

# SA global breakthrough in new waste and water treatment combination technology

GrahamTek launches a breakthrough technology that is a global game changer in Water Treatment. The fully integrated green technology not only reduces landfill air space but also is able to treat almost any water to potable standard – completely off the national electricity grid. In short this means that a seawater desalination or wastewater treatment plant is able to function using its own electricity, generated from the brine reject water that is combined with municipal waste, using the GrahamTek integrated waste and water technology solution. This technology offers a commercially viable and sustainable solution for the treatment of AMD toxic wastewater.

In the 1990's, Mr William "Koerie" Graham, the founder of GrahamTek, pioneered the 16" Reverse Osmosis technology globally. This technology was said to be impossible to achieve, its success and breakthrough means that this technology is in use in some of the biggest desalination and wastewater treatment plants in the world today. Mr Graham has achieved global recognition for his inventions and technologies and from his achievements as the principal consultant and adviser on more than 130 installations in more than 16 countries. During the past five years Mr Graham has perfected these technologies to not only convert hydrocarbon waste to energy but to combine this with his passion and expertise in water treatment. The result is a breakthrough in waste and water treatment.

Today, his company GrahamTek Holdings Ltd, of which he is the Executive Chairman, continues with the innovation tradition, but with a strong commercial focus. The company is poised to become a global giant in the waste and water treatment space. Its disciplined approach to the commercialisation of science and technology is an attribute that creates trust with multi-national industry leaders, with whom GrahamTek has partnered to create the most competitive solutions in the industry. Possessing both inventor and innovator knowledge, it has become an undisputed source of engineering knowledge and know-how related to the application and design of 16" RO systems.

## A Global Problem

Globally, water treatment companies are grappling with a number of problems, the top two being: The high cost of energy consumed

during the desalination or water treatment process. Clients and Environmentalists are demanding that water treatment must become more cost effective to reduce the demand on electricity producers and hence reducing the carbon footprint of such facilities.

The management of reject, brine or sludge water resulting from the treatment process is another global problem. As is the case with Acid Mine Water, more and more clients and environmentalists are demanding a Zero Liquid Discharge from the water treatment process.

In addition to the above, most governments are battling the constantly growing hydrocarbon based waste streams and are focusing on solutions for reducing landfill space.

## Problem Solved

GrahamTek's Waste-to-Energy technology has been trialled on: Discard Tyres, Medical Waste, eWaste, Municipal Waste, Discard Oils and Waxes. This Waste-to-Energy technology reclaims the C1-C26 hydrocarbon gases from these waste streams, and converts the gas in a patented process to a fuel oil. The fuel oil, and the carbon residue, has a high commercial value that is sold to various industries.

An applied and patented Advanced Carbon Technology is used to gasify the carbon residue in the reject, brine or sludge water to generate electricity. The quantum of electricity is sufficient to power the Water Treatment plant. To date, the preproduction and commercialisation tests have typically indicated that every 1 Ton of waste per hour generates 5 MWh baseload electricity and 625 Tons of potable water per hour.



William "Koerie" Graham -  
Founder of GrahamTek

## Benefits and Results

The key benefit is that an entire water treatment plant can function completely independent of the national electricity grid. There are however far reaching additional commercial and environmental benefits which are as follows:

The waste stream that would ordinarily have been landfilled, is consumed in the process in an environmentally friendly manner. This reduces the landfill required by the waste stream by an approximate 95%. The process generates fuel oils that are used in industry, while byproducts include carbon char which is used in the Advanced Carbon Technology.

A further benefit from the integrated GrahamTek technology is that the reject, brine or sludge water is further treated to a potable standard with a dry residue consisting of the chemicals and solids contained in the reject, brine or sludge water. The net result is increased yield and Zero Liquid Discharge from the treatment process.

## GrahamTek – your Water and Waste Technology Partner

GrahamTek has an international footprint, operating across Africa, Middle East and Asia. It is expanding this footprint by partnering with selected global engineering and consulting companies, allowing a view into its "black box" technology to commercially benefit such partnerships. The GrahamTek group CEO is Julius Steyn, while the South African operation is headed by Bongani Biyela.

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