

NATURAL ATTENUATION OF TNT AND DNT IN GROUNDWATER AT THE FORMER WELDON SPRING ORDNANCE WORKS

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The Former Weldon Spring Ordnance Works, Weldon Spring, Missouri, is a former trinitrotoluene (TNT) and dinitrotoluene (DNT) production facility that operated during World War II. The removal of major soil sources was completed in 1999. Three years of quarterly monitoring of the nitroaromatic concentrations in the groundwater is now being performed to determine the effect of the source removals and the fate and transport of the explosives in the ground and spring water. An expansion of the standard explosive analytical suite has shown significant amounts of both the amino-dinitrotoluene and the diamino-nitrotoluene transformation products of TNT and the amino-nitrotoluene transformation products of DNT. In addition, geochemical data has indicated aquifer conditions that are potentially conducive to continued degradation of TNT, DNT, and the TNT and DNT transformation products. The presentation will present the nitroaromatic and geochemical data, discuss the photosynthetic and aquifer transformation reactions that are occurring at the Site, and outline the conceptual formulation of a monitored natural attenuation remedial alternative.

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