

REMED  rethink remediation



REMED 

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Rethink remediation

RemedX is a design-led soil and groundwater remediation specialist. We can design, fabricate, install, operate and maintain in situ and ex situ remediation systems in-house using our own highly experienced personnel and much of our own equipment.



RemedX has been leading the field in remediation for over 15 years and has built up a large portfolio of diverse projects. We have an enviable reputation of providing innovative, cost-effective solutions for our clients. These clients include the petroleum majors, pharmaceutical manufacturers, the London Development Agency, the Office for the First Minister in Northern Ireland, local authorities across the UK, a range of manufacturers and many major house builders.

RemedX is unique in that it can offer a complete solution to its clients' contamination issues. We can guide our clients from the procurement of land through to regulatory sign-off or be involved at any interim stage. Through our years of experience, we have built up strong relationships with regulatory bodies and are regarded as having a highly competent organisation.

Soil and groundwater treatment

Innovation is at the core of the remediation services RemedX offers. We lead in the field of in situ and ex situ remediation, and offer both contracting and consulting services.

Remediation contracting services

- Remediation design as part of a turnkey contract, including pilot testing and feasibility studies
- Spill and emergency response
- Enabling works for site development
- Full regulatory and stakeholder liaison
- Remediation system installation and commissioning
- Remediation system operation and maintenance
- Validation sampling and analysis

Remediation consulting services

- Review of existing site investigation/site condition data
- Remedial options appraisals in line with CLR11
- Remediation design
- Full regulatory and stakeholder liaison, including pilot testing and feasibility studies
- Expert witness



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Permits, licensing and commitment to the environment, health and safety

RemedX holds an Environment-Agency-issued environmental permit that allows it to remediate soil and groundwater with no limit on volume.

RemedX operates an integrated safety, health, environment and quality management system certified to ISO 9001, ISO 14001 and OHSAS 18001.

We have personnel who hold the Waste Management Industry Training and Advisory Board (WAMITAB) Certificate of Technical Competence (COTC).

RemedX is a licensed waste carrier and an approved contractor for the UK Spill Association.

Technologies that we are licensed to use and have successfully implemented include

- soil vapour extraction (SVE)
- multiphase extraction (MPE)
- dual-phase extraction (DPE)
- air and biosparging
- thermal-enhanced remediation
- landfill mining
- windrowing and bioremediation
- in situ chemical oxidation (ISCO)
- soil washing and soil stabilisation.

Project experience

RemedX has successfully carried out many remediation projects across the UK, Ireland and continental Europe over the past 15 years, sometimes in very complex situations. A selection of the different challenges that we have overcome for our clients is given below. More details can be found on our website: www.remedx.co.uk.

Former dockyards redevelopment for housing, Newport, UK, 2008

In 2008, we completed a DPE project in Newport, South Wales. The unexpected presence of creosote required that remediation be carried out to mitigate the risk to controlled waters and human health. The site was bordered by several sensitive receptors, including a primary school, a site of special scientific interest and a special area of conservation. Owing to strict time constraints, RemedX designed, installed and operated a steam-enhanced DPE system. We also handled all the regulatory liaison for our client. The duration of the project, including installation, operation and regulatory liaison, was just two months. At the end of this period, the regulators signed off the site.



Former ceramic manufacturing facility, Rugby 2004–2006

RemedX was appointed to carry out remediation of soil and groundwater contaminated with chlorinated hydrocarbons, namely trichloroethylene. RemedX was responsible for undertaking further delineation works, deriving site-specific remedial targets, carrying out the remediation and achieving regulatory sign-off.

To progress work as quickly as possible with minimal disturbance to other construction-related activities on-site, RemedX employed both in situ MPE and ex situ bioremediation with the addition of chemical oxidation. These techniques operated concurrently.

RemedX carried out all the delineation works and designed, installed and operated the remedial system. No soil was disposed of to landfill and all the treated soil was reused on-site. Treatment took seven months and was completed ahead of schedule.

Ex situ bioremediation for the treatment of Grassmoor tar lagoons

The former Grassmoor coking plant and colliery were reclaimed in the 1970s and now form part of the Grassmoor Country Park.

RemedX was awarded a contract to remediate the Grassmoor tar lagoons. The planning application for the remedial works was in 2009. The conditions were met and remedial works began in 2012 following an extensive site investigation and monitoring programme.

The purpose of the remediation was to render the site suitable for reuse by the community by integrating it into the adjacent country park.

Following a comprehensive remediation options appraisal supported by laboratory and field feasibility tests, bioremediation was chosen as the most sustainable and suitable method.

The materials were formed into windrows, combined with on-site shale and turned periodically for bioremediation to occur. A SCARAB windrow turner was used to undertake the turning process.

After a period of treatment, sampling of the windrows was undertaken. Once the results indicated that the contaminants of concern were below the site-specific target levels, the material was then reused on-site.



Petroleum sites in the UK, Ireland, France, Turkey and Romania, 2004–present

RemedX has a strong track record of working for all the petroleum majors. We typically design, install and operate in situ remediation systems at operational forecourts, oil depots and terminals. As most treatment occurs below ground and all remedial pipework is laid in trenches, normal operations on the site are unaffected. Some of the systems that we are operating currently include SVE, MPE, DPE, steam-enhanced extraction, chemical oxidation and air sparging. Clean-up times range from three months to two years.

Emergency response for paraxylene spill, UK, 2011

In February 2011, RemedX was asked by a utility client to respond to a paraxylene tanker spill that had been contained in a section of sewer beneath a busy UK city street. The paraxylene entered the sewer system through road gullies where it created an explosive atmosphere within the sewer network and released hazardous liquid to the nearby watercourse via a storm overflow.

RemedX provided an initial assessment using vapour monitoring equipment to understand the risks and facilitate decision making for residential evacuations, which were ultimately not required. RemedX then participated in multi-agency crisis management meetings where some of its senior personnel developed an action plan and a bespoke technical approach. This was approved by the agencies and implemented within days of the initial assessment.

The problem

The paraxylene initially spilled in a liquid state because of the temperature within the tanker. However, it solidified at the ambient temperature below ground in the sewer (<13°C), which made it immobile and impossible to remove fully with conventional extraction methods. In addition, neither manned entry nor standard equipment could be utilised because the paraxylene vapour concentration exceeded the safe threshold values.

The solution

RemedX carried out the remedial works in a phased approach to mitigate the risk of explosion and extract the spilled paraxylene. The first phase involved installing a vapour extraction system with activated carbon filtration to reduce the vapour concentration in the sewer to less critical levels and minimise the risk of explosion.

Throughout the operation, a boom was installed at the outfall to the nearby river where daily removal of free-phase paraxylene was undertaken from an aluminium boat. The second phase included installing a pumping system to remove and treat backed-up sewer water contaminated with paraxylene. This enabled further enhanced vapour extraction and a CCTV investigation. Hot-water flushing gradually mobilised the solid-state paraxylene into liquid and vapour phases for extraction using the treatment system.

Once the liquid and vapour phase recovery levels had diminished, the sewer was jetted clean to remove residual silt. The sewer was verified as clean following analysis of silt and water samples before being reopened to the network.

The entire operation was supervised and controlled on a 24/7 basis by RemedX personnel over a six-week period. A total of 6739 kg of paraxylene was recovered in the vapour, liquid and solid phases.

Ex-military installations, UK, 2005–2008

RemedX mobilised and operated a soil washing treatment plant at a former military firing range in Northern Ireland. This was an innovative technique used to separate lead shot from topsoil. In total, 6000 m³ of material was treated and over 90% of the lead shot present was removed.

RemedX was also commissioned to remediate hydrocarbon-contaminated soil at a former army barracks in Hereford, England. Soil was formed into windrows and treated using the principles of ex situ bioremediation.

In situ pilot testing, numerous sites across the UK, Ireland and Europe

RemedX has a custom-built in situ pilot-testing trailer that can be deployed to run SVE, MPE, DPE, air sparging and skimming. The trailer is road-towable and self-contained. It is fitted with all the necessary safety-critical devices, including level switches, a lower explosive limit detector and emergency stops. Pilot testing can produce data essential to understanding site conditions and contaminant behaviour, and can significantly reduce the cost of full-scale remediation.

Awards

RemedX was awarded a Brownfield Briefing award in 2010 for the best use of a single remediation technique on a site in Widnes where steam injection was used to recover approximately 130,000 L of foundry oil.



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The meeting was a success and the approach we recommended has been endorsed by the peer review team. The feedback I have received from the USA is that they were very impressed by the quality of the information and the preparedness of the project team. They commented that this was a very successful review of a project outside the USA via a teleconference and web meeting. ”

Major oil client

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The input in providing an innovative solution, including securing the necessary support and approval from all the relevant agencies, contributed significantly to enabling this project to be delivered on time. We achieved 14 legal completions before year end and, additionally, have a very strong sales proceeding position that bodes well for selling out this quality development. ”

*Arwyn Evans, regional production director
Taylor Wimpey South Wales*