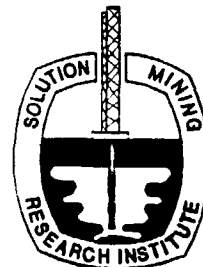


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MEETING
PAPER



NUMERICAL MODELING OF WEEKS ISLAND SUBSIDENCE AND LABORATORY TESTING OF WEEKS ISLAND SALT

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prepared for

SMRI 1995 Spring Meeting

April 30–May 3

New Orleans, Louisiana

April–May 1995

INTRODUCTION AND OBJECTIVES

Early in 1994, DynMcDermott engaged RE/SPEC Inc. to perform numerical modeling of the Strategic Petroleum Reserve crude oil storage facility at Weeks Island in south Louisiana. A sinkhole had been observed above the oil storage facility in early 1992.

The objective of the RE/SPEC study was threefold:

1. Assess the likelihood of subsidence-induced tensile failure of the salt in the Weeks Island salt dome.
2. Assess the likelihood of subsidence-induced fracture propagation in the salt of the Weeks Island salt dome.
3. Determine the locations (if any) in the Weeks Island salt dome where subsidence-induced tensile stresses and/or fracture propagation are most likely.

The objectives of the study were addressed through a combination of two-dimensional axisymmetric finite element and three-dimensional boundary element modeling. When possible, the properties of the Weeks Island salt from the literature were used. An appendix to this paper briefly describes the results of rock properties testing completed after the modeling study. In situ conditions were estimated from information in the literature.

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