

Project title: EYELET: Energy Efficient Leachate Treatment

Main applicant: LAT Water Ltd

Technology developer: LAT Water Ltd

Industry partners: Viridor Waste Management Ltd

Demonstration capital cost: £ 946,553

Funding awarded: £547,900

Project timeline: November 2018 – August 2020

Project description: The project aims to demonstrate LAT (Low Ambient Temperature Pressure Technology) treating a wastewater stream of leachate from a landfill with complex pollutants in an operational environment. The technology is an energy efficient multi-effect humidification and dehumidification process utilising two packed towers designed to treat a range of different effluent and wastewater types such as landfill leachates or chemical effluent using lower temperatures, and in the case of this demonstration, a waste heat stream that was otherwise being discharged into the environment. Traditional methods utilise evaporation technologies with a high temperature heat source.

LAT Water is partnering with Viridor Waste Management to demonstrate this technology at the Broadpath site, an operational landfill site with a high ammonia load leachate run off. In this application, the LAT process utilises heat recovered from the hot flue gases of on-site biogas generators to drive the treatment process. The project provides additional benefits by reducing the need for transportation of leachate for onward treatment.

This project seeks to finalise the design for a prototype, installation at the landfill site and then its operation through a number of demonstration runs over an extended period. The team will also be liaising with the Environment Agency to work towards the technology being accepted as best available techniques (BAT).

Size of target market: An immediate market is landfill site leachate treatment, of which there are an estimated 500 sites currently in operation in the UK. The technology also has the potential for adoption in wastewater treatment in other sectors, i.e. the paper sector.

Barrier to market: The technology is unproven in an operational commercial application and unlikely to be adopted in a regulated environment until it is demonstrated. High ammonia load leachate is viewed as a difficult waste to treat and LAT Water envisage that successful demonstration treating a difficult waste stream will prove the technology to a wide range of industry sectors to which LAT could also be applied. The utilisation of a waste heat stream in this case will further help potential replication.

Initial TRL: TRL 6/7

Targeted final TRL: TRL 8

Estimated energy and carbon savings: The project expects to demonstrate more than 25 per cent in thermal energy savings compared to existing technologies. Coupled with waste heat utilisation and transportation savings there potentially could be a 70 per cent reduction in energy consumption in addition to the positive environmental impact of reducing truck movements for off site treatment and disposal.

Why IEEA funding was important to this project:

"The IEEA programme has been the key building block for LAT Water in several ways. First, moving our technology from prototype to commercialisation – the programme has helped mitigate the risks for Viridor, our industrial partner, enabling them to feel confident in installing the unit to demonstrate the cost and energy savings. Without the IEEA funding we would not have been able to move the project forward using our own resources. The second impact has been a dramatic increase in action from external funding partners – the credibility of the combination of the IEEA and Viridor project has been a real attention grabber!" - Mark Hardiman, Director, LAT Water

Photos:



