

CLASS II BRINE INJECTION WELLS: HISTORY, OVERVIEW, AND REQUIREMENTS

**James D. Bundy, P.E.
Subsurface Technology, Inc., Houston, Texas**

Abstract

There are approximately 170,000 deep wells in the United States that are utilized for the injection of various forms of salt brine. The injection of brackish, saline, waste water associated with the production of oil and gas dates back prior to the 1930s when oil and gas operators recognized the need for disposal options, other than impoundment or release. Operators began converting certain of their production wells to injection wells as the volume of produced water increased. Today, there are over 2 billion gallons of brine water injected daily in the United States.

The practice was largely unregulated until the states began recognizing potential threat to sources of potable water in the 1940s. Statutory regulations began to appear in the 1960s in several states. In the early 1970s, the Environmental Protection Agency (EPA) attempted to regulate injection wells under the Clean Water Act, but the authority was not upheld in court in 1973. Congress granted that authority to the EPA by passing the Safe Drinking Water Act of 1974, and the EPA assumed control of all underground injection. In 1980, the EPA published their final technical regulations for Underground Injection Control (UIC). The Safe Drinking Water Act was amended in 1980 to allow delegation of regulatory authority, for oil- and gas-related injection wells, to states that could demonstrate that they have an “effective program to prevent underground injection which endangers drinking water sources”. Forty-one (41) states now have primacy over the injection of oilfield brine.

Operational practices and construction standards have been developed to insure the protection of “Underground Sources of Drinking Water” from contamination of injected brine. Demonstrations of the internal and external mechanical integrity of injection wells must be made periodically utilizing accepted techniques according to the guidelines of the regulatory authority.

This paper summarizes the history of brine injection wells, the development of regulations and classifications, application requirements and demonstrations, construction standards, records and reporting, and mechanical integrity demonstrations.

Key words: Brine Disposal, Disposal Wells, Environmental Protection and Regulatory Affairs.