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Creating Value from Salt Cavern Brine

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Abstract

This paper provides a case study of a NaCl salt crystallization system in the United States with feed brine evacuated from a deposit to be utilized as a gas storage cavern. The main process technology is a single-stage HPD® Salt Crystallizer designed to process the brine to an end product of a specified quality and crystal size. The product salt is marketed for use in the food and textile industries

The design of the system is unique in that the process does not require pretreatment of the brine. Based on the analysis of the brine, it was determined that the client's purity requirements could be achieved by direct feed into the Crystallizer system without brine softening upstream of the process. Eliminating the need for pretreatment reduces the initial capital expenditure for the plant and minimizes on-going operational costs for chemicals and manpower.

Operational data is provided within that demonstrates the performance of the crystallization system in terms of salt production, salt purity, and cleaning frequency.

Key words: Bedded Salt Deposits, Brine Chemistry, Brine Disposal, Caverns for Gas Storage, Evaporated (Vacuum Pan) Salt, Evaporites, Gas Storage, Salt Processing, Salt Properties, Storage Cavern, Virginia