

# HOW TO FIND A LOST BRINEWELL

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## ABSTRACT

Aerial photography, infra-red imagery and geophysical data were used to find a lost brinewell. A fix on the well location was required to plan the width of a barrier pillar between an abandoned solution mining operation and International Salt Company's Retsof Mine thus eliminating a potential inflow hazard while maximizing salt extraction. Maps and records describing the location of the plant facilities including the brinewell were found to be imprecise and contradictory; and, all physical evidence of the well had been obliterated.

Prior to starting field investigations, the technical and economical merits of various techniques to determine the location of the brinewell and cavity were evaluated; and, existing records and photographs of the site were examined. A decision was made to initially search for the lost wellhead using electromagnetic survey equipment.

A survey was made of the suspected brinewell location area using equipment which records either terrain conductivity or the presence of metallic objects. A strong conductivity anomaly was found indicating the presence of salt in the soil and shallow groundwater although salt production operations ceased almost 100 years ago. A number of buried metal anomalies were also found within the area of interest. Consequently, another electromagnetic survey was made us-

ing equipment with a variable depth of investigation. This survey located a single anomaly indicative of a buried wellhead.

In summary, electromagnetic surveys of the type employed in this investigation furnish a practical and inexpensive method for locating anomalies associated with brinewells. As a result of the investigation, the barrier pillar width can now be reduced. An investigation of the cavity size following well re-entry is now underway with the expectation that a further modification in the Retsof barrier pillar configuration can be made if the cavity outline can be defined.