

Leachate Discharge from the Taipari Strand Closed Landfill

The following resources relating to the Taipari Strand Landfill site were reviewed for the presentation at the meeting of the Te Wai O Parera Rivercare group in October 2019

- ▶ Auckland Council records obtained from the council website
 - The property file for the site includes consultant reports on landfill discharges, controls and maintenance required for the granting of the site discharge consent.
 - Technical reports on marine ecology, sedimentation and contamination.
 - The Waitakere City Council Twin Streams report on sediment quality
- ▶ Auckland Regional Plan: Air Land and Water 2013
- ▶ The Auckland Council Geomaps mapping service
- ▶ The Auckland Library Heritage Collection
- ▶ A Brief History | Te Kawerau a Maki: www.tekawerau.iwi.nz/history
- ▶ An Assessment of Marine Ecological Effects of motorway development commissioned by the EPA.

These records included historic records of landuse following Crown purchase and European settlement in the 19th century, urban, commercial and industrial development in the 20th century, the authorisation of the reclamation and landfill operations between 1965-1974, and landfill discharge consent documents required under the RMA. Council approved discharge controls required by the consent application controls included discharge monitoring and reporting, and maintenance works. It is noted that the maintenance program is included as a key project in the Auckland Council 10-Year Budget 2018-2028: Volume 2.

Receiving environment

Henderson Creek drains the largest subcatchment to the Central Waitemata Harbour. Urban development has led to a high level of impervious surface in the area, which prevents rainfall from soaking into the ground. This results in the Henderson Creek being classified as a highly disturbed ecosystem receiving road and stormwater runoff. It retains ecological or conservation values but for practical reasons it may not be feasible to return them to a less disturbed condition.

Landfill Discharges

The Auckland Regional Plan: Air Land and Water 2013 Schedule 11 sets the ANZECC water quality guideline for the protection of 80% of Marine species to maintain the ecological values of highly disturbed ecosystems.

The results of groundwater / leachate monitoring reported to the Auckland Council in 2015 and 2016 show concentrations of ammoniacal nitrogen above the guideline limit, with the concentration of all other monitoring parameters less than the guideline limit. The Council considered the effect of the ammoniacal nitrogen discharge is limited by a number of factors including:

- ▶ The long-term operation of the leachate collection system;
- ▶ The relatively low permeability of the surrounding geology (marine sediments and alluvial sediments below those);
- ▶ Natural attenuation and biodegradation with sediments; and
- ▶ The tidal flow within Henderson Creek .

Sediment quality

Copper, lead and zinc have been selected as primary indicators of sediment quality, with the ANZECC Interim Sediment Quality guideline (ISQC-Low) for the protection of aquatic species used to assess the environmental impact. This guideline is set in the Auckland unitary Plan for the protection of aquatic species.

Sediment quality at twelve locations in the upper, middle and lower sections of the Henderson creek has been reported. These studies show no measurable differences in copper, lead and zinc concentrations upstream, adjacent to and downstream of Taipari Strand

Conclusions

Landfill leachate is and will continue to discharge from Taipari Strand

The leachate is aged and concentrations of chemical pollutants, except for ammonia, are less than the regulated trigger levels. Apart from ammoniacal nitrogen these will have little or no effect on the highly modified receiving environment into which the leachate discharges.

The regulator considers that the effects of ammoniacal nitrogen are mitigated in the receiving environment.

The leachate discharge does not show any measurable effect on sediment quality.