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Capacity milestone reached at Kate Valley Landfill

The capacity of the current Kate Valley Landfill to receive waste has reached the half-way point 19 years after it opened in 2005.

Announcing the milestone Transwaste Canterbury Ltd (Transwaste) Chairman Mr Gill Cox commented that the capacity of the landfill to receive rubbish wasn't dependent upon the size of any 'hole in the ground' but rather of the airspace above the ground.

'We measure capacity in airspace', says Mr Cox. 'That's because the landfill is located within a steep valley basin, surrounded by low hills. It's the capacity of the airspace between those hills that determines how much waste can be stored in Kate Valley. The landfill is slowly filling in the basin, and as it's covered over and grassed it will appear to be a succession of gently rolling hills.'

When the landfill opened the total airspace capacity was calculated and modelled so Transwaste could monitor waste levels to know when they'd need to develop additional landfill space within Kate Valley. Right from the start Transwaste was aware the Kate Valley site presented opportunities for further landfill development, says Mr Cox.

'The landfill was always envisaged as a multi-generational facility for as long as the community had a need for waste disposal', says Mr Cox. 'Though consenting restrictions means each stage must be separately consented, Transwaste has always taken this opportunity into account in its planning.'

Prior to Kate Valley opening there were over 50 dumps across Canterbury. Changes to environmental laws meant councils couldn't continue operating these dumps. The cost of investigating, setting up and monitoring multiple high quality, well-engineered landfills was going to be an expensive imposition on individual district councils with small populations.

In 1996 Canterbury councils formed a joint committee to plan for managing the region's waste. The councils recognised that by working together and in partnership with private sector expertise they could develop a modern well-engineered fully-lined landfill to the highest international standards to provide environmentally responsible waste management for the long term.

Transwaste Canterbury Ltd is the name of the joint venture that owns and operates the landfill. The public sector partners in the joint venture are Christchurch City Council and the District Councils of Ashburton, Hurunui, Selwyn and Waimakariri. The private sector partner is WM New Zealand, the largest private waste company in New Zealand.

Mr Cox says Transwaste undertook a wide-ranging search for a suitable location for a regional landfill doing in depth studies of a number of potential sites.

'Kate Valley in the Waipara area of Hurunui District was chosen because of the ideal underlying geology', says Mr Cox. 'Beneath the valley is a low permeable material called Tokama Siltstone. Low permeability simply means water can't soak through the ground, which provides extra protection in the unlikely event the landfill liner is damaged.'

The land was purchased and the process began to secure the necessary resource consents to operate a modern class 1 landfill.

Transwaste consulted with local iwi Te Rūnanga o Ngāi Tahu, and Te Rūnanga o Ngāi Tūāhuriri (Ngāi Tūāhuriri). A formal Charter was established with the iwi in 2000 during the consenting process, and updated in 2004 after consents were issued. The Charter sets out the basis for a mutually respectful and beneficial relationship for Transwaste and Ngāi Tūāhuriri, based on the core values of each party.

By March 2004 the resource consents had been granted and initial construction of the landfill commenced. Over the next 14 months roads were upgraded or constructed and over 1.5 million cubic metres of soil and rock shifted to create the new Kate Valley Landfill that received the first waste in June 2005 on time and on budget.

Mayor Marie Black, Hurunui District Council, says Councils agreed to the decade long process to secure a permanent long-term solution for municipal waste disposal.

‘The Kate Valley Landfill removed the need for councils to provide their own separate waste disposal facilities with all the associated costs and compliance’, says Mayor Marie Black. ‘Councils wanted a multi-generational solution so the process and costs of searching for a suitable site wouldn’t have to be repeated this century. It also enabled us to close the small less well-controlled rubbish dumps.’

Consequently, the conceptual design works that would enable a 100-year facility were all considered before the landfill opened to ensure cost-effective operation and development of facilities for the long-term. The engineers identified several potential landfill locations around the upper Kate Valley, where the geological conditions were appropriate to safely store waste. They named these spaces KV1 (the current landfill) and KV2 (the next potential site, subject as always to consenting). KV1 was designed as a series of cells to be developed as waste was received to enable the waste hill to grow in a logical and efficient way, maximising the use of airspace.

The location of auxiliary operating facilities such as the Gareth James Energy Park, which is where methane gas captured from the landfill is used in electricity generators, and the Benevap, that uses landfill gas to evaporate leachate, means they are in the right places to continue being utilised beyond the life of the current landfill. This approach to planning will ultimately save Transwaste, the councils and ratepayers significant amounts of money.

It’s taken 19 years to fill up half the current landfill’s capacity to receive waste. It may take another 19 years to reach capacity, or it might happen sooner. Mr Cox says several factors influence waste volumes, including population growth, economic activity and consumption choices.

‘As the population grows the overall volume of waste produced increases’, says Mr Cox. ‘Records show that during the Global Financial Crisis as economic activity declined waste volumes decreased. During the earthquake rebuild demolition and construction boomed and waste volumes increased. Districts surrounding Christchurch are among the fastest growing in New Zealand, increasing the volume of waste being produced and the need for Kate Valley into the future. However, if residents choose to buy recyclable products, then waste can be diverted from the landfill extending its life.’

Residents and ratepayers within the Canterbury region can be confident Transwaste will continue managing the safe and efficient disposal of their waste for present and future generations.