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Developing a low carbon alternative

Geo² and **Arvia** have led pilot trials to test a low carbon remediation alternative that could prove beneficial for the industry.

During eight years as specialist contaminated soil and groundwater remediation contractors, **Geo²** have obtained a great amount of experience in both traditional and market leading techniques for addressing brownfield problems. To succeed, it is important to be constantly striving to undertake projects more efficiently with both the capability of the techniques and the cost associated with them. In addition, the carbon footprint of a project has recently become increasingly important to our clients.

As such, Geo² have an ongoing programme to develop new ways to undertake soil and groundwater treatment that ensures we stay ahead of the market and keep our client's outgoings to a minimum. One area highlighted was the use of granular activated carbon (GAC). The process is ubiquitous for the final stage of removing organic contaminants prior to discharge to sewer, but comes with a high cost. The provision of clean carbon has been increasingly expensive in recent years, and disposal of spent carbon also has high associated cost. In addition, the process, including transportation, has a large carbon footprint.

Geo² entered into a partnership with **Arvia Technology** to trial their recently developed groundbreaking water treatment process, which had not yet been field tested in the brownfield industry for treatment of petroleum hydrocarbons.

The Arvia process is an adsorption based method for removing dissolved phase organic contaminants, using a patented material called Nyex. Nyex is electronically regenerated on site as part of the treatment process, so never needs to be replenished. The process all occurs within a single easily transportable unit, and is proven to achieve complete destruction of organic pollutants.

The result is a system that requires minimum maintenance and produces zero solid waste for disposal. The trial was undertaken on a contaminated petrol filling station site and was found to be highly successful: all hydrocarbon contamination was removed from the groundwater and the running costs were impressively low; approximately three pence per cubic metre of water treated. We believe that the clean, low carbon, low cost alternative to GAC has the potential to revolutionise the wastewater and effluent treatment markets, by providing sustainable and reliable treatment for organic contaminants.

Geo² and Arvia were recently awarded the '*Most Innovative Remediation Method*' at the **Brownfield Briefing Innovation Awards** for the trial.

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