

EFFECTS OF ANOMALOUS FEATURES ON SOLUTION MINING OF STORAGE CAVERNS IN DOMAL SALT.

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INTRODUCTION.

The main objective of this Study was to gather and assess data on the effects of anomalous salt features on caverns located within domes of the Gulf region. Most of the data were gathered by interviewing operators of storage caverns in Gulf Coast salt domes.

The term “anomalous features” (AFs) has been used by Kupfer (1990) to designate unusual features found in the stocks of Gulf Coast salt domes. Based on observations made in rock salt mines, he identified ten major groups of AFs, including such items as: intense structural folding, the presence of “impurities” (e.g., anhydrite, shales, and sandstones), gas releases, connate brine seeps, exceptionally large crystal size, potash, hydrocarbons, etc. He observed that these unusual features tended to cluster in linear trends through salt stocks; and, if they contained three or more AFs, designated such trends as “anomalous zones (AZs)”. Kupfer also noted that “shear zones” in salt stocks were often subsets of AZs.

Many cavern operators were not familiar with the papers on AFs and AZs, but knew from experience that domal salts were not always uniform and could exhibit unusual features during drilling and solutioning. They were also aware that some storage caverns were more costly to maintain than others. Hopefully this study will demonstrate that the geological concepts of AFs and AZs are useful for operators, both in assessing their experience with domal salt caverns and in making future siting decisions.