



COMMUNITY INFORMATION

STEVENSONS ROAD LANDFILL, CRANBOURNE GAS MIGRATION

QUESTIONS AND ANSWERS

August 2009

In 2008, unsafe levels of methane gas emanating from the closed Stevensons Road landfill were detected. This Bulletin provides information on commonly asked questions.

Q1: WHAT IS LANDFILL GAS?

Landfill gas is a mixture of gases produced as waste decays in landfills. There can be more than 200 types of gas produced by landfills but the mixture is mostly methane and carbon dioxide.

Methane is a flammable gas and is explosive in concentrations between 5% and 15% of the total volume of air.

Landfill Gas is most dangerous in enclosed spaces because it can become very concentrated, displacing oxygen from the air and causing fainting or suffocation (asphyxiation).

Q2: WHAT HAPPENED?

The Stevensons Road landfill operated between June 1996 and June 2005 as a municipal tip for the Casey and Frankston Councils. The site is owned by the City of Casey.

All landfills produce gas and liquids (called leachate) as waste decays. Gas extraction systems are built into landfills to remove the gas as it builds up. In this case, local groundwater and high leachate levels within the landfill flooded the gas extraction bores, making them less effective.

The Stevensons Road landfill was established according to landfill standards of the time, modern standards are more stringent

EPA became aware that landfill gas was travelling underground through the soil in March 2006. The City of Casey tested this area for landfill gas and found low concentrations of methane and carbon dioxide.

EPA required Council to install monitoring bores which showed that migration was occurring to the north of the

landfill. No houses were being constructed near the landfill during this period.

In May 2007, Landfill gas was detected in concentrations exceeding the lower explosive limit of methane in a meter box. Council took action to seal the meter box and commenced weekly monitoring of the stormwater drains and electrical pits.

In intervening years the gas continued to build within the landfill. In 2008, EPA received reports provided by the council that indicated there was a need for the environment and the residents to be protected.

Landfill gas was identified off-site up to 200 metres from the boundary of the landfill in stormwater pits, electrical pits and monitoring bores as well as migration into the housing estate north-west of the landfill. About 70 houses north-west of the landfill were significantly affected.

Q3: WHAT WAS DONE BY EPA?

As the owner of the former landfill, the City of Casey is responsible for the ongoing management of the site. This includes preventing any substance leaving the site including gas and leachate.

EPA required immediate action by Council to cease the migration of gas and assess the extent of the landfill gas migration.

EPA issued a Pollution Abatement Notice (PAN) which required the City of Casey to develop a Landfill Gas Management Plan in January 2007. The PAN further required the council to undertake an environmental audit for air to assess the risk of landfill gas on the estate.

EPA issued Council with a Notice of Contravention due to continued breaches of the Pollution Abatement Notice in June 2007.

EPA issued a direction in July 2007 requiring the City of Casey to take all actions necessary to ensure there are no pathways through which landfill gas can be emitted from the premises into Brookland Greens Estate.

In 2008, EPA issued a Clean-Up Notice to further require mitigation of the landfill gas movement. EPA continues to meet regularly with council representatives to ensure Council is taking measures to address the risk posed to the estate from landfill gas migration.

Q4: WHAT ACTIVITIES HAVE BEEN UNDERTAKEN TO REDUCE THE GAS MIGRATION?

The City of Casey have implemented a range of works to address the gas migration.

Landfill Gas Management Infrastructure

An \$11M underground clay and cement barrier. This will create a barrier for migrating gas between the closed landfill and the adjoining residential estate. A gravel trench is being built alongside the barrier to assist gas collection.

Gas and Leachate Extraction

18 new landfill gas extraction wells have been installed on the inside of the barrier to extract the gas impeded by the barrier. A further 15 wells will be installed.

In addition, leachate infrastructure is also being improved.

Landfill Gas Monitoring

Monitoring data from bores and from homes indicates a general downward trend in the number of methane detections and methane concentration.

Landfill Management Plan

On 20 July 2009, City of Casey submitted a Landfill Management Plan to EPA. The Plan has been reviewed and endorsed by an Environmental Auditor.

The plan describes measures to ensure that the landfill is appropriately managed into the future. Safety of the residents and protection of the environment is the primary goal of this plan.

Q5: IS THERE STILL A RISK TO LOCAL RESIDENTS?

Expert opinion suggests that the installation of the barrier and improved extraction system will greatly reduce gas migrating into neighbouring areas.

Current monitoring is still detecting methane levels above the higher explosive limit in and around Brookland Greens estate, up to 600m to the northwest and southwest of the landfill.

At 21 August, there are only two homes with methane detections below the lower explosive limit (5% v/v concentration of methane).

EPA recommends that residents retain in-home monitors until Council provides assurance there is no longer an impact from landfill gas in the estate.

If unusual odours are noticed within your home, immediately turn off all gas appliances, including pilot lights, ventilate the home by opening windows and doors, and notify the Council immediately.

If you notice any unusual odours near stormwater pits or power pits, notify the Council immediately.

Q6: WHO ARE THE RESPONSIBLE AUTHORITIES?

As the owner and operator of the former landfill, the City of Casey is responsible for the ongoing management of the site. This includes preventing any substance leaving the site including gas and leachate.

EPA is the Victorian Government's independent environmental regulator responsible for protecting the environment. EPA continues to monitor Council's performance in managing their environmental obligations under the *Environment Protection Act 1970*.

City of Casey

Customer Service Centre ph: 03 9705 5200

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EPA

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