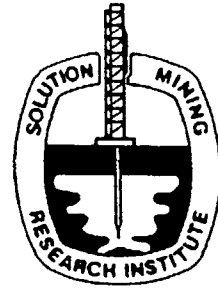


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**MEETING
PAPER**



**The Effects of High Insoluble
Content on the Development of
Natural Gas Storage Caverns
in the Bedded Salt Formation
of West Texas**

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Presented at the Spring 1997 Meeting
Cracow, Poland
May 11-14, 1997

ABSTRACT

With the interest in the development of caverns in bedded salt formations for the storage of natural gas, a recent case history of a project resulted in some surprisingly positive developments in cavern construction practices. The construction of caverns for the storage of natural gas in the Salado bedded salt formations of West Texas began in May, 1992. Since that date, three caverns have been constructed with a combined volume of 5.0 million barrels. This resulted in a total gas storage capacity of 4.2 Bcf and an associated deliverability of 600 Mmcf/d. These caverns were developed in a 400 ft. interval between 2700 ft. and 3100 ft. of a 900 ft. gross salt section of the Salado formation. Open hole logging and core analysis of this interval exhibited a net salt thickness of 300 ft., with a high insoluble content. Various solution mining techniques were evaluated and utilized to determine the effects of insolubles on mining rates, sump development, ledge/wall behavior, bottom rising, and roof shape. Interim sonar logging and monitoring of the caverns during the development allowed for detailed investigation and analysis of the effect of insolubles on the final cavern shape and size. Each of the techniques will be reviewed and the resulting effect on the cavern design will be presented.

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