



CITY OF
MITCHAM

July 2021

Pasadena historic landfill Community update

Background

The City of Mitcham entered into a Voluntary Site Contamination Assessment Proposal under the *Environment Protection Act 1993* in September 2020. It details the intended scope of work, timeframes and objectives for an environmental investigation associated with a former landfill in Pasadena.

Environmental investigations at the site have been ongoing since the mid 1990s, undertaken by a range of organisations, including the Environment Protection Authority (EPA) of South Australia.

The former landfill was used from 1959 until the early 1960s for the disposal of general household rubbish.

2018/19 sampling work

Testing for landfill gas at the former landfill site was previously undertaken in 2018.

The data showed there was landfill gas present within the lower waste layer of the former landfill, but that the landfill gas concentrations in the layers above it and in natural ground around the landfill were very low.

In 2019, the EPA commissioned monitoring for landfill gas in and around properties near the southern boundary of the former landfill.

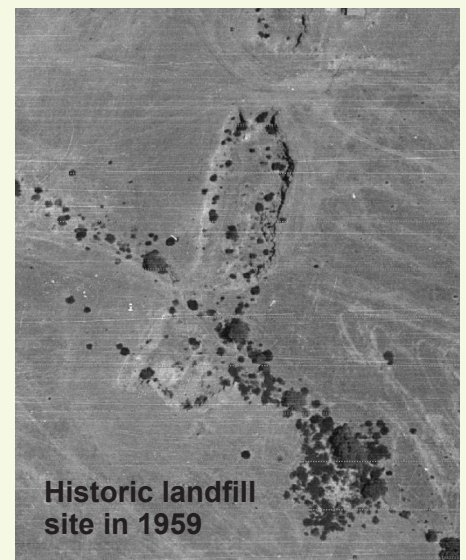
No unacceptable risks to human health or property were found as a result of the sampling and analysis work completed in 2018/19.

It was identified that more environmental investigation work needed to be done to better understand the nature and extent of potential environmental impacts of the former quarry / landfill and its footprint.

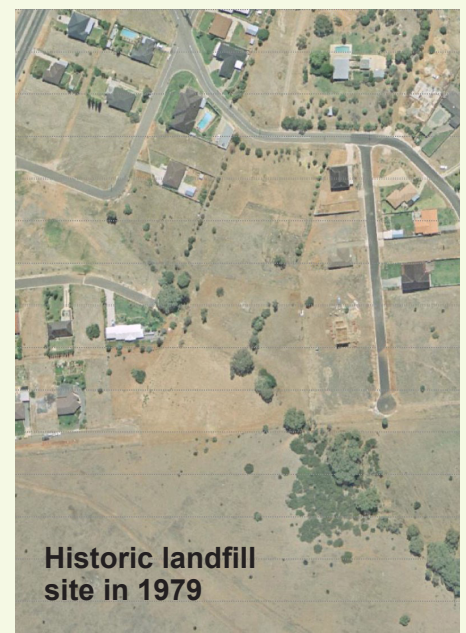
Work to date in 2021

The scope of the environmental investigation works during the first half of 2021 has included the installation of seven new groundwater wells and eight new landfill gas bores.

Sampling of new and existing wells and bores and sampling and monitoring of landfill gas in selected enclosed spaces has also been completed.



Historic landfill site in 1959



Historic landfill site in 1979

Historic Pasadena landfill

Conceptual Site Model

The location of the former landfill, which was in use from the late 1950s until approximately 1969, is shown by the arrows on the image on the right.

After this time, the private landowner continued filling the site with soil and various construction and demolition wastes, forming a “cap” over the general household waste.

The diagram below is a Conceptual Site Model - or a simplified visual cross-section - taken across a portion of the environmental investigation area from Barcroft Street to Yorke Drive - to show characteristics of the historic landfill and how landfill gas and water might be moving.

