Development of an Integrated Database for Selecting a Site for Underground Storage in a Salt Cavern

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Abstract

As gas industry players consider salt storage for price arbitrage and supply assurance, appropriate development options may not be clear. A proper analysis must include an assessment of both the technical and economic attributes of all documented salt domes and caverns within a company's strategic area of interest. Therefore, Subsurface Technology and Reliant Energy joined forces to compile a comprehensive electronic database of salt dome information and then map selective information over significant commercial infrastructure.

Since there are at least 281 onshore salt domes, some locations along the U. S. Gulf Coast contain too many development options to allow for a quick, yet comprehensive assessment of local development options. This list of domes was therefore trimmed down to 168 in order to focus on only those sites that represent technically viable development options. Special attention was given to 49 domes that currently contain a combined total of over 600 leached caverns.

Focus then turned towards the commercial infrastructure that exists within the vicinity of these domes in an effort to understand the economic viability associated with specific cavern development. Several features were obviously instrumental in a dome's development, especially the size and ownership of local pipelines, power plants, electric lines, cities, major industrial plants and competing storage facilities. Eminence Dome, located in Mississippi, is a good example of how a dome's local infrastructure played a key role in Transco's decision to proceed with development.

By considering both technical and commercial attributes, each salt dome was ranked in a manner that provides a relative comparison of individual dome attributes. Now, when a particular area is targeted storage development, a strategically phased evaluation format can quickly be implemented to ensure that the evaluation proceeds in a proactive, efficient and cost-effective manner.