



Over 95% Reduction of 1,4-Dioxane & Benzene Within 18 Months of Full-scale Operations

CUSTOMER: Chemical Manufacturer
LOCATION: Texas

CHALLENGE

An active chemical manufacturing facility in Texas produces Polyurethane insulation from recycled plastic bottles. Over the years, a toxic cocktail of Benzene, 1,4-Dioxane, and various volatile organic compounds (VOCs) leached into soils at the property. There were multiple “hot spots” at the site, with groundwater concentrations for 1,4-Dioxane, Benzene, and VOCs reaching 75 mg/L, 6.6 mg/L and 55 mg/L, respectively. The contaminated areas were in yellow clay, blue clay with intermixed shells, and gravel fill materials. The owner was contemplating a sale of the property which would necessitate a rapid cleanup, and operations were to continue with a minimum of disruption during cleanup.

SOLUTION

A pilot test was conducted on a highly contaminated area with an APT PulseOx™ P500 (capable of producing up to 5 lbs/day of ozone). After only eight weeks of treatment, 1,4-Dioxane was reduced by 95% and Dissolved Oxygen (DO) was dramatically increased as was oxidation-reduction potential (ORP). This success moved the project forward to full scale in which an APT PulseOx P-1000 (capable of 15 lbs/day of ozone and 13 gallons/day of hydrogen peroxide) and a PulseOx P-1500 (capable of 24 lbs/day ozone and 45 gallons of hydrogen peroxide) were mobilized to the site. The P-1000 treated the smaller western plume with a total of 6 injection points and the P1500 treated the main plume with 9 injection points. Both trailer mounted systems were fitted with remote telemetry as well as audible alarms.

WHY PulseOX?

After 18 months of operation, the heavily contaminated chemical manufacturing site achieved compliance with state regulatory limits and project-specific objectives. Both 1,4-Dioxane and Benzene concentrations were reduced by more than 95%. Only minor interruptions to plant operations were required to provide power to the PulseOx trailers, install the injection wells, and oxidant lines.

IMPACT

Thanks to the rapid cleanup provided by APT’s PulseOx process the owner was able to maintain operations and execute the sale of the property.



“PulseOx provided the fast, effective remediation we required with minimal impact on operations.”

Plant Manager
Chemical Manufacturer