Diesel Fuel Two-Phase Vacuum Extraction Groundwater Remediation with HC-2000 Treatment
Location: Atlanta, Georgia
Client: Major Bus Company
Contract Amount: $750,000+


Remtech Two-Phase Vacuum Extraction System

PROBLEM

Remtech was engaged by a major bus terminal to remediate an estimated 7,000 gallon diesel fuel release from a ten thousand gallon underground storage tank. The 0.33-acre plume of fuel was located with 33 monitoring wells under a bus wash/service building and parking lot. Remtech secured reimbursement from the State's Leaking Underground Trust Fund for this project.

SOLUTION

Seventeen (17) recovery wells were installed following the UST removal. A Remtech two-phase vacuum extraction system was installed that consisted of a rotary claw blower, knockout tank, dissolved air floatation (DAF) incorporated into and existing oil/water separator (OWS), multimedia pre-filters and activated carbon post-filters. This project was complicated by tight clay soils (conductivity of 6.3 x 10^{-6}cm/sec) and iron bacteria floc that created a biofilm that clogged filtration systems requiring numerous backwash cycles.


Remtech's Total Fluids Treatment Trailer

DAF and calcium chloride flocculation was added to the OWS to assist with the separation of fuel from the iron bacteria floc (one of the worst groundwater iron bacteria problems observed in State of Georgia) and minimize filter backwashing. Three 600-gallon sludge thickener tanks further separated fuel from the biomass. For every gallon of fuel recovered, 1/3 gal of entrained iron bacteria sludge had to be removed. Iron bacteria buildup in the wells required well rehabilitation with surge blocks, jetting, hydrochloric acid, calcium hypochlorite, hydrogen peroxide, citric acid, glycolic acid, and HC-2000 injection.


Iron Bacteria Separated from Fuel by DAF and $CaCl_2$ Flocculation

An eimated 2,300 gallons of fuel were recovered over a four period. Following removal of the bulk mobile phase, seven injections of Remtech's proprietary HC-2000 were made over a 1 year period to provide desorption and degradation of residual mobile fuels. This site is expected to be completed on a risk based closure

COST/BENEFITS

Project costs were completed for approximately $159/cy even with the unusual elevated iron bacteria biomass which accounted for over 30% of project costs. Reimbursement for solids handling costs were secured from the State for the client.


HC-2000 Injection into Extraction Wells

PROCESS SCHEMATIC (ADDED TREATMENT SHOWN IN RED)