



# 1,4-Dioxane & TCE Groundwater Remediation with Controlled Bromate Formation

**CUSTOMER:** U.S. Army

**LOCATION:** Arden Hills, Minnesota

## CHALLENGE

Due to groundwater contamination and two resulting chemical plumes from a large, former Twin Cities Army Ammunition Plant (TCAAP) in Arden Hills, Minnesota, the EPA designated the New Brighton/Arden Hills Superfund Site for the clean-up of elevated trichloroethylene (TCE) and later, 1,4-Dioxane in the Site's soil and groundwater. The contaminated groundwater plumes from the Site flow under several Minnesota cities and were shown to directly impact the drinking water of New Brighton and St. Anthony.

## SOLUTION

APT Water was once again contracted by U.S. Army environmental consultant, Arcadis, to design, engineer, fabricate, deliver, and commission a HiPOx® Advanced Oxidation System to treat the elevated 1,4-Dioxane and other volatile organic compounds (VOCs) like TCE in the Site's groundwater. In early bench tests, APT achieved all contaminant reduction goals with the necessary controlled bromate formation to meet effluent regulations so a completed, skid-mounted, pre-assembled HiPOx system was commissioned shortly after. This system included a design flow of 600 GPM (with a range between 400 GPM and 750 GPM) and targeted an 1,4-Dioxane reduction from 100 µg/L to less than 1 µg/L and TCE reduction from 2500 µg/L to less than 30 µg/L. The installed system also integrated with the U.S. Army's SCADA system with the ability to view all parameters, change set points, acknowledge alarms, restart HiPOx as needed, and more.

## WHY HiPOx?

HiPOx achieved and beat all treatment goals with the required bromate control. For example, sample results of the commissioned system included 1,4-Dioxane reduction from 58.8 µg/L to less than 0.28 µg/L and TCE from 1620 µg/L to less than 5 µg/L.

## IMPACT

HiPOx provided the groundwater treatment solution the EPA Superfund Site required to protect local drinking water quality. However, groundwater clean-up will continue for many years to come with HiPOx playing a critical role.

*"APT's HiPOx AOP system not only met 1,4-Dioxane and TCE reduction goals for the Arden Hills Superfund site. It beat them."*

