

Kansas State University, Manhattan, KS Groundwater Treatment System

Kansas State University, like many research universities, has class chemical and radiological laboratories. In the early 1960's, management of the spent materials from these laboratories and research relied on burial in remote unused locations on university property, often resulting in soil and groundwater contamination. Groundwater was then found to contain high levels of 1,4-Dioxane and other chlorinated and non-chlorinated volatile organics.



Allied provided turnkey services to the University for the design/specification, fabrication, and installation of a groundwater interceptor trench and treatment system. The plume is controlled by a 150-ft long and 20-ft deep trench. Intercepted groundwater flows to a manhole and pumped to a Trojan UV/peroxide oxidation system. The system can process up to 15 gallons per minute, but generally operates between 5 and 10 gpm to match groundwater flow. The influent values for 1,4-Dioxane have been as high as 10,800 parts-per-billion, and the system has a plus-99 percent removal efficiency (see chart at left). As of April 2011, AEC has optimized the system to achieve non-detect values for 1,4-Dioxane, well below the Kansas regulatory limit of 77.2 ppb. The system is also removing other contaminants, such as TCE, PCE, Benzene, Chlorobenzene, 1,2-DCE, Vinyl chloride, and TPH (GRO & DRO), mostly to non-detect levels (see reverse side). The treated effluent is discharged to a municipal sewer system by memorandum of understanding.

