



Deep Injection Well

Fact Sheet

Deep well injection for liquid waste has been safely used for many years at sites throughout the United States without documented damage to human health or the environment. After an extensive study of deep injection wells across the country, the U.S. Environmental Protection Agency (EPA) concluded that this procedure is effective and protective of the environment.

The Rocky Mountain Arsenal deep injection well was constructed in 1961, and was drilled to a depth of 12,045 feet. The well was cased and sealed to a depth of 11,975 feet, with the remaining 70 feet left as an open hole for the injection of Basin F liquids. For testing purposes, the well was injected with approximately 568,000 gallons of city water prior to injecting any waste. However, when the Basin F liquids were actually introduced, the process required more time than anticipated to complete because of the impermeability of the rock. The end result was approximately 165 million gallons of Basin F liquid waste being injected into the well during the period from 1962 through 1966.

The waste fluid chemistry is not known precisely. However, the Army estimates that the waste was a more dilute version of the Basin F liquid that was incinerated. Basin F liquid consisted of very salty water that included some metals, chlorides, wastewater and organics. From 1962 -- 1963, the fluids were pumped from Basin F into the well. From 1964 -- 1966, waste was removed from an isolated section of Basin F and was combined with waste from a pre-treatment plant, located near Basin F, and then pumped into the well. The waste from the pre-treatment plant was generally a solution containing 13,000 parts per million sodium chloride (salt), with a pH ranging from 3.5 to 11.5. The organic content of the solution was high but is largely unknown.

The injected fluids had very little potential for reaching the surface or useable groundwater supply since the injection point had 11,900 feet of rock above it and was sealed at the opening. The Army discontinued use of the well in Feb. 1966 because of the possibility that the fluid injection was triggering earthquakes in the area. The well remained unused for nearly 20 years.

In 1985 the Army permanently sealed the disposal well in stages. First, the well casing was tested to evaluate its integrity. Any detected voids behind the casing were cemented to prevent possible contamination of other formations. Next, the injection zone at the bottom 70 feet of the well was closed by plugging with cement. Additional cement barriers were placed inside the casing across zones that could access water-bearing formations (aquifers). The final step was adding bentonite, a heavy clay mud that later solidified, to close the rest of the hole up to the ground surface.