

# Report summary: landfill odours and human health



Environment  
Protection  
Authority Victoria



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Community information

***A review of international literature and air monitoring data does not show that living near a non-hazardous landfill is associated with adverse health effects for residents.***

## Purpose of this community information sheet

This publication summarises the findings of the report *Air emissions from non-hazardous waste landfills – update of 2013 literature review*, which included air monitoring data from Hallam Road landfill in 2017.

The community living near the Hallam Road landfill requested information on the effect of landfills on human health. In response, Environment Protection Authority Victoria (EPA):

- commissioned risk assessors, enRiskS, to produce an updated literature review into the effects of landfill odours on human health. This was first published in 2018 and updated in 2019 and 2020.
- conducted and commissioned air sampling at the Hallam Road landfill in 2017. This data was reviewed by enRiskS as part of its review of landfill air data from around the world.

The aim of this work was to provide the community with information on potential links between air emissions from non-hazardous landfills<sup>1</sup> and potential health effects on local communities.

The results from this work are presented in the 2018 report: *Air emissions from non-hazardous waste landfills – update of 2013 literature review*.

<sup>1</sup> A non-hazardous waste landfill is a municipal landfill that accepts household waste and non-hazardous waste from industry including the construction industry.

## Information used in the report

The report focused on information related to non-hazardous landfills (Category C landfills). Most landfills in Victoria, including the site in Hallam Road, are Category C landfills.

The report considered:

- RMIT's literature review in 2013
- a review of international health studies published from 2013 to 2016
- data on gases and volatile organic compounds (VOCs) from:
  - the literature reviews
  - Hallam Road landfill sampling in 2017.

## Review of landfill studies around the world

### Health studies from the review

The health studies in the review considered possible associations between living near a landfill and health outcomes. The following health outcomes were studied:

- reproductive outcomes such as birth defects and low birth weight
- overall cancer rates
- lung cancer and respiratory diseases
- cancer deaths and cardio-respiratory disease
- gastric cancer.



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The report concluded that there was not enough evidence to show any link between living near a non-hazardous waste landfill and these adverse health outcomes. The lack of evidence was due to:

- no health effects being observed
- insufficient data in some studies
- limitations of the study design.

## Air data from the review

The review looked at air emissions data collected from landfills around the world. The focus was on data collected on landfill boundaries or offsite at nearby community areas. The review identified which landfill gases were in the air near landfills.

Seven chemical groups of interest were identified:

- organic acids
- aldehydes
- alcohols
- aromatic hydrocarbons
- chlorinated hydrocarbons
- organosulfur compounds
- others (ammonia, cyclohexyl isocyanate and cyclohexyl isothiocyanate).

## Hallam Road landfill air monitoring

In addition to the review of air quality data, EPA monitored the air for landfill gases at a variety of locations at and around Hallam Road landfill, including ambient air monitoring in nearby communities. Monitoring focused on six major groups of chemicals, which were measured against acute (short-term) effect guidelines:

- ketones
- alcohols
- aromatic hydrocarbons
- aliphatic hydrocarbons
- chlorinated hydrocarbons
- esters.

Some of these chemicals are the same as those identified in the international review.<sup>2</sup>

All of EPA's monitoring results from Hallam Road landfill were below the odour or acute health effects exposure guidelines. This indicates that landfill gases would not have caused short-term health effects in residents living nearby at the time.

## Report conclusions

The detailed review of the data and literature did not show that adverse health effects were associated with living near a non-hazardous landfill. However, the report also highlighted that the absence of adverse health effects does not mean that the community is not affected by landfill odours. The report noted that some gases and volatile compounds released from landfills can be odorous even at low concentrations and may affect the wellbeing of the local community.

## EPA's position

We acknowledge that odours can adversely affect the wellbeing of communities.

We rely on the public to report offensive odours so that they can be addressed through our regulatory framework.

To report odours from landfills, other industries, agriculture or businesses visit the EPA website: [epa.vic.gov.au/report-pollution](http://epa.vic.gov.au/report-pollution) or call the 24-hour Pollution Hotline on 1300 EPA VIC (1300 372 842).

## More information

[Landfill gas fact sheet](#) (EPA publication 1479)

[epa.vic.gov.au/for-community/environmental-information/odour/about-odour](http://epa.vic.gov.au/for-community/environmental-information/odour/about-odour)

<sup>2</sup> Sampling of three of the chemical groups (alcohols, aromatic hydrocarbons and chlorinated hydrocarbons) identified during the international literature review was performed. Aromatic hydrocarbons

and chlorinated hydrocarbons were measured against acute (short-term) effects, instead of chronic (long-term) effects (as sampled for in the international literature) during the sampling program.