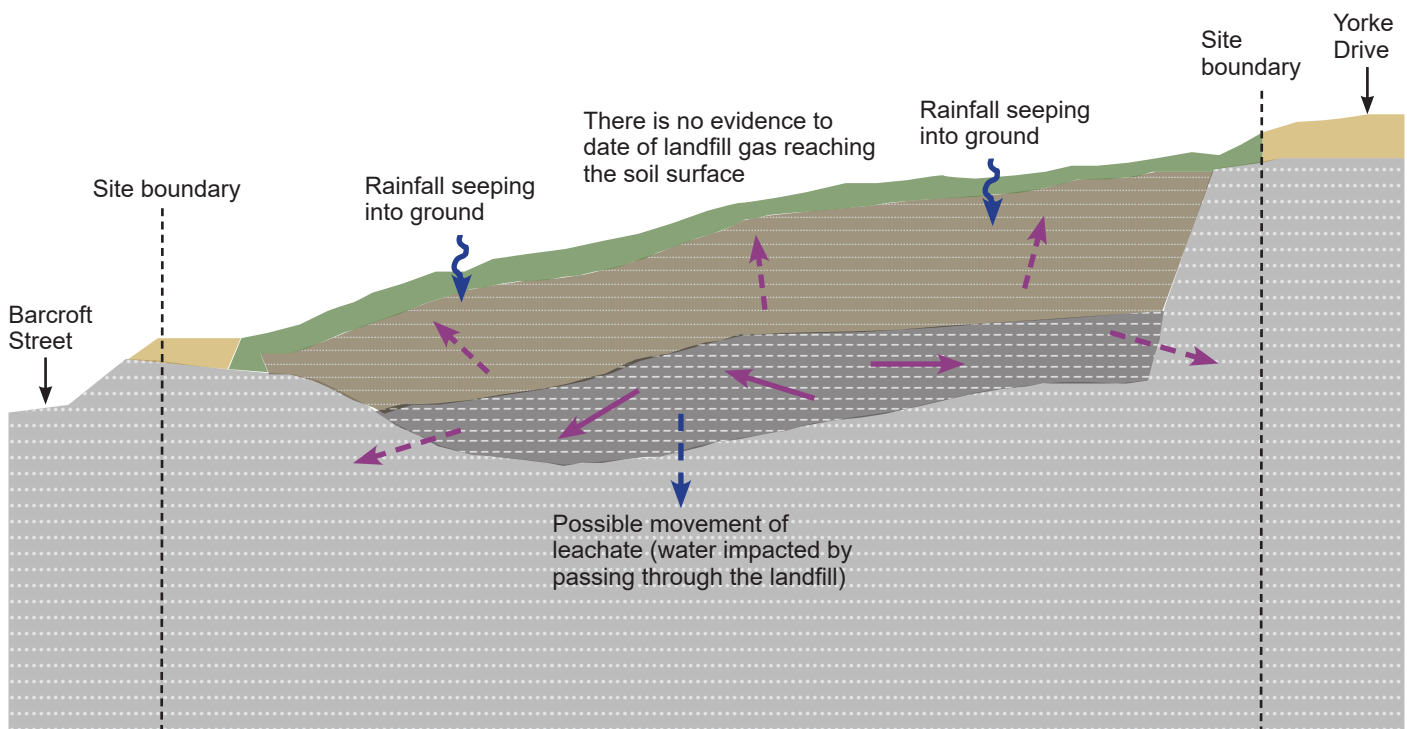





Figure is not to scale


 Clay cap, covered with vegetation on the surface


 Natural clay, covered with vegetation at the surface

 Rock, which includes quartzite and siltstone

 Landfill gas generation

 Possible landfill gas movement

 **Soil and fill layer:** this is a mixture of sandy clay and refuse including brick, concrete, tiles and bitumen, extending to a maximum of approximately 5 metres below ground level. This waste is inert - it does not contain materials that decompose to generate landfill gas.

 **Lower waste layer:** this is made up of rubbish including newspaper, plastic, glass, clothing scraps, rubber and soil, extending to a maximum depth of approximately 13 metres below ground level. This layer includes what is known as putrescible (organic) waste, which can generate landfill gas as materials decompose.

Frequently asked questions

What gases are produced by the breakdown of waste in landfills?

Landfill gas forms from the breakdown of organic waste in landfills. Landfill gas is typically made up of 99% methane and carbon dioxide.

Methane and carbon dioxide are naturally occurring gases which are present at low concentrations in the earth's atmosphere.

Is the Pasadena landfill still producing landfill gas?

The Pasadena landfill is nearly 60 years old. The testing data has shown that it is unlikely to still be actively producing landfill gas.

Even if a landfill has stopped producing landfill gas, landfill gas can still be present as a result of being trapped within layers of waste and soil.

In these situations, landfill gas may move to reach areas outside of the landfill site boundaries.

How is potential risk from landfill gas identified?

Finding landfill gas does not automatically mean a risk is present.

The presence of landfill gas is one of the factors taken into account when assessing potential risk to properties surrounding, or over, a former landfill.

For a potential risk to be present from landfill gas, concentrations would need to reach a level that could cause harm and there would need to be a pathway for those concentrations to reach people.

In the case of the Pasadena historic landfill, there is no evidence to date of landfill gas reaching the soil surface or impacting people's homes.

Why are there risks associated with the buildup of landfill gas?

Methane can intrude into buildings and confined spaces. Methane becomes more hazardous as its concentration builds up over time and it has the ability to combust (between 5–15% of indoor air).

Carbon dioxide is heavier than the air around us and can sink towards the ground in enclosed spaces. It becomes more hazardous as its concentration builds up and can cause symptoms such as nausea, dizziness and headaches.

What are the results from the landfill gas sampling associated with the Pasadena historic landfill conducted to date in 2021?

Measurements of landfill gas associated with the former Pasadena landfill have been undertaken via gas monitoring bores within and surrounding the landfill. The following information is recorded during each landfill gas monitoring event to support the analysis of results:

- Gas concentrations
- Gas pressure
- Gas flow (movement)
- Atmospheric pressure and rate of change
- Weather conditions and temperature
- Ground conditions

While methane gas has been found in the **lower waste layer** (refer diagram to left) of the historic landfill, this methane is generally trapped beneath 4 - 5 metres of soil and fill. It also appears this methane has limited movement into the rock around the edge of the landfill.

No readings of methane have been found in the landfill gas bores in the Quinton Court roadway and the access lane between Quinton Court and Thiselton Crescent.

Methane at depth has been recorded in a landfill gas bore in the Quinton Court Reserve on the edge of the former quarry, which is consistent with other findings that methane generally appears trapped within the confines of the footprint of the historic landfill.

Carbon dioxide has been measured in most of the landfill gas bores, however it also does not appear to be moving.

More work needs to be done to distinguish what is background (naturally present) carbon dioxide versus what might be caused by the landfill.

Has indoor air testing for methane and carbon dioxide been completed?

In 2018, the Environment Protection Authority of South Australia conducted indoor air testing at properties adjacent to the southern portion of the former landfill, as requested by residents.

No detectable concentrations of methane or carbon dioxide were found.

Additional indoor testing at some properties was recently undertaken as part of the Voluntary Site Contamination Assessment Proposal and once again, methane and carbon dioxide were not detected above background levels.

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Upcoming works

The environmental investigation works completed to date have shown that the south-eastern extent of the quarry / landfill is still not fully understood.

As a result, some further works are planned, which fall within the existing scope of the Voluntary Site Contamination Assessment Proposal.

The works will include the installation of additional landfill gas bores - which will be used for ongoing monitoring - and test pits on the site of the former landfill.

Test pitting involves the excavation and removal of soil in a small area to a depth of about 4 metres. This enables the soil profile, or the layers in the soil, to be inspected, sampled and tested.

Further monitoring of all existing landfill gas bores and groundwater wells will be undertaken in coming months.

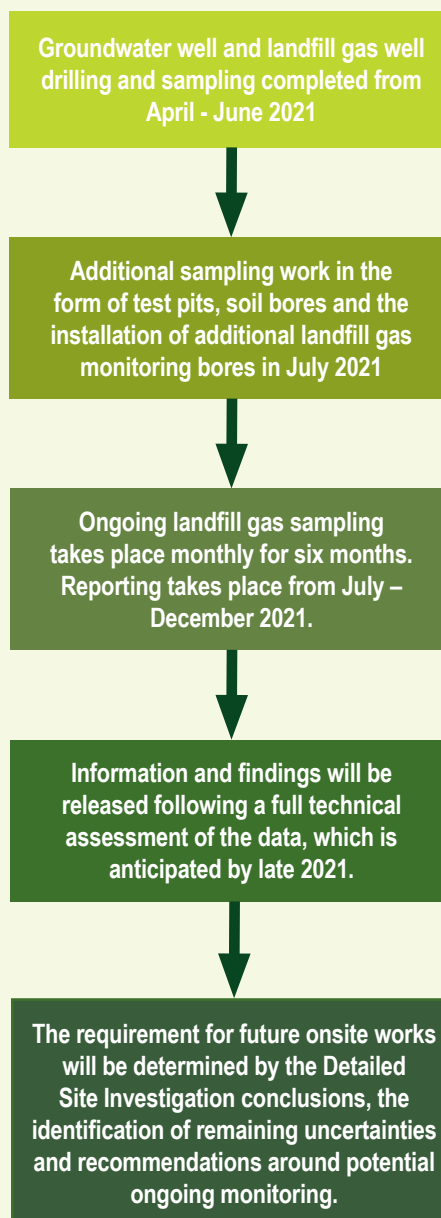
Release of findings

Information and findings, in the form of a Detailed Site Investigation report, will be released following a full technical assessment of the data, which is anticipated by late 2021.

A Detailed Site Investigation report determines the impact of former land use activities on a site.

The results in the Detailed Site Investigation report are often compared to measures and guidelines which have been developed for the protection of human health and / or land use.

Project timeline



Who can we talk to for more information?

The City of Mitcham has engaged a local, dedicated engagement team to work with property owners and residents to address their questions and any issues they have relating to the environmental investigation.

Should you wish to meet with, or speak to the team, please contact:

ProManage (now part of TSA):

Leslie Wapler: 0428 063 924

leslie.wapler@tsamgt.com

City of Mitcham

John Valentine: 8372 8888

You can find further information at:

<https://www.mitchamcouncil.sa.gov.au/lot-101-port-lincoln-boulevard-pasadena>

https://www.epa.sa.gov.au/environmental_info/site_contamination/assessment_areas/pasadena