Using carbon dioxide and methane ratios to estimate methane reductions by landfill cover soils

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New Zealand landfills produce annually about $35 million worth of methane, a powerful greenhouse gas (GHG). From 2013, landfill operators will be charged for their methane emissions. Methane produced at many landfills is potentially oxidised by bacteria (methanotrophs) in cover soils. The GHG Inventory suggests a 10% oxidation value for landfill cover soils. However, our research on a small section of a landfill cover showed 70-100% oxidation was occurring, as determined by using the ratios between carbon dioxide and methane in gas samples collected at the site. These findings demonstrate the potential for some landfill operators to be entitled to exemptions under the ETS.