

CASE STUDY # 040

BIOTREATMENT OF SOLVENT-CONTAMINATED GROUNDWATER AT PHENOLIC RESIN PLANT

SUBJECT:

In-situ Bioremediation of Phenol Contaminated Groundwater.

PRODUCT APPLIED: **Submerged, fixed-film bioreactor**
 Phenol-degrading bacteria and nutrients

PROCEDURES & OBJECTIVES:

The project work included careful analysis of contaminated groundwater characterization data, bench-scale testing and full-scale system supply and operation. Accidental spillage of stored solvents and other chemicals over a number of years had resulted in a contaminated pit which had been back-filled over the years. The objective of the remediation was to extract and treat the contaminated water.

PROGRAM:

A wellhead system was designed and installed for extracting groundwater for treatment at the surface. A biological system (two-Stage, submerged, fixed-film aerobic biotreatment system) was designed and supplied for treatment and disposal of the groundwater under NPDES permit to a receiving stream.

Non-indigenous, naturally-occurring, specialized, preselected microbes and nutrients were used to start up and maintain the performance of this system.

RESULTS:

Borings indicated toluene, xylenes, phenol, methyl ethyl ketone and other monomers and solvents at concentrations in the 100 to 200 ppm range in the groundwater.

CONCLUSIONS:

The two-year extraction/biotreatment program resulted in the delisting of the site at significant savings over conventional off-site soil and groundwater disposal methods.