeting. That concern was the direct result of the occurrence in 1971 of a number of microearthquakes caused by a change in the solution mining method used in the Dale brine field located five miles to the northwest. As a result, monitoring for induced seismicity in the Wyoming brine field was required by the New York State Department of Environmental Conservation and the United States Environmental Protection Agency as a condition for the issuance of a mining permit.

A network of three seismograph stations, each located at the corners of a triangle with an edge length of approximately 0.6 miles, was installed in the brine field in 1987. Each seismograph station consists of one vertical component seismometer and a recorder. The recorders are activated by a triggering algorithm that responds to impulsive events rather than a continuous recording mode. A field visit to the network is conducted once each week to download records of any seismic events that might have occurred, to reset the instrument clocks, and to perform other routine maintenance tasks.

During the nearly twenty years that the monitoring program has been in operation, no evidence of induced seismicity within the Wyoming brine field or the Dale brine field has been detected. Similarly, no evidence of induced seismicity in either brine field has been detected by seismograph networks operated by the U.S. Geological Survey, New York State, the Canadian National Seismograph Network or several academic institutions in the region. However, several microearthquakes of natural origin in western New York and the surrounding region, a few teleseisms, and the collapse of the Retsof mine have been recorded by the Wyoming brine field network.

©2024 – Solution Mining Institute Full Paper is
Available in the SMRI
Library(www.solutionmining.org)