

CHEMICAL CASE STUDY - MAJOR CHEMICAL COMPANY, UK

# Remediation of chlorinated hydrocarbons contamination



A major chemical company wished to remediate and divest a historical manufacturing facility in a sensitive location.

Their objective was to sell the site for future commercial development.

Project challenges included:

- A 50 year history of chemical manufacture utilising chlorinated hydrocarbons leading to ground contaminated by high levels of carbon tetrachloride and chloroform
- Underlying ground impacted by high levels of carbon tetrachloride and chloroform
- Difficult ground conditions with a complex mixture of sands and clays, underground concrete and drainage infrastructure and a high groundwater table
- Potential for major odour issues during excavation works.
- Neighbouring residential areas and public park that could be impacted by dust, vapours and noise
- Requirement to complete the remedial works within a 6 month period

ABB was engaged to manage the project; the scope of work included taking the role of CDM coordinator, management of environmental consultants and remediation contractors and provision of a full-time site presence during the site works.

## Solution

ABB have expert knowledge of the behaviour of chlorinated hydrocarbons in the environment and also of the latest remediation techniques, current legislative requirements and working on redundant manufacturing sites.

The following works were carried out to remediate the site:

- Detailed historical desk study and development of a conceptual site model to describe the environmental setting and potential contamination (including contaminant behaviour and degradation pathways)
- Comprehensive environmental site investigations, together with groundwater, watercourse and drainage monitoring to characterise ground conditions and quantify contaminant concentrations
- Detailed human health and controlled water risk assessments and development of risk-based, site specific clean up criteria
- Remedial options appraisal to provide proposals for remedial works based on site conditions and clean up requirements

- In situ soil vapour extraction (SVE) pilot trial.
- Ex situ SVE remediation within a covered and lined treatment bed with off-gas (vapour) and water treatment
- Extensive vapour monitoring of working and boundary areas
- Validation testing and reporting

The project was completed on time (within the stipulated 6 months), to budget and to the required cleanup standard.

The ABB role of client representative included the proactive management of the remedial works and regular liaison and communication with regulators and local community groups. As a result, the project was completed to programme and within budget, without reportable incident or injury and to the satisfaction of the client, regulatory authorities and local community.

The project was accepted as a CL:AIRE (Contaminated Land: Applications in Real Environments) Technical Demonstration Project (TDP) and was published as Report TDP 16: 'Ex-Situ Soil Vapour Extraction to Remediate Chlorinated Hydrocarbons'.

#### Benefits

- The client was able to complete divestment, the site was subsequently sold for future redevelopment and a potential liability was converted to a valuable legacy
- Efficient and effective completion of the remedial works without complaint from the local community ensured that the client's reputation was enhanced

Vapour monitoring analysis results.

