

Leading the field

COLLABORATION IS HELPING COUNCILS ACHIEVE BEST PRACTICE LANDFILL OPERATIONS AND REAP ENVIRONMENTAL AND FINANCIAL BENEFITS. LGI'S POWER GENERATION AND FIELD TECHNICIAN SCOTT PRIOR EXPLAINS.

The days when dad would go to the tip and come home with more than he took are a shared childhood memory for Generation X.

As are the mounds of split rubbish bags spilling their contents and the sour stench that clung to the air.

But the oldest and most common form of waste disposal is no longer a set and forget burial pit for waste – they're well engineered and managed, and a modern gold mine for renewable energy.

LGI is capturing biogas formed naturally in landfills to abate carbon emissions, improve local air quality and, in some cases, generate renewable energy.

Scott Prior, LGI Power Generation and Field Technician, says there's a science behind what happens at landfills.

"Managing the methane gas output on a landfill site is somewhere between a black art and science," he says.

It's his skill at mastering the black art that has Scott, widely known as the 'landfill whisperer' in demand to help councils optimise their landfilling practices.

Calling on the vast experience in landfill management of LGI's workforce, he developed a structured landfill operations training program that is offered to councils. So far more than 70 councils across New South Wales, Victoria, Tasmania and Queensland have used the program.

"There's three major issues with managing landfills," Scott says. "Airspace, leachate, and compliance.

"It's amazing how many people get it wrong."



Scott Prior, LGI Power Generation and Field Technician, is widely known as the "landfill whisperer".

A former geologist field assistant, Scott says he fell into waste management when he was offered a winter job as an operator on a tip face. More than 35 years later he's worked in every aspect of the industry and can't imagine doing anything else.

"I've always had a role in landfill. I've worked it right from base level of doing the job on the ground, through to being responsible for budgets," he says.

"I can not only explain to councils what they need to be doing, but I can show them."

Since 2013, Scott's role at LGI covers five landfill sites from Benaraby (Gladstone) to Maryborough, Hervey Bay and Bundaberg. He looks after a combination of gas fields with flares and some with power generators, for burning off and destroying methane to abate carbon.

The two sites with power generation engines enable electricity to be put back into the power grid, creating a dispatchable renewable energy source to displace electricity generation from fossil fuels.

Scott takes his role on each landfill site seriously. He has a plan and manages each site carefully, monitoring remotely and via planned site visits.

He says there are many variables including waste composition, climate, and moisture that impact a landfill site. However, his knowledge of each site, experience and detailed mapping enables him to tune each one effectively.

A typical day will see Scott out on a landfill checking out the gas field against its baseline measures and making minor adjustments. Always looking for ways to maximise output, Scott suggested a management process that



Bundaberg Regional Council's Cedars Road landfill site which has a biogas extraction and flaring system.

reduces the leachate waste and enhances gas production.

He also collaborates with the councils' landfill management team on each site to ensure planned activities are aligned.

LGI has worked with the Bundaberg Regional Council since 2013 by installing and operating biogas extraction and flaring systems on two sites – Cedars Road and University Drive.

Scott has worked with the council to help optimise landfilling practices. He says the council has increased its maximum waste density by 20 per cent just by ensuring there was a proper compaction pattern.

"Bundaberg had leachate problems in the original cell, a lot of it caused by not stripping out and covering material," Scott says.

"You need to have a defined space of operation, compact the working face, cover material up, and put fall across the floor to drain toward surface ponds.

"We initiated things that the council hadn't been doing and within months, anybody observing could see it was more under control. There was no more leachate, and from our perspective, increased gas extraction."

Kerry Dalton, Co-ordinator Landfill Operations with Bundaberg Regional Council, says the council initially engaged LGI to install a flare at Cedars Road to help reduce methane levels.

In 2016, LGI proposed a biogas capture and carbon abatement project for the University Drive landfill site.

As of May 2022, the projects had captured 54 million cubic metres of biogas, resulted in 514,000 tonnes of carbon abatement, and created 251,000 Australian Carbon Credit Units (ACCUs), combined.

"The results have been really good," Kerry says. "There's great extraction from the landfill. For the council, it means we're compliant and we get the added benefit of ACCUs for the project because

it's registered under the emissions reduction fund. Rather than releasing methane into the atmosphere we're converting it to CO2 so there are good environmental benefits.

"It's ticking all the boxes."

Kerry says LGI is experienced working with smaller councils and has been with the Bundaberg council every step of the project, from putting a system in place to helping manage it.

"LGI really takes the responsibility out of our hands," she says. "A lot of councils don't have the staff or technical expertise to manage that process in-house.

"LGI are very good to deal with."

She encourages other regional councils to consider biogas capture from landfill, not only for compliance, but also the environmental and financial benefits. "It's a real feel-good project," she says. ■

For more information, visit: www.lgi.com.au