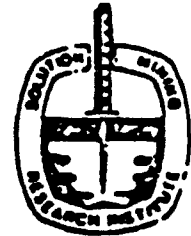


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MEETING
PAPER



Utilization of Modified Temperature Logging Methods for External Mechanical Integrity Testing on Class III Salt Solution Mining Wells

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Abstract

Temperature logs have been used in a number of different manners to provide a wide variety of information concerning the physical characteristics of wells and their operation. For instance, temperature logs have been used extensively for flow profiling of wells having perforated and open hole completions and used for both production (extraction) and injection. In addition, temperature logs have also been used quite extensively to identify lithology, behind casing water flow (BCWF) for both injection and non-injection related operations, cement locations, and other formation evaluation used for virtually all well types.

The most common utilization of temperature logging, required by regulatory agencies implementing an underground injection control (UIC) program, is for demonstration of external mechanical integrity (EMI). The predominant use of temperature logs appear to have been conducted on Class I or II injection wells. Class III solution mining wells are both constructed and operated in a significantly different manner than other types of injection or production wells. With the presence of a solution cavern, packerless tubing completions at some wells, and utilization of wells as both injectors and producers, the peculiarities of Class III wells become a significant factor when conducting and evaluating temperature logs for EMI demonstrations. These peculiarities render some common uses of the temperature log relatively useless, however; do not preclude the use of temperature logs for demonstrating EMI of Class III solution mining wells.

This paper will present information on a modified methodology used for temperature logging of wells and will focus on the necessary modification for EMI testing of Class III solution mining wells. The presentation will also present example temperature logs from recent EMI demonstrations where modified logging procedures and analytical methods were utilized and accepted by a regulatory agency responsible for implementation of a UIC program.