

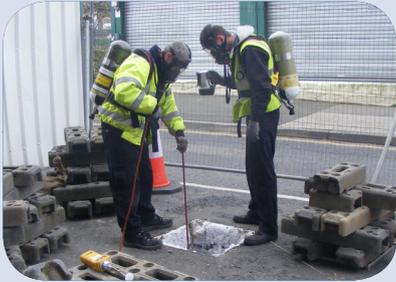
CASE STUDY

REMEDIATION

rethink remediation



'Frosty' xylene coated manhole



Vapour measurements



RemedX mobile unit

Emergency response for a utilities supplier in north-western England

In February 2011, RemedX was asked by a utilities supplier in north-western England to respond to a paraxylene tanker spill that had been contained in a section of sewer beneath a busy 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 RemedX 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.



